WHAT DOES IT MEAN TO HAVE PRIVATE HEALTH INSURANCE COVERAGE?

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SUMMARRY

The health insurance is one of the most important insurance concerning the public since it serves to protect insured individuals from potential financial loss. This has been based on the theory of expected utility and the assumption that people generally prefer to lower risk uncertainty. In the early 1960s, Arrow argued that because of the risk-avoidance aspect, health insurance has been desirable. Nonetheless, the generous coverage of some health insurance scheme would create large moral hazard by which health insurance becomes undesirable (Pauly 1968).

In countries of social security system, healthcare is mostly financed by public-based insurance. However, the private insurance sector has been considered as an alternative source of healthcare financing and a tool to enhance system capacity. Although it constitutes only a small share of the total healthcare expenditures, the existence of the (PHI) has become a matter of extensive debate. This debate backs to the ability of the private insurance sector to provide efficient healthcare while maintaining it's profit motive.

In Germany, health insurance is provided by the statutory and the private sectors. While the statutory health insurance (SHI) sector provides two types of insurance; compulsory and voluntary, the private health insurance (PHI) sector offers only voluntary health insurance. The compulsory health insurance of the (SHI) is obligatory for people whose annual pre-tax income is below the income ceiling limit (*Versicherungspflichtgrenze*). Individuals whose annual pre-tax income is above the income ceiling limit are eligible for the voluntary health insurance.

The demand for (PHI) in Germany has been growing; alone in 2004 around 400.000 individuals chose one of the (PHI) coverage schemes. The arguments stand behind this growing demand have mostly focused on three possible factors; the high contribution rates of the (SHI) sector, the individual's level of income and the quality gap in healthcare between both insurance sectors.

This study has been undertaken to verify these arguments. This work seeks to find out the relationships between the individual's type of health insurancre and the non-medical aspects of healthcare. The study raises the following questions: 1) is there a quality gap in healthcare between both insurance sectors, in other words we want to figure out how individuals of both insurance sectors perceive the quality of healthcare? 2) Do the privately insured individuals enjoy more privileges than the statutory insured individuals? And 3) what possible factors can be linked to the individual's type of health insurance.

For examining these issues, the study uses the cross-sectional design, which addresses contemporaneous measurements of the study cases within a narrow time span. Using telephone interviews, data are collected from 150 randomly selected individuals on the pattern of healthcare utilization, the type of health insurance, the health status as well as the socio-economic characteristics.

DEDICATION

THIS WORK IS DEDICATED TO PALESTINE &

MY FAMILY

ACKNOWLEDGEMENT

ERKLÄRUNG

Ich versichere, dass ich die Doktorarbeit im gesamten umfang selbständig verfasst habe und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt habe. All Stellen, die dem Wortlaut oder dem Sinn nach anderen Werken entnommen sind, habe ich in jedem Fall unter genauer Angaben der Quelle deutlich gekennzeichnet.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION BACKGROUND RATIONALE AND RESEARCH PROBLEMS

CHAPTER

1

The health insurance is one of the most important insurance concerning the public. It serves to protect insured individuals from potential financial loss. This has been based on the theory of expected utility and the assumption that people generally prefer to lower risk uncertainty. In the early 1960s, Arrow argued that because of the risk-avoidance aspect, health insurance has been desirable. Nonetheless, the generous coverage of some health insurance scheme would create large moral hazard by which health insurance becomes undesirable (Pauly 1968).

In countries of social security system, healthcare is mostly financed by public-based insurance. However, the private insurance sector has been considered as an alternative source of healthcare financing and a tool to enhance system capacity.

Although it constitutes only a small share of the total healthcare expenditures, the existence of the (PHI) becomes a matter of extensive debate. This debate focuses the ability of the private insurance sector to provide efficient healthcare while mainting it's profit motive.

Proponents of (PHI) argue that, this sector can help governments overcome challenges facing health system such as escalating costs. Given the reality that the (PHI) sector is part of a competitive market, it would drive insurers to improve services and efficiency of insurance policies. In addition to that, the (PHI) sector gives people the opportunity to purchase luxury healthcare services. However, in this context, some could imagine that, the privately financed health care might be perceived as more efficient than the publicly financed one (Vera-Hernandez, Angel Marcos 1999).

Contras of the (PHI) sector argue that, the ability of this sector to provide efficient healthcare services (in terms of health outcomes) has not yet been approved. In other words, a healthcare service that is covered by multiple competitors has high administrative costs. This could lead to shifting of financial resources away from the actual health care services (Arrow, K.J. 1963, 1965 and 1974). Given the reality that the the (PHI) sector is based on profit; competition among insurance companies could drive them to insure healthy individuals (a situation known as cherry picking). That situation can lead to pooling of less healthy individuals or those with disabilities in the public sector. The competition might go in a less desired direction; to creation of adverse selection (asymmetry of information between insurance policy sellers and purchasers) rather than in focusing on the quality of healthcare services.

In Germany, health insurance is provided by the statutory and the private sectors. While the statutory health insurance (SHI) sector provides two types of insurance; compulsory and voluntary, the private health insurance (PHI) sector offers only voluntary health insurance. The voluntary coverage of the (PHI) can be either complete (same like the statutory) or supplementary (covers what the statutory does not cover). The compulsory health insurance of the (SHI) is obligatory for people, whose annual pre-tax income is

below the income ceiling limit. Individuals whose annual pre-tax income is above the income ceiling limit are eligible for the voluntary health insurance (Income ceiling limit for 2006 is 42.750 Euro in Andersen and Schwarze 1998 Greß 2002).

In 2004 around 400.000 individuals chose one of the (PHI) schemes (optional hospital benefits, outpatient insurance, insurance for long-term health care and insurance against loss of income). Between 2002 and 2003, about 300.000 of the statutory (synonym to public) insured individuals took out outpatient care of the (PHI).

Figure (1) Growth of (PHI) from 1995 to 2003
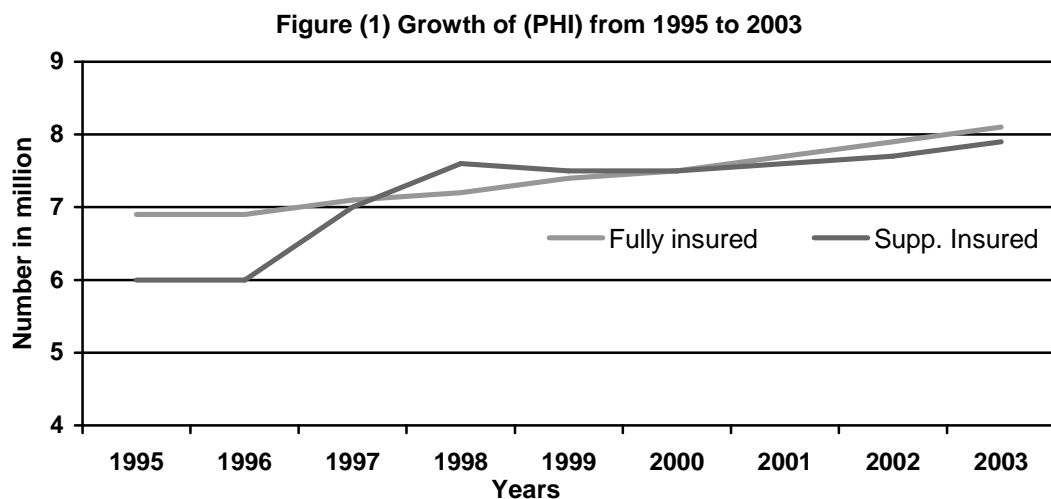
Source: Private Health Insurance Association (PKV 2003/2004)

The conventional explanation of the increasing demand for private insurance coverage might be linked to factors such as the shortening of the benefits package of the (SHI) and the introduction of the (SHI) Modernization Act. This act has enhanced more cooperation between the (SHI) and (PHI), which in turn makes it easier for individuals to take out supplementary insurance coverage (Busse 2004 & 2005). *For more about the switching numbers between both insurance sectors, see chapter (2) Historical Approach.*

This phenomenon is of great interest to investigate. The literatures that have been examined on both the local and international arena revealed that, the growing demand for the (PHI) is linked to the increasing health insurance premium of the public insurance sector (Rohweder 1996, Andersen and Schwarze 1998, Anderson, H. et. al., 1997-2001 and Greß 2002). Some literature, added the *individual's perception* of *quality* as a potential determinant of demand for (PHI) (Costa and García 2003, Rodríguez and Stoyanova 2003, Besley and Preston 2003, Paccagnella, et. al. 2005).

We argue that, theses studies have simplified the links between the individual's perception of quality and the growing demand for health insurance. They measured the perception of quality by asking patients to rate the quality. This method could not be used as an actual measurement of the perception of quality. Since individual's perception can be fluctuating and lack stability. Therefore, we try in this study to give a more holistic measurement to the individual's perception of quality.

This study is warranted for the following reasons:

1. It uses empirical evidence from a randomly selected sample of insured individuals from both insurance sectors (public and private). The individuals will be asked about their contribution rates, their income and about their perception of quality of healthcare.

2. The perception of quality will be presented as an *indicator* of three aspects; the waiting times, the velocity in getting appointments with doctors and the time devoted by doctors for consultation and treatment. The selection of these quality aspects has been based on an intensive review of studies on the peoples' perception of quality of healthcare.

3. We choose the above mentioned aspects to see, whether differences exist in healthcare between the private and the public insurance policyholders. This would help health policy-makers understand the accessibility to healthcare.

4. This study reports on the *contribution rates* to health insurance, their development and differences between the insurance sectors. Then we use, the contribution rates in addition to income to figure out, whether they have impact on the individual's decision of choosing health insurance.

Before we start, we would like to give the readers a better understanding of what does the perception of quality mean, it's definition, conceptual framework and the methodological developments? Then we move to address the health insurance contribution rates as well as the individual's income.

QUALITY

The efforts around improving quality belong to the highest priority of an organization, regardless of whether this organization is an industry, company or health clinic. However, interpretation of quality is confined to be not an easy task. Quality as a term is mostly used in combination of something; we say for example the quality of goods and services. In the following section, we give an introduction of quality, with large focus on the individual's perception of quality.

1. Definition

According to Europanorm DIN EN ISO (55350-11, 1987-05), quality is defined as the total characteristics of a unit in accordance to it's convenience to fulfill users' expectations (Deutsches Institut für Normung 2000 in Ute Walter 2007). According to this definition quality has the following properties:

- Affordability; which means that this unit should be able to deliver what is expected and

- Expectations; which mean that the user's expectations should also be set as a top priority of this unit.

In the scientific community, researchers define quality based on three columns; user-based quality, product- and manufacturing-based quality. While the user quality is consumer-oriented, that means, whether the product is meeting the expectations of the consumer or not. Product and manufacturing quality represents the standards of the production which are set by the manufacture itself or by the international bodies.

In healthcare, definition of quality backs to the renowned American researcher Donabedian. He provided noteworthy insights in the definition of quality. Donabedian distinguishes among *structure*, *process* and *outcomes* quality. The National Institute of Medicine defines quality as the extent to which a health entity increases the likelihood of expected health outcomes (National Institute of Medicine 1990). Empirically, researchers distinguish between subjective (also called patient's perception of quality) and objective quality. While the objective quality refers to the properties of healthcare goods or services and it's evaluation is based on standard criteria. The subjective quality refers to the consumers' evaluation of healthcare services (Badura 2002) and it's evaluation is based on individual's standards (Ollenschläger, G. 2001).

2. The Conceptual Framework

For many years the patient's perception of healthcare has been extensively investigated. Remarkable efforts have been made towards developing instruments to measure patient perception of healthcare (Cleary 1999, Bruster et. al., 1995, French 1981 in Badura and Strodtholz 2006). Sofaer and Firminger (Shoshanna Sofaer and Kirsten Firminger 2005) set up a conceptual model in which they illustrates the process of how patients evaluate quality of healthcare (*see figure 2*).

Figure (2) Conceptual Model of Development of Patient Perceptions of Quality[1]
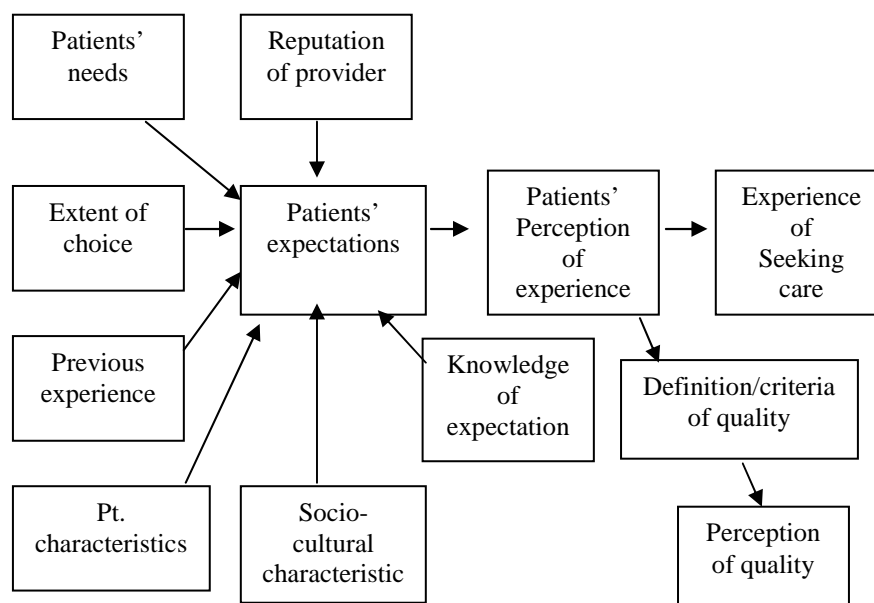
The perception of quality is resulting from the interaction between individual's experiences and expectations. Experience is correlated to individual factors such as social class, age and education, whereas, expectation is correlated to the system, such as personal, and non-medical attributes of the healthcare (such as waiting lists). However, factors affecting patient experience and expectation are in some situations interrelated. For example, the factor time; the same individual may give different ratings to satisfaction in two different points of time. This can be due to emotional or environmental changes.

Sometimes patients prefer to know how long other patients have waited to see their doctors rather than knowing how satisfied they are (Edgman-Levitan S, Cleary PD 1996). So, it is recommendable to ask the patient specific questions on specific period of time, this would minimize subjectivity.

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[1] Adopted from Shoshanna Sofaer and Kirsten Firminger 2005

A large number of studies have discussed how patient rate the quality of healthcare. While some of them studied quality from the perspective of healthcare provider, others were seeking to learn about quality from the healthcare consumers. The studies that focused on the perception of quality of healthcare have elicited wide range of definitions which have been made by the patients themselves (Gerteis M., 1993, Infante FA., 2004, Larrabee JH., 2001, Badura, et. al; 2006, Irurita VF. 1999, Radwin L. 2000). These definitions can be put into the following categories; patient-centred care, access, communication, efficiency and the fourth category represents the Donabedian's triangle of quality (process, structural and outcome quality). These categories are summarized in figure (3).

2.1   The Patient-Centred Care

The patient-centred care has been the focal point of several studies. The term seeks to ascertain that patient's emotional and physical needs are met. In contrary to disease or clinician-centred care models, patient-centred care model aims to customize healthcare to patient's legitimate preferences. In the previous two models, healthcare providers especially physicians have almost taken the treatment decisions based on clinical experience and health data. In the patient-centred care model, patients become active participants, so they can receive healthcare designed to their needs and preferences. Studies have shown that proper treatment modalities have depended on the patient's preference for the different health outcomes (Wennberg JF. 1995, Barry MJ. et. al. 1995, Braddock CH 3rd. et. al. 1999).

2.2   Access to healthcare

Patients should have access to an adequate level of healthcare. Access to healthcare should be based on benefits and needs. Moreover, patients have reported access concerns and barriers; such as availability of physicians, languages and socio-economic characteristics of patients. (Sarah Bowen 2001, http://www.kultur-gesundheit.de/, Borrell, C. et. al. 2001).

2.3   Communication

Communication between healthcare providers and patients has been gaining increasing attention. The relationship between patients and doctors are turned to be complex, since this relationship is non-equal, emotionally-laden and non-voluntary. The purpose of the communication between patients and doctors serves to exchange of information and thus makes treatment. Several studies have shown that good interpersonal relationship between doctors and patients leads to better health outcomes (L.M.L. Ong et. al. 1995**,** Nicky Britten**,** et. al. 2000, Cathy Charles, et. al. 2000).

Figure (3) the Categories Defintion of Quality Perception

Definition Categories

Patient-centred care | Access to healthcare | Donabedian Triangle | Efficiency | Communication

Respect for patient's values and preferences

Emotional support & Physical support

Enhancing doctor-patient relationship

Family and friends involvement

Protecting patient's privacy and confidentiality

Decision-sharing and participation

Listening

Provision of information

Education

Counselling

2.4   Efficiency and the triangle definition of quality of Donabedian

Nourished by public interest and growing pressure on policy makers, the concern over the quality and the outcomes of healthcare has been increased. Several studies have revealed patient's concern about the desire of having well-educated and competent health personal. Not less importantly is the patient's concern about the effectiveness of treatment and the accuracy of diagnosis (Michael D. Rosko 2005, Jonathan Watson and Pavel Ovseiko 2005). Efficiency of healthcare also involves efficient referral process, short waiting times and velocity in getting appointment. When it comes to Donabedian's definition of quality, patient's perception of quality can be seen as process and structure quality. This can be translated of how clean are the rooms healthcare facilities, how polite is the health personal and so on.

3. Methodological Development

Bringing knowledge about patients' perception of quality is better accomplished through conducting patient survey (Cleary 1999 and Bruster et. al., 1994). This method of data collection backs to the 1950s, when some private clinics in the USA integrated poorly developed patients' surveys in their marketing-strategies (Davies 1994. In the 1980s, patient's participation in the delivery of healthcare has gone a step deeper, some researchers called it "Patient's view" (Armstrong 1984 and Lachmund 1987 in Strodtholz and Badura 2006).

In the year 1998, SERVQUAL was developed by a group of expertise. SERVQUAL is a standardized scale for measuring quality of services and the consumers' perception of quality. Although the developers of this scale have contended that, each industry is unique in it's aspects, there some shared dimensions of all industrial services. These

dimensions are applicable to service-providing organizations in general; the dimensions are:1) tangibles-physical facility, equipment and personnel; 2) reliability and ability to perform the promised service dependably and accurately; 3) responsiveness and willingness to customize services; 4) confidence; and 5) empathy in caring individuals (Parasuraman A, Zeithaml VA, Berry LL 1988). Despite it's shortcoming in incorporating expectations into the perceived quality, SERVQUAL is widely used to assessing the patient's perception of healthcare.

Between 1994 and 1995, the Agency for Healthcare Research and Quality developed a consumer-based instrument for the measurement of quality which is called Consumer Assessment of Healthcare Providers and Systems (CAHPS). The CHAPS is public-private mix initiative to developing standardized surveys of patient's experiences with healthcare. The surveys include questions about the dimensions of interaction and communication between patients and clinician and access to healthcare (for detailed information visit; https://www.cahps.ahrq.gov/default.asp).

Why Patient's Perception of Quality is Important?

For many years the evaluation of healthcare quality was based on professional standards. Now, the patient's perception of healthcare has been increasingly integrated into the evaluation process. Since patients can provide essential information about the effectiveness of healthcare services, through their compliance, they also can determine the outcomes of healthcare (Blegen MA. 2000). Measuring the individual's perception of healthcare quality is not expensive and does not rely on the quality of data that are documented in health records (Palmer RH. 1991, Racine JF. 1995 and Wensing M, Grol RSA 1994).

The individual (patient) is important, he is considered as the source of interaction in the healthcare delivery. So, in order to achieve quality we need to adjust healthcare services based on his needs and values. This importance has been driven by two forces; the market-oriented health policy and the growing emphasize on the delivery of patient-centred healthcare (Lauver DR. et. al., 2002, Lewin SA. et. al., 2002, McLaughlin CP and Kaluzny AD. 2000 and Mead N and Bower P. 2000).

The market-oriented force focuses on health reform and costs. Supporters of market-oriented policy state that, the healthcare system would function more efficiently (high quality and low cost) if the historic mistakes are recognized and reduced. The healthcare system has been for a long time monopolized by the healthcare providers particularily physicians, who determine the type and the amount of healthcare delivery (Starr P. 1982, Enthoven A. 1993). This pattern has been broken by the emergence of new healthcare coverage purchasers such as employers, employees' unions and public agencies. However, one can not judge whether this new purchasers were eager to reduce their costs or shift the focus on the health status of their employees. At least, we can say they succeeded to make patients more relevant by trying to serve the interests of their employees.

The second force is the patient-centred care, it seeks to customize care to meet patient's needs. A patient-centred healthcare solicits to establish three angles relationship; provider, family and patient to ensure that decisions are made to meet patient's needs and preferences (Hurtado M.P. et. al., 2000). The institute of Medicine (IOM) distinguishes between the healthcare one has, and the healthcare one could have. It has attributed the gap (the IOM called it Chasm) to the fact, that patient has to adapt to the customs of healthcare entity and it's professionals rather than receiving healthcare

services that focus on his needs and preferences (IOM 2000). This has been forcing policy makers for more patients' decision sharing. Previous studies have indicated that patients who were actively participating in their healthcare have shown better outcomes than those who were less participating (Holman H. and Lorig K. 2000 and Wagner EH. et. al, 1996).

Nonetheless, the patient's perception of quality of healthcare is still lacking unanimity. Critics argue that, patients do not know enough about medicine to form a perception of healthcare. Patients can only judge about the non-objective aspect of healthcare such as; how easy to get appointment or how politely they have treated by the health facility staff. However, this requires that patients get the right diagnosis and the right treatment in the right way. So, for more realistic judgment about healthcare, patients need to be properly educated about healthcare.

How Credible is Patient Rating of Quality?

Over the last two decades patient's involvement in healthcare has gained increasing prominence. As health budget becomes more scrutinized and patients have to pay more for their healthcare, they become more critical and claiming more rights (Van Maanen 1984). This has led to growing interests in the patient's opinion alongside the interpersonal relationship. This is manifested by the increasing number of studies examining the patient-doctor relationship (Cartwright, 1967; Locker and Dunt 1978). For example, in Germany, the position of healthcare consumers has been strengthened by pre-legislation plans. In it's report on Healthcare Finance, User Orientation and Quality, the German Advisory Council for the Concerted Action in Healthcare (the English translation for the German *Sachverständigenrat zur Begutachtung der*

Entwicklung im Gesundheitswesen) spoke clearly for more patient-centred care (SVR-Report 20030/2001),.

It is increasingly taken for granted that patient's definition of quality varies over time. Patients are sometimes emotionally-laden due to health problem, loss of income and social isolation (Tagliacozzo, 1965). Furthermore, we know of grouchy patients who complain even if they get the best healthcare and of others who are grateful even the health care is sometimes worse. Healthcare is not a standardized commodity which can be directed to costumers with similar needs. Rather healthcare is individualized and patients' characteristics determine it's nature (Perneger TV 2004). Some studies called for adjustment of quality perception surveys according to individual characteristics. Perneger provided a case-mix adjustment model, in which he integrated individual characteristics to understanding the individual's evaluation of quality. He drew paths for the individual evaluation of quality, he stated that, patient's tendency to give positive or negative rating to quality is less related to healthcare provider. Older people tend give higher scores to quality than younger people (Rahmqvist M. 2001, Nguyen Thi PL. 2002). Quite similar, disabled and underprivileged patients tend to give lower scores to quality (Iezzoni LI. 2002).

HEALTH INSURANCE CONTRIBUTION RATES

In 1996, Germany law makers introduced free choice of insurance providers. The German consumers have been given the possibility to choose among around 136[2] operating sickness funds of the statutory sector (5 General Regional, 110 Company-based, 9 Guild, 9 Substitutes and 3 other small sickness funds). There are no big differences among all the sickness funds (since the benefits package is almost

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[2] Federal Statistical Office, April 2006.

standardized across all companies), however, the worthy differences are the contributions rate (*Beitragssätze*) and the additional healthcare services (*Zusatzleitungen*).

However, between the statutory and the private insurance sectors, contributions are different. The difference can be related -among other things- to the free-contract relationship that the private insurance sector is based on. Both the insurer and the insured individual can determine the scope and the level of the insurance policy. While the statutory offers a definite services package, which each insurer has to contract when he fits under the compulsory insurance scheme[3].

The sickness funds have the right to raise income-based contributions within a definite range which is determined by the Federal government[4]. The contributions are collected under four pillars; statutory health insurance, statutory retirement insurance, statutory accident insurance and statutory long-term care insurance.

Figure 4 Development of contribution rate
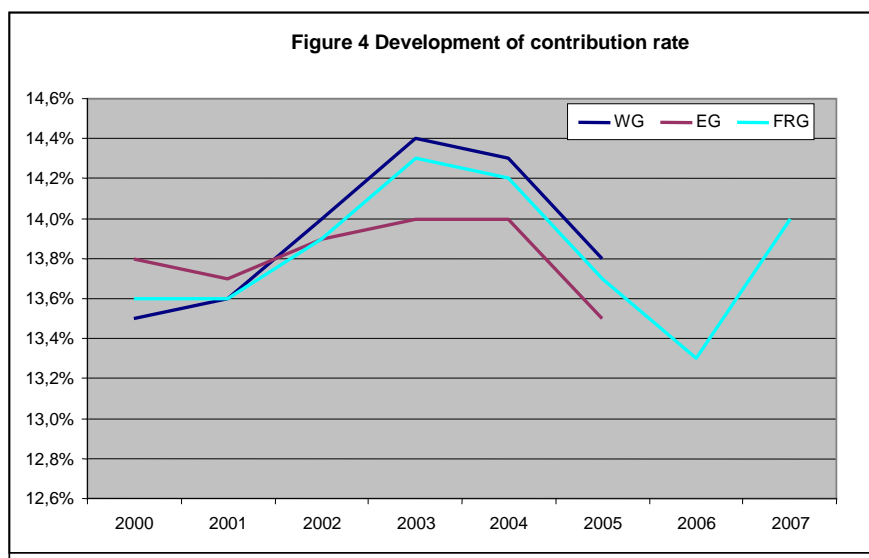
1. Source: Federal Ministry of Health, statistical data of March 2007 (KJ1, KM1, KG1).
2. WG (West Germany), EG (Eastern Germany), FRG (Federal Republic of Germany.

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[3] Remember that the statutory sector offers two different insurance schemes; the compulsory and the voluntary, while the compulsory is designed for individuals, whose annual pre-tax income is below the income ceiling limit (Beitragsbemessungsgrenze), the voluntary insured scheme is for individuals, whose annual pre-tax income is above the income ceiling.
[4] rate of 2006 is between 11.9% and 15.6%

Figure (4) shows the development of contribution rates over the last seven years. In the period between 2000 and 2007, the contribution rate has been witnessing dramatic changes. The maximum average reached 14.3 percent in 2003, while the lowest average has reached 13.3 percent in 2006. We notice also a difference in contribution rates between the West and the East part of Germany (this difference has constituted to 0.4 percent in 2003.

A deep look at the individual sickness fund reveals that contribution rates vary among the different sickness funds. The General Regional Sickness Funds (AOK) has the highest rate among the largest four funds. Since the introduction of the free choice of funds (January 1996) the (AOK) lost around 14.6 percent of it's members. The company-based sickness fund made around 86 percent gain of members (Busse May/June 2004).

Sickness fund	Contributions rate
General Regional	14.4
Company-based	13.5
Guild	13.1
Substitute white-collars	14.1

Source: Federal Ministry of Health, statistical data of March 2007 (KJ1, KM1, KG1).

1. Impact of Contribution Rates

Until the 1992, the sickness funds were charging different health insurance premiums; this led to mal-distribution of insured groups. While on one hand, some sickness funds ended up with high risk groups, on other hand, some insured individuals had to pay higher premiums for the same benefits package that is offered by another insurer. As a response, the Federal government adopted reform acts aiming at equalizing insurance premiums and free choice of insurers (Buchner F. et. al., 2003, Schut FT, et. al., 2003).

The first action was taken in 1992, as part of the Healthcare Structure Act. This reform Act introduced a freedom of choice and risk compensation. The risk compensation policy seeks to re-distributing of financial revenues among the different sickness funds. For examples, shifting of financial resources from the sickness funds with favorable risk groups to the sickness funds with less favourable risk groups.

Several studies have approved that contribution rates were important when people decide to choose health insurance. They found that loss and gain of members within and from the statutory to the private sector were closely correlated to the difference in contribution rates (Greß et. al., 2002, Rohweder 1996, Schwarze J., Anderson, H. 1998, 2001, WIdO- monitor 2006, Werner A., et. al., 2005).

2. Income

In examining the individual's demand for health insurance, income emerges to play a singificant role (Propper 1989, Van De Ven and Van Praag 1981, Besley, Hall et al. 1999). The individual's level of income determines the probability of purchasing health insurance in two ways; through the *utility maximization*[5] or through *opportunity costs*[6]. Individual would prefer one health insurance scheme over the other, if this yields more utility. This utility can be realized in terms of lower waiting times and shorter waiting lists. It is assumed that, the cost of waiting represents the opportunity costs of healthy time. In the case of illness, the amount of healthy times is reduced. Some researchers have put this relationship in a function of income and money allocation (Propper 1989).

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[5] The utility maximization represents the individual's preferences; in this case individual weighs gains and losses of his decision to take out health insurance or not. This decision has been extensively studied in economic literature. It was being formulated as a function of income, family status, education, age as well as health status.

[6] The opportunity costs refer to the costs that are associated with giving up something. In the case of health insurance; individual aims to weigh the costs of two doubled situations; being ill with or without health insurance or healthy with or without health insurance. Both situations are connected with uncertainty (For more details see chapter 4, *What is Health Insurance and how Individuals Decide to Take it?*).

Hopkins and Kidd (1996) concluded that, the value of time is relatively higher for employed people than for unemployed and for higher income individuals than for lower income individuals.

STUDY FOCUS AND OBJECTIVES

When it comes to the healthcare delivery, a large number of studies have investigated the relationships between the individual's socio-economic characteristics or ethnic groups and the healthcare provision (Sudano J. J. and Baker D.W. 2006, Kirby J. B., et al., 2006). There are, however, few studies that have focused on the impact of health insurance status on the provision of healthcare and patients' expectation. This is could be seen in the accessibility to healthcare services and patients' evaluation of healthcare quality.

Several studies have examined the differences between the types of health insurance, and how these differences can affect the individual's perception of quality of healthcare. However, the construction of the frameworks mostly lacks insight. Some studies have linked the individual's perception of healthcare to waiting times, which were measured in length of stay in hospitals. We argue that, a substantial difference exists between waiting times in hospitals and emergency departments on one side and waiting times in office-based clinics on the other side. Waiting times in hospitals and in emergency departments for most individuals are considerable. Additionally, linking waiting times alone to the individual's perception of quality seems implausible, since patients would agree to wait longer if they can spend more time with their doctors.

Although health insurance in Germany offers universal coverage to all citizens, the type of health insurance shows some differences. Reimbursement of physicians for treating patients varies with the type of health insurance. That means, for the treatment of a

privately insured patient, physician gets from 20 to 35 percent higher reimbursement than for the treatment of patients with public insurance policies. This might lead to creation of favourable groups which could be translated into different waiting times.

This has led to a heated debate over the expanding role of the private insurance sector. It is considered as an important alternative to the (SHI) that aims to increase the health system's financial capacity and enhance individual's responsibility. Furthermore, the private insurance sector claims that the privately insured individuals have been getting attractive insurance policies, since these policies can be individually tailored according to personal needs and financial capacity (Siadat and Stolpe 2005).

So, this study is contributing to better understanding of how individuals perceive quality of healthcare. In this study, we add to waiting times, the individual's perception of time spent with doctors for consultation and treatment. We seek also to figure out whether the type of health insurance makes difference when healthcare is provided. And if there is a difference; can this difference affect the individual's evaluation of healthcare (how individual perceives the quality of healthcare). Finally, we look for possible determinants of the individual's decision to choose health insurance.

Before we start this study, we have tried to get relevant data from the insurance companies (DKV, GEK, Victoria, TKK and Barmer) in Bielefeld and Cologne. Unfortunately, no one agreed to give us information whatsoever. Some argued they do not collect such data while others claimed that, such data are only for internal use. For running this study we have collected a sample of 150 individuals from the city of Bielefeld. These individuals have been randomly selected from the city telephone record. Then, they were asked about their socio-economic characteristics, their health

status, health care utilization, health insurance and their individual's perception of health care quality.

So, this study aims to answer two categories of research questions:

Category (A) In this category, we aim to find out whether the privately insured individuals enjoy more privileges than the statutory insured individuals. To achieve this purpose, the study seeks to answer the following questions:

Problem Statement and Research Questions

Figure (5) Research Questions
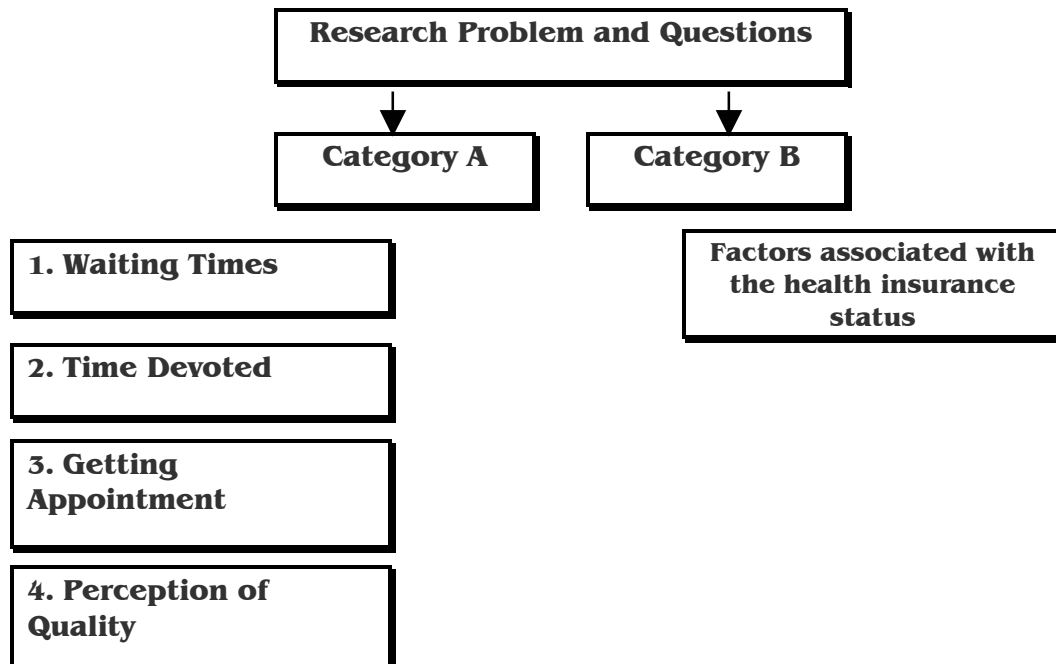
1. Is there a difference in the waiting times in office-based clinics between the privately and the statutory insured individuals? If yes, who had to wait longer?

2. Is there a difference in the time devoted by doctors for treating the privately and the statutory insured individuals? How do the insured individuals evaluate that?

3. Is there a difference in getting appointment with doctors between the privately and the statutory insured individuals? How do the insured individuals evaluate that?

4. How do the privately and the statutory insured individuals evaluate the quality of the healthcare they have received?

Category (B) In this category we try to find out what factors are associated with health insurance status. In other words, we look for the socio-economic characteristics of the health insurance policy holders.

Structure of the Dissertation

Table (1) Breakdown of the dissertation

Chapter	Structure	Content
Chapter 1	Introduction	Introduction, Background and Rationale and Research Problems
Chapter 2	Historical approach	German insurance system, Public vs. Private
Chapter 3	Review of literature	Reviewing tow Groups of literature: A and B
Chapter 4	Theory of insurance	The theory of health insurance and how people choose it?
Chapter 5	Study design & Methodology	Study design, methodology, framework, sample selection, data collection
Chapter 6	Analysis	Data presentation, analysis and Discussion
Chapter 7	Conclusion	Conclusion, findings, recommendations and Limitations

As it is seen in table (1), the dissertation is divided into seven chapters. Chapter one addresses the theoretical background of the study problems. As it has been previously mentioned, the study focuses on the perception of quality and the contribution rates. So, in this chapter we introduce the readers to the historical and the methodological developments of quality perception as well as it's operational definition.We address also some of studies that investigated the individual's perception of quality and show how this perception could be changed. The contribution rates are also discussed; we

show how these rates vary and how these variations do affect the individual's movement among the sickness funds. Finally, we come to the study focus and objectives as well as the study research problems.

In chapter two addresses the main characteristics of the German health insurance system; we shed the light on the differences beween the large operating insurance sectors –the statutory and the private-. We focus also on the relevant milestones which the insurance system has being gone through. We present a simple model of the German health insurance system; this model shows the main key players within the insurance system.

Chapter three is designed to review the studies that have been conducted in the area of our interests. We divide the literatures into group (A) and group (B) according to the categorization of the research questions. In group (A) we address the studies which have focused on the quality differences between both insurance sectors. We select three indicatory variables; the waiting times in office-based clinics, the velocity of getting appointment with doctors and the time devoted for patients. In group (B) we examine the studies which have modelled the demand for health insurance using economic techniques. Finally, we address the main limitations of both groups.

Since this study is dealing with individual's choice of health insurance, it is necessary to understand how individual formulate this decision. So, in chapter (4) we address the theory of health insurance. We seek to introduce the readers to the health insurance market. Chapter five is devoted to the study framework, design, and methodology and data collection. We use the descriptive research framework and the study data are collected using structured telephone interviews. This chapter also presents the sample selection process; we use a probabilistic systematic sampling technique.

Chapter six focuses on the data presentation and analysis. First, we present descriptive statistics of the study participants, and then we launch analytical statistics using the Package for Social Sciences (SPSS) and the tools of (STATA 10). We use correlational, linear and logistic regression analysis, and finally we discuss the study results. In chapter seven, we present the study conclusion, main findings and recommendations and limitations.

THE HISTORICAL APPROACH & THE MAIN FEATURES OF BOTH INSURANCE SECTORS

CHAPTER 2
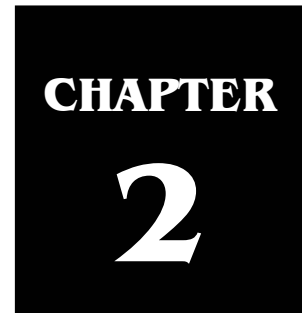
THE INSURANCE SYSTEM

The German health insurance system in it's simple form took place in the 13th and 14th centuries, when the secondary care was provided by the churches and the Christian settings. The first credible form of the insurance system was established in the middle of 14th century, which we have now. This first form provided insurance against diseases and accidents. By the introduction of the industrialization this form was settled down by what we call now funds "*Kassen*". These funds were based on contributions made by the insured individuals. Day by day, the tendency to take out more insurance coverage and the increased numbers of the insured persons led to the enlargement of the existing funds and the emergence of others.

In 1883, the former German chancellor Otto von Bismarck set up the social security insurance. This insurance was composed of five pillars; the retirement insurance, health insurance, nursing insurance, accidents insurance and employment insurance. The employment insurance was called the compulsory health insurance. This scheme built the first three funds; free-support funds "Freie Hilfskassen", compulsory funds "Zwangskassen", and industries funds "Fabrikantenkassen". Each of three funds had

been based on different coverage criteria. The free-support funds coverage was upon the occupation status of persons, the compulsory funds coverage was dependant on regional corporation, while the industries sickness funds as the name says, it covered workers. This scheme was based on contributions made by the workers. In the aftermath the free-support funds were integrated into the currently known statutory health insurance as substitution funds leading to the creation of the compulsory health insurance.

People who did not fit under theses three categories had to seek (PHI) coverage. In the 20th century, the expansion of the (PHI) sector was associated with the creation of high risk groups; these groups include individuals such as disabled persons, chronically diseased persons, elderly and women. This led to the adoption of new calculations of health insurance premiums based on risk group.

In 1935, the first official separation between the private and the statutory sectors was done. This separation was then followed by many rules that contributed to the creation of insurance market with two actors; the private and the statutory sector. The statutory sector is the largest insurance sector in Germany. It covered around 88 percent of the total population. Around 9 percent of the people are covered by the (PHI). The remaining 2 percent had other insurance schemes. *Table (2) shows the distribution of individuals according to the type of health insurance.*

Table 2 Population according to the type of health insurance coverage

Type of health insurance	Number of persons in millions	Percentage
SHI	72.168	88.35
PHI	7.638	9.35
Others	1.64	2.01
No coverage	0.188	0.23
No answer	0.050	0.06
Total	**81.687**	**100.00**

Source: (Federal statistical office 2004), statistical data of 2003

1. The Statutory Health Insurance

Regulations and membership of the (SHI) are set up by the Social Code Book (SGB V). The (SGB V) determines the individuals groups who are entitled to join the (SHI) as well as the scope of the benefits package. The total number of the sickness funds was 136[7], of which the regional sickness funds (5), the Company-based sickness funds (110), Guild-sickness funds (9), Substitution sickness funds (9), and three other funds. Generally, there is no marked difference among these sickness funds; however, there is a slight difference in the contribution rates and the nature of the additional health services.

Membership in the (SHI) is either compulsory or voluntary. It is compulsory for employees -whose pre-tax income is below the income ceiling limit-, unemployed, students, retirees and agriculturists. Family members of the insured individuals such as unemployed wives and children are insured for free.

The (SHI) sector offers also voluntary insurance coverage. This type of coverage includes employees whose pre-tax income is above the income ceiling limit as well as self-employed and civil servants.

Contributions to the (SHI) are equally divided between the employees and their employers. The contribution rates are drawn from pre-tax income; this was set between 11.9% and 15.9% (for the year 2006) depending on the sickness fund. Financing within the (SHI) is made on pay-as-you-go base and health services provided regardless of the individuals contributions. The benefits package of the (SHI) covers all primary, hospital as well as dental care. Starting in 2005, members of (SHI) have to make co-payment of 10 Euros each three months for visit to general practitioner, and if individual goes to

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[7] *Data of Federal statistical office 2006*

specialist without referral from the general practitioner he/ has to pay 10 Euros. In 2005, the (SHI) sector constituted of 27 percent of persons who were insured for free and around 5 percent retirees which means that the percentage of insured individuals whose belong to high groups, is low. Basically, each sickness fund is obliged to insure each one, therefore, large sickness funds such as the General Regional Sickness Fund (AOK) ends up with a large proportion of high risk groups.

2. The Private Health Insurance

The private insurance sector shares around 12 percent of total spending on health (OECD 2004). In 2004, the German insurance market contained around 54[8] insurance companies. The total number of individuals who joined the private sector was approx. 16 millions, of which around 8.2 millions had complete coverage and 7.8 millions had supplementary coverage[9]. The number of the complete insured individuals is frequently changing, this is because of death or changing of income ceiling limit.
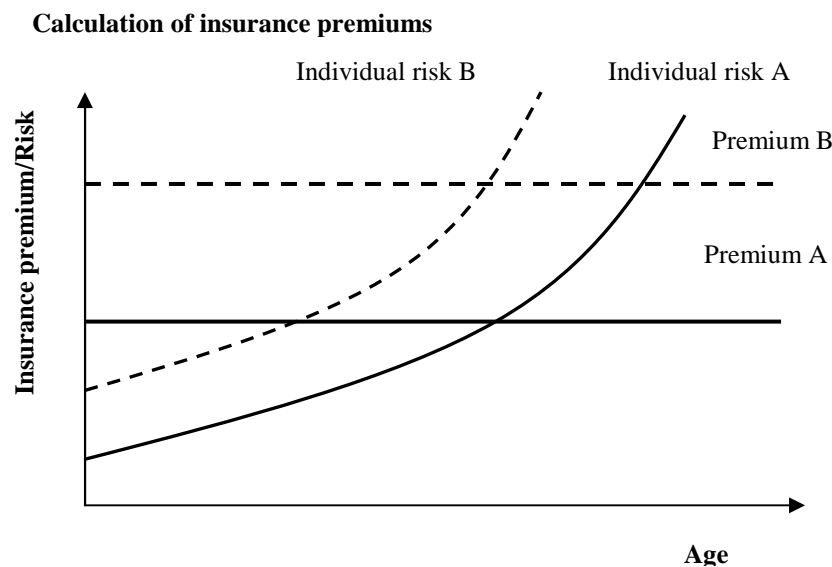
Calculation of insurance premiums

Individual risk B   Individual risk A

Premium B

Premium A

Insurance premium/Risk

Age

Eligible for the (PHI) coverage is each person who does not fit under the eligibility criteria of the (SHI) sector. Such as self-employed, civil servants and employees whose pre-tax income is above the income ceiling limit. Like the (SHI) payments for the private coverage is also equally divided between employees and their employers. Contracting within the private sector is also individually, that means the more healthcare services you contract, the higher will be your premium[10]. Premiums also depend on individual's age at entry.

Calculation of the insurance premiums within the private sector is based on individual risk. The above figure illustrates this principle; the premium starts low and increases with increasing age of the insured person. Due to growing critique of this age-premium relationship, some private insurance companies imposed high premium in young ages for late use (*Altersrückstellung*).

The provision of health care services within the private insurance sector functions of reimbursement base. When an individual goes to doctor, he can either pay the costs and then get reimbursed by the insurance company or sends the bill directly to the insurance company which in turn pays the doctor.

The private insurance company can decide on the scope of the insurance coverage. That means each insurance company when contracts an insurance policy, it can exclude previous health problems from the coverage, and therefore they send individuals to medical check up.

As we mentioned before, the private insurance sector offers either complete or supplementary coverage. The complete coverage provides the amount of health services that the statutory sector does. While the supplementary insurance covers what the

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[10] Such as getting one-bed room or entitled to be treated by head of department.

statutory does not cover[11]. Example of the supplementary insurance is the coverage of optional hospital benefits, outpatient care, loss of income in case of illness, hospital daily allowances and foreign travel coverage.

In the private insurance sector, one should distinguish between two different tariffs; the *Standard Tariff* and the *Basis Tariff*. The standard tariff is applicable for persons, who have complete private insurance coverage for at least 10 years. In addition to that, they should have completed 65 years old or over 55 years old and their income is above the ceiling limit.. Eligible for the *Basis Tariff* are persons who are voluntary insured with the statutory insurance sector and less than 55 years old.

Figure (6) gives a brief description of the stakeholders within the German health insurance system. From the diagram we can see that there are four main parties; the insurer, the consumer, the provider and the associations. Sickness funds collect money from the insured people and then transfer the costs of health services to the physicians associations, which then pay the health care providers.

1. Historical Milestones

Since it's establishment in the early 80s, the German health insurance sector has been witnessing a lot of reform. Around 200 decrees have been released aiming to reduce costs, however, between 1970 and 2004, the contribution rates increased to an average of 14.3 percent (Grabka M. M. 2006, Herles 2000). In 1989, a new reform act was implemented; this was aiming among other things at extending the opt-out option. By passing this act the blue-collars, whose pre-tax income is above the income ceiling were eligible to opt out of the statutory sector. A further reform act came into force in 1993,

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[11] Here we must distinguish between supplementary and complementary coverage. While the supplementary insurance covers what the statutory does not cover, the complementary insurance covers what the statutory does not completely cover.

the core points of this act were cost-containment through increasing competition among the sickness funds and enhancing efficiency. The cost-containment has been emphasized by increasing co-payments and the introduction of fixed budgets. The cost-containment policy was also among the aims of the reform act which passed in 1997, this involved more co-payment in addition to exclusion of some rehabilitative care benefits. In 1999 and 2000, the government released another decree which forced sickness funds to adopt global budget (to spend what they have collected from the contributions of the insured individuals). However, these reform acts have not contributed to stop escalating costs of health care. The sickness funds were obliged to increase the contribution rates (from 13.6 to 14 percent between 2000 and 2003). As a response, by 2004 a new reform act has been passed, this reform act aimed at bringing down the health spending. This act included; charges for non-prescribed drugs end to free treatments, such as health farm visits, end to free taxi travel to the hospital and exclusion of additional benefits such as glasses and impregnation. This reform have been immensely unpopular and led to increased public dissatisfaction[12].

Nonetheless, all reform acts did not successfully achieve the aims of cost-containment and enhancing efficiency. This could be contributed to the following causes:

1. Different reimbursement rates of physicians between the statutory and the private insurance sector. This difference has been ranged between 20 and 35 percent higher for members of the private insurance sector. In addition to the "Altersrückstellung" portability. Competition within the private insurance sector has been for a long time over the young people, while the movement of elderly between the insurance companies was accompanied by higher insurance premiums. People who want to change their insurance company are not eligible

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[12] BBCNews, http://news.bbc.co.uk/go/pr/fr/-/1/hi/world/europe/3143516.stm

for "Altersrückstellung" portability. The "Altersrückstellung" is basically the premium which the privately insured individuals pay in order to avoid higher premium in case of elderly.

2. There have been fostered beliefs that, physicians are the strongest reform opponents [(Schwarzbuch gegen die Gesundheitsreform: Ministerium attackiert Ärzte, Dtsch Arztebl 2004; 101(16): A-1057 / B-879 / C-855) (Ärzte kündigen Widerstand an, Focus 16.02.2007), (Ärzte drohen mit Boykott, die Zeit 24.10.2006)].

2. Important facts about the statutory and private insurance sectors

Part of Germans have the possibility to switch between the insurance sectors, this people have the ability to choose either public or private insurance coverage. Generally, employees can switch to the private insurance sector if their annual income is above income ceiling limit. In the last years, some of Germans have switched to the private sector. Figure (7) shows the switching behaviour of insured individuals. We notice that the statutory sector has been suffering loss of it's members in favour of the private sector[13]. The peak of this loss was reached in the years 1989 and 1992, which was linked to the introduction of health reform policies. These reform policies have been allowing employees with higher income to switch. Nonetheless, the switchers were mostly young people without family.

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[13] The figure shows also the net increase (Nettoverlust der GKV) in the (PHI) sector. It is necessary to distinguish between the net and the gross increase. The net increase does not consider those people, who withdrew due to death or became eligible to the (SHI) coverage.

Figure (6) A simplified view of the German Health Insurance Model

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                        ┌─────────────────────────────┐
                        │  Regulator (Federal & State │
                        │        Governments          │
                        └─────────────────────────────┘
                                      │
                                      ▼
┌──────────────┐   Free Choice   ┌──────────────┐
│              │ ──────────────► │   INSURER    │ ─── REIMBURSEMENT ───┐
│   CONSUMER   │                 │    Public    │                      │
│              │ ──────────────► │   Private    │                      ▼
└──────────────┘    PREMIUM      └──────────────┘              ┌──────────────┐
        │                                                      │ ASSOCIATIONS │
        │                        ┌──────────────┐              └──────────────┘
        │                        │  PROVIDERS   │◄── REIMBURSEMENT ───
        │       Free Choice      └──────────────┘
        │                        ┌──────────────┐              ┌──────────────┐
        └──────────────────────► │ Office-based │              │  Physicians  │
                                 │   clinics    │              └──────────────┘
                                 └──────────────┘
                                 ┌──────────────┐              ┌──────────────┐
                                 │  Hospitals   │              │  Hospitals   │
                                 └──────────────┘              └──────────────┘
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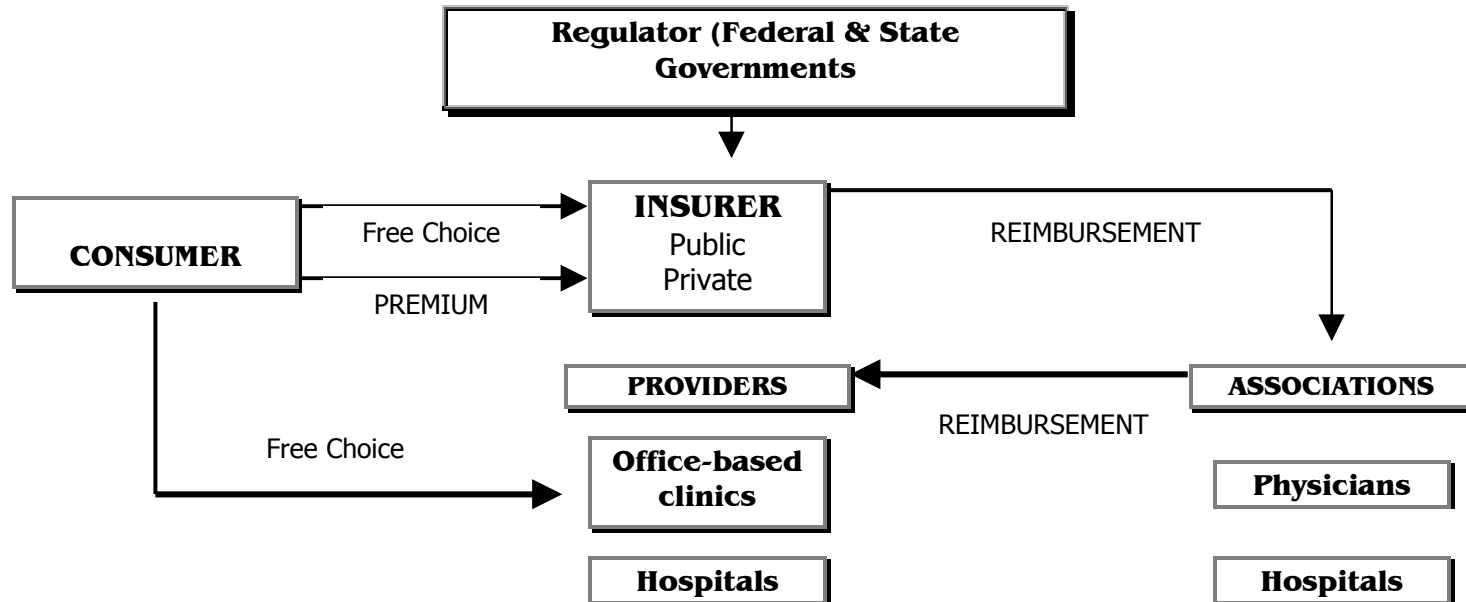
Insurer side: includes private companies and public sickness funds, representing the payer's side. They are obliged by the Social Code Book to raise contributions from their members. By 2004, the number of operating sickness funds was 292, while the private companies was 49.

Provider side: most popular examples are physicians and hospitals

Consumer side: could be individuals, companies or unions that buy health insurance policies for their members.

Figure (7) Absolute numbers of switchers between both insurance sectors
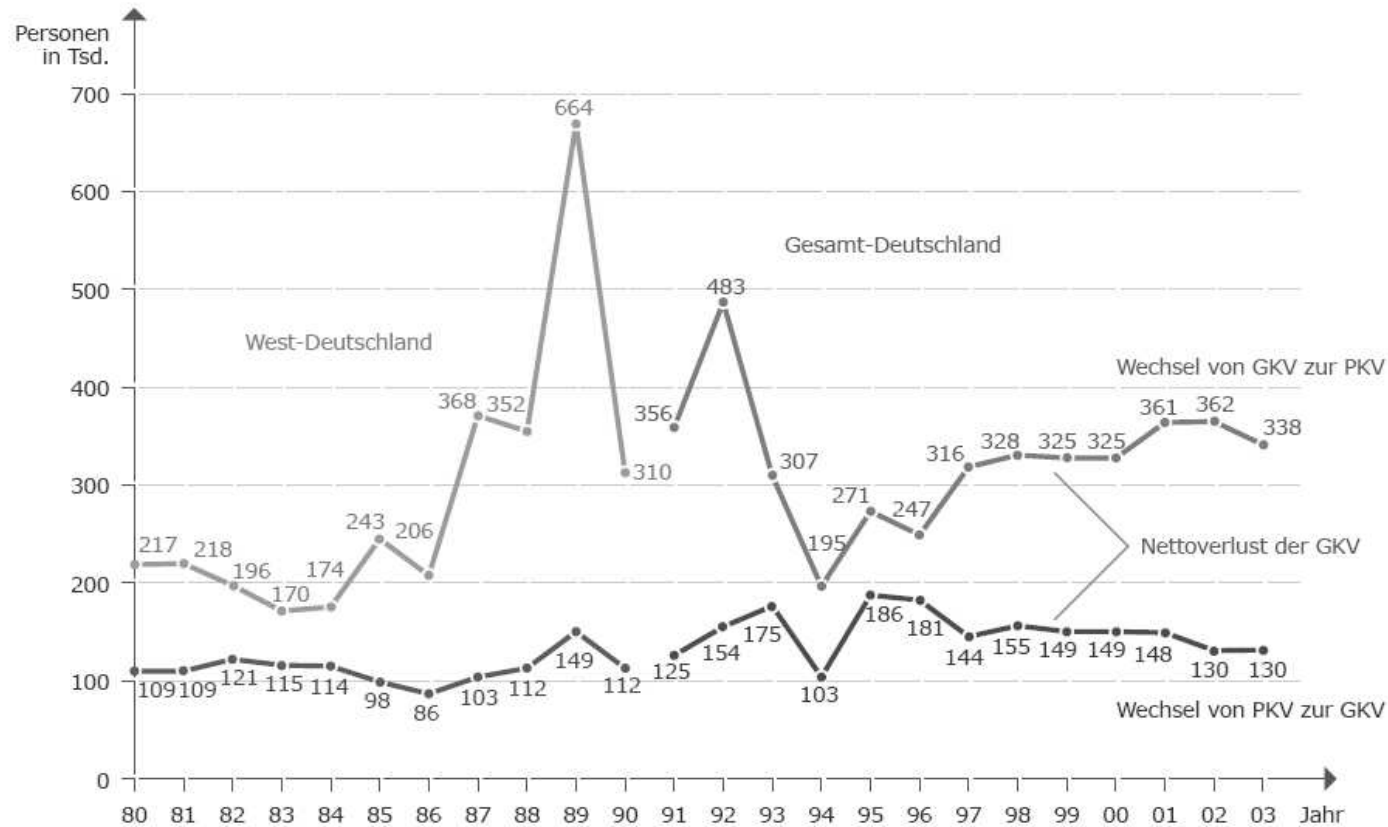
Quelle: Verband der Angestellten-Krankenkassen, Arbeiter-Ersatzkassen-Verband
Stand: 11.2004

bpb: © 2005 Bundeszentrale für politische Bildung

3. Private Or Public, What are the Main Features of Both?

Having private insurance coverage can be advantageous; however, this is only noticed in the early time. The private insurance policyholders are confronted with real problems. They have mostly to change the insurance scheme to to avoid growing premiums which is accompanied with increasing age. The private health insurance would attractive for employees, whose annual pre-tax income is below the income ceiling limit, self-employed as well as civil servants.

Starting in 2003, the lawmakers completed the income ceiling income with what has been called *Jahresarbeitentgeltgrenze* law. This law states that, when an insured individual earns more than the income ceiling limit over three years, he can choose to be publicly or privately insured. For employees, who were until 31.12.2002 holding private insurance policies is the *Jahresarbeitentgeltgrenze,* 42.750 EUROs (for 2007). Individuals can stay in the private insurance sector as long as their annual pre-tax income is above this limit.

Individuals can back to the statutory insurance sector, if their annual pre-tax income falls below 47.700 EUROs (limit of 2007). When an employee was until 31.12.2002 insured under the private sector, and earns fewer than 42.750 Euros per year he is entitled to the statutory insurance. When an individual signs a contract with the private insurance sector he has to stick to it, even if he needs more healthcare. The statutory insurance sector offers more flexibility, when an insured person earns less or becomes unemployed, his premium automatically goes down.

Table (3) Main differences between both insurance sectors

Item	SHI	PHI
Insurance prinicple	Solidarity-based	Individual-based
Contributions	Income-dependent	Risk-dependent
Healthcare services	Complete coverage	Individually-determined
Contracting	Determined by laws	Individually-determined
Provider	With contracted providers	Free choice of provider

Table (3) gives a brief description of the differences between both insurance sectors. Contracting with the private insurance sector shows some flexibility compared to the statutory sector. Each individual can take out the healthcare services that he wants to be insured for. While in the statutory sector the benefits package is predetermined by the law. Therefore, contributions to the private insurance vary according to the benefits package. Whereas, contributions to the statutory sector are income-based. Privately insured individuals enjoy free choice of provider, while individuals of the other insurance sector can only choose among providers, who have contractual relationships with the sickness funds.

Comparison of the benefits package of both insurance sectors

SHI	PHI
Enjoy free choice of providers, who have contractual relationships with the sickness funds	Enjoy free choice of all providers
Hospital stay includes more than one-bed room, 10 Euros per day	Hospital stay in one- or tow-room and can be treated by the head of department
Co-payment for pharmaceutical products (between 5 and 10 EUROs)	Sometimes with co-payment is necessary, no limitations on the pharmaceutical products.
Insurance abroad is applicable only within the European union (EU), and in countries with (SHI) agreement. People with chronic health problems or elderly, people have to register before they travel abroad (then they can be reimbursed)	World-wide (only for one month), in addition to the EU.
Transportation is possible for handicapped people and long-term care patients (level 2 and 3)	Transportation is possible, only to hospitals

REVIEW OF LITERATURE

CHAPTER

3

Health insurance has been gaining increasing concentration.The focus on health insurance backs to it's importance in protecting individuals against *uncertain risks*. It makes expensive health services affordable and some insurance policies provide money in case of illness. A large number of studies have discussed the health insurance and the insurance market.

Figure (8) Framework of the literature review

Previous Studies

G1. Patient Surveys

G2. Economic Perspective

Quality perception

Appointment

Time devoted

Waiting times

Modelling
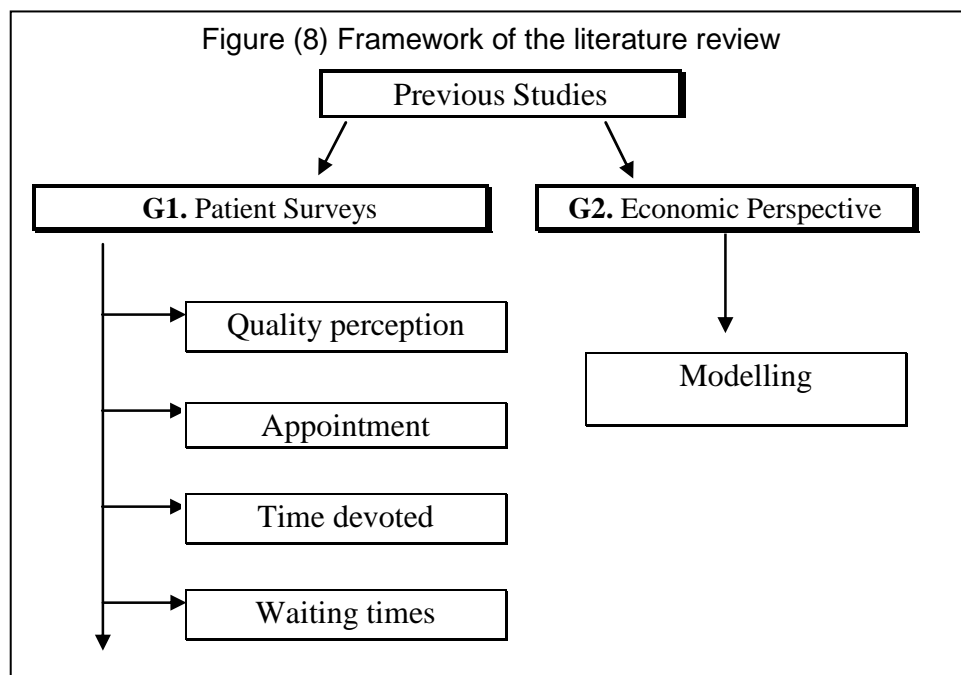
According to their approaches of investigation, the studies that focused on the health insurance can be divided into two groups (*see figure8*). While the first group focuses on the difference in healthcare between the public and the private insurance sectors -In this group, studies used non-medical aspects of healthcare such as waiting times and velocity of getting appointments with doctors-. The second group of studies has

integrated economic modelling to find out what might determine the probability of demand for (PHI).

First Group, Previous Studies

Choosing the type of health insurance is confined to be sensitive to the perception of healthcare quality. This comes from the effect of waiting times and waiting lists in some medical procedures (Martin, S and Smith, P.C 1999, Gravelle et. al. 2000). Waiting times can be costly for individuals in terms of health. Longer waiting time would increase the probability of damage to the health status (Y. Barzel, 1974, J. A. Goddard, et. al; 1995 and D. Nichols 1971). Quantifying the extent to which the provision of healthcare is influenced by the type of health insurance has been examined by several researches. In Bonet M. J. (2000), the demand for insurance between the public and the private health sectors have been investigated. In this study, waiting times have been addressed as a qualitative attribute of healthcare delivery. The results support the assumption that reduction in waiting times within the public sector lowers the probability of demand for purchasing (PHI). Besley et. al. (1996), waiting times have been approved to play important role in the health insurance decision.

However, when it comes to office-based clinics, the matter of waiting times needs a closer look. Longer waiting times make patients feel upset and dissatisfied. When health personal is asked about the reasons for waiting times they contribute this to the large number of patients. We argue that, projecting longer waiting times on the large number of patients reflects a false estimation. Since the number of patients are mostly predetermined and the time devoted for each patient could also be predicted. Furthermore, the experienced health personal would be able to predict the average time needed for each patient so they can give appointments based on that prediction.

Now, the existence of waiting times could be linked to the urgent patients. Usually, when patient has acute complains, he calls a doctor-based clinic asking for an immediate appointment, the nurse or the doctor assistant says, you can come but we can not tell exactly how long might it take to see the doctor.

On behalf of *"Arbeitsbereich Qualitätsförderung der Abteilung Allgemeinmedizin der Medizinischen Hochschule Hannover"* The Research group (Forschungsgruppe) did a survey on waiting times in the office-based clinics. In this survey five office-based clinics of general practitioners had been selected and then the doctor's assistants were interviewed. The results revealed that there were waiting times in three of the five clinics (http://www.metrik.org/weitere_projekte/wartezeit.htm). The survey listed some possible reasons for the long waiting times;

§ Physician did not start treating patients on time

§ Short-term treatment such as bandaging or injection

§ Lack of appointment coordination between physician and assistant

The rapidity of getting appointment is highly valued by patients, for some people, the lack of velocity would prevent them from making medical consultation. In international context, we notice that Germany came at high place when it comes to physicians to inhabitant ratio (Klose and Uhlmann 2006). However, when it comes to the velocity in getting appointment, the situation looks different. In a study released by the Scientific Institute of the General Regional Sickness Funds (Wido-2006), the privately insured individuals were more privileged. In office-based clinics, around 25 percent of the statutory insured individuals who asked for appointment for acute complaints had to wait at least two weeks for an appointment in compare to 7.8 percent of the privately insured individuals.

Waiting times for an appointment in the office-based clinics						
SHI	**GP**	**Orthopediatrician**		**PHI**	**GP**	**Orthopediatrician**
N	106	262		**N**	55	118
Immediately	24.5	18.7		Immediately	29.1	33.1
1 day	13.2	7.5		1 day	20	10.2
2-7 days	34.9	27.8		2-7 days	32.7	36.4
8-14 days	13.2	15.7		8-14 days	16.3	14.4
2-4 weeks	8.5	13		2-4 weeks	1.8	3.3
17.3% of the statutory insured individuals had to wait longer than 4 weeks in compare to 2.4% of the privately insured individuals. *Source: WIDO-Monitor 2006*						

In a study published by the Scientific Institute of the Regional Sickness Fund (WIDO-monitor 2006), the velocity of getting appointment had been measured. The study used a representative sample of 1185 insured individuals (778 are statutory insured and 407 are privately insured). The study came up with the conclusion that the privately insured individuals had to wait shorter for an appointment than the statutory insured individuals. Before formulating the data collection instrument for this study, the author had informal conversations with some doctors of office-based clinics; some of them said that the type of health insurance -which the patients hold- was taken in consideration while giving appointments. A dentist from the village of Oerlinghausen (around 20 Km away from Bielefeld) put it in this form "*when somebody asks for an appointment, the doctors' assistant asks about the name of the insurance company, and if the insurance company is private the assistant tries to give the caller an appointment as soon as possible*".

According to Customer-Monitor Germany (Kundenmonitor Deutschland); when it comes to the healthcare services, the privately insured individuals have relatively shown higher satisfaction rates (Kundenmonitor 2006). A deeper look at further differences in healthcare between both insurance sectors showed that, the statutory insured individuals are sometimes underprivileged comparing to the privately insured individuals when it comes to waiting-times in office-based clinics (Wido-Monitor 2006).

M. Lungen, et. al., investigated the waiting times for elective treatments according to the health insurance status. The researchers randomly selected 189 specialized office-based clinics from the telephone book of three cities in Germany (Cologne, Leverkusen and Bonn). Then, they called these clinics asking for appointments for predetermined elective. Results showed that, the privately insured individuals waited shorter for an appointment than the statutory insured individuals. The difference was estimated to be 17.6 working days. In general, the statutory insured individuals waited three times longer than the privately insured individuals.

In a comparative study which was done by the Commonwealth Fund (CWF), six countries were included; Canada, USA, New Zealand, Australia, Great Britain and Germany. The survey of this study had been conducted by the Harris Interactive (world-wide market research known as The Harris Poll) on behalf of the (CWF). The study randomly selected 4085 Germans who completely ended 18 years old. Then they were interviewed via telephone (see the *international health policy survey of sicker adults*, CWF 20005). The interview focused on issues related to the performance of healthcare systems and the quality of healthcare from people's perspective.

- When people were asked to evaluate their health status (self-reported health status); 49 percent of the privately insured individuals gave "less good" or "bad score", while 60 percent of the statutory insured individuals gave the same scores.

- When people were asked whether their health care system has many deficits and needs to be completely rebuilt; 27 percent of the respondents who had (PHI) coverage and 38 percent of the respondents who had (SHI) said yes.

- In a response to the question, how would you rate the quality of hospital care which you have received in the last 12 months; only 9 percent of the people gave the score "excellent" which is the lowest among the six countries.

When people were asked to rate the quality of their general practitioner; 56 percent of the privately insured individuals said "good" while 42 percent of the statutory insured individuals gave the same answer. Moreover, 91 percent of those who had (PHI) policies had been treated by the head of department in compare to 76 percent of the statutory insured individuals (Peter T. Sawicki 2005).

In Lin H-C., et. Al., (2004) the researchers investigated the individual's perception of quality in group versus solo office-based clinics. The study used cross-sectional SERVQUAL questionnaire to ask 1250 patients. Results show that patients perceived quality better in group than solo office-based clinics.

Second Group, Previous Studies

Health insurance and the insurance market has become a matter of extensive debate. This debate is almost more than 40 years old. It backs to the Nobel Prize winner Kenneth Arrow, who identified the effect of health insurance on the demand for healthcare. In his first published paper on the Uncertainty and the Welfare Economics of Medical Care in the USA. Arrow indicated that the demand for healthcare is unpredictable and not steady like the demand for other goods or services. He admitted also that the demand for healthcare is not only determined by the costs of healthcare but also by the individual's willingness to take it. He addressed also the professional relationship between doctors and patients. In some cases, doctors act on behalf of the insurance companies and try to save money as they can. While in other cases, the doctor's way of treatment has not been under control, so they prescribed expensive treatments in order to get their patients satisfied (Arrow, K. J. 1963).

In 1973, Feldstein indicated that, health insurance might lead to over-use of healthcare. He used a cross-sectional time series data of 10 American states for the period between 1959 and 1965. He concluded that, individuals take more healthcare because they are insured and they take out more insurance because of the high costs of healthcare. He also said: although the occurrence of health problem is not in individual's control, his demand for healthcare is discretionary (Feldstein M. S. 1973). A similar study was conducted by Newhouse J. P., et. Al., (1987). Both studies gave no considerations to the factors that stand behind the insurance status of healthcare users. Feldstein M. S. and Newhouse J. P., et. al. did not tell us anything about the identity of those who take out health insurance such as their characteristics.

Cameron, A.C., et. al. (1988) studied the interrelationships between demand for healthcare and the demand for health insurance. They used surveys between July 1977 and June 1978, which were collected on the Australian Households. The surveys contain data on health insurance, healthcare utilization and the socio-economic characteristics of the Australians. The study came to the conclusion that, the demand for healthcare was more related to the individual's health status rather than to the health insurance, while the demand for health insurance is determined by the individual's income. They linked the effect of health insurance on the demand for healthcare to the existence of moral hazard and adverse-selection.

The above conclusion has been contradicted by Ángel Marcos Vera-Hernández (2000), he studied the impact of duplicate coverage on the demand for visits to doctors. The duplicate coverage involves those individuals who hold public insurance and purchased additional private coverage. The study is based on data from the Catalonia Health Survey of 1994. He established econometric model to overcome the endogeneity resulting from having health insurance. The results revealed that, the decision of

choosing health insurance is taken by the head of the household. For non-head of households, the duplicate coverage showed positive effect on the demand for visits to doctors. Vera-Hernández was the first, who did not link the increasing number of visits to doctors to the generous insurance coverage. By developing instrumental variables, he indicated that the increasing number of visits to doctor is related to health status variables such as presence of illness, disability and chronic health problems. The socio-economic factors such as education and income are important in determining the demand for doctor visits as well as the health insurance decision.

In 2001, Costa J. and Carcía J., investigated the impact of perceived quality gap between the publicly- and the privately-financed healthcare on the demand for (PHI). In this paper, the researcher modelled this demand as a demand for higher quality. The study data were driven from the regional survey in 1999; the survey contains data of 400 households' health insurance, quality aspects and socio-economic characteristics. They based their study on the declared perception of quality of both the public and the private healthcare. In the proposed econometric model, the researchers integrated data on the individual's health status, presence of disability, the declared insurance premium, healthcare utilization and the socio-economic characteristics. Results provided evidence of the importance of the perceived quality on the demand for private health insurance. This study is considered as a contribution to better understanding of the mechanism of choosing (PHI) in Catalonia.

Their study suffers from generalizability, since the Catalonian health system has a long tradition of a strong private health sector. Furthemore, the Catalonian health system is based on contract-based rather than on health delivery-based. Which in turn influences individual's perception of quality? The public system suffers from access limitations such as long waiting lists for elective surgery.

Marisol Rodríguez and Alexandrina Stoyanova (2003) studied the demand for the supplementary health insurance. The study used panel data (from the Spanish Continuous Family Expenditures Surveys) to examine the individual's decision in choosing the voluntary insurance coverage. Results are consistent with other studies conducted in Spain; the new addition is the geographical region, which is shown to be significant. In regions, where the per capita expenditures on health were high, people tend to stick to the public sector. On the other hand, in regions where the private health facilities offer high-tech services, people tend to purchase private insurance.

In Germany, starting in January 1996, each individual has got free choice of health insurer. This has led to increasing competition among insurance companies to provide high benefits care at lower contribution rates. Several studies have investigated the impact of contribution rates on the individual's choice of health insurance. In 1996, a dissertation had been submitted by Rohweder, Jan Philipp (1996) at the department for Economic theory at the University of Mannheim. In this work, the researcher investigated the individual's probability demand for health insurance. His study was based on (SOEP) micro-census data of the German Institute for Economic Research. The (SOEP) is panel data of 18000 persons living in Germany. However, the data lacked information about the premium that the insured of one sector would have paid if he had insurance coverage of the other sector. He overcame this data shortage by including the name of the insurance company and the monthly pre-tax income to estimate the contribution rates to the statutory sector. The study came to the conclusion that, higher contribution rates led to individual's switch to private sector (one percent increase in contribution rate led 4 percent growth of the voluntary private insurance coverage).

In another study by Andersen and Schwarze (1998), the decision of sickness fund choice has been examined. They used stratified (SOEP 1997) data, the stratification was based on four groups; new members (which include individuals who recently entered to the sickness fund, paid only once to their insurer at the point of the survey), switchers (who changed the sickness fund), thinkers (includes individuals who were thinking to switch) and finally those who have ever thought to switch (include individuals who have ever thought to switch). The results showed that, the reasons stood behind switching among the different sickness funds were the low contribution rates and better health services.

Greß and co-researchers (2005) examined the price elasticities and the social insurance choice. The study used data of all individual health insurers who were operating in the German insurance market between 2001 and 2004. For each insurer the contribution rates and the number of insured individuals were collected (data were collected by Dostal and Partner, a market research project). The results indicated a short-run sensitivity of consumers to difference in contributions rates.

LIMITATIONS OF PREVIOUS STUDIES

Focusing on waiting times as an indicator of health system shortcoming or gap between both insurance sectors has become fashionable (Probst JC. 1997, Bar-Dayan Y, et al. 2002, Zoller JS, et al. 2001, Huang XM.1994, Leddy KM, Kaldenberg DO, et al. 2003). Some studies use it as a determinant of quality, since patients value it, when they are confronted with bearable waiting times. Nevertheless – **from our point of view**- the effect of waiting times on the individual's perception of quality could be overestimated. We believe that once patient gets in contact with the treating doctor, his focus completely shifts from the long waiting times to the real problem, namely his health complaints. In this context, people would value it more, if the quality of this contact is

high. Moreover, most studies associated perception of quality to waiting times in emergency departments, where the waiting times may be considerable and the patient's level of satisfaction is quite low. So, we admit that the treatment of confounders should have given more considerations. For example, type of health facility (primary, secondary or tertiary), since the length of waiting times varies according the level of healthcare provided. Moreover, the psycho-physical status of patients should also be included as a potential confounder. There is no doubt that, patient with acute health problem would evaluate quality different than patient with chronic problem. Physicians' characteristics can be important when patients evaluated quality.

When it comes to the individual's decision of choosing health insurance, one can not study it as cause-effect relationship. Since the mechanism of how people choose health insurance is complicated, so, what researchers can do is to approximate this decision to potential determinants. However, the studies that examined the decision of choosing health insurance show some discrepancies. These discrepancies are manifested in the methodology and analytical strategy as well as the selection of variables. For example, studies conducted in Spain have included geographical areas as possible determinant of health insurance selection (Bonet 1999 and Hernandez 2000). This seems to us that, some areas would be less privileged than others.

While others studies gave greater consideration to the private-public (Propper et. al. 1999, MacAvinchey, I. & Yannopolous, A. 1993, Cutler and Gruber 1996, Blomqvist and Johansson 1997). The methodology and analytical strategy seem also to be different; the demand for health insurance was absolutely examined using econometric modelling. This modelling in some studies was based on panel data, while in others was based on cross-sectional data. Other studies focus on the individual's demand, while others consider the demand of the household (Vera-Hernandez 1999 and 2003).

All studies gave no reality-closed formula that would determine the individual's demand for health insurance. Formulating the demand for (PHI) as a demand for better healthcare services will lead to results overestimation. Since, individual's preferences should have been given greater consideration. The decision for taking out (PHI) coverage should be individually-based, since this decision is absolute optional.

THE THEORY OF HEALTH INSURANCE

CHAPTER

4

The individual's decision to purchase insurance policy is composed of elaborately interconnected process. Conventionally, people purchase health insurance to avoid financial risk (Von Neumann and Morgenstern O. 1944, Friedmann M. and Savage L. J. 1948). This has been base on the expected utility gain from having insurance coverage. However, the benefits gain from the health insurance coverage is not limited to the avoidance of uncertain risk; additional benefit is drawn from the ability of health insurance to make healthcare affordable (Nyman J. A. 1999)[14].

So, it is necessary to understand how individual decides to take health insurance and what factors are important to take this decision.

What is Health Insurance and how Individuals Decide to Take it?

Since individual's health is considered the most valued good, therefore, health insurance plays a central role in the healthcare. The decision to purchase health insurance is a decision taken under uncertainty. This makes it hard to measure this decision directly (Breyer, Zweifel 1999 and Santerre & Neun 1996). However, the emergence of the expected utility theory (Bernoulli[15] discussed in details in Louis Eeckhoudt, Harris

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[14] Nyman spoke of access and risk avoidance values; he stated that, insurance could be often the only way to make expensive health care available. So, he distinguishes between access and risk avoidance motives.

[15] Daniel Bernoulli (* 8. Februar 1700 in Groningen; † 17. März 1782 in Basel) was suisse mathematician and physician

Schlesinger and Christian Gollier 2005) can help establish a basic model of probability demand for insurance policy (Schulenburg und Greiner 2000).

Individual's decision to purchase health insurance has been widely discussed in the health literature (Arrow 1963, Feldstein 1973, Propper 1989, Van De Ven and Van Praag 1981, Besley 1991, Besley, Hall et al. 1998; Besley, Hall et al. 1999). This is considered as a dichotomous decision, to purchase or do not purchase. A comparison of expected utility with health insurance to the expected utility without health insurance provides information on the insurance decision. It is usually anticipated that, the expected utility gain or loss from the decision of taking out health insurance is a mix of different factors (age, education, gender, health status and health needs). So, the utility gain from having (PHI) is influenced by the expected health services consumption or the probability of illness.

Health needs is associated with uncertainty, so the demand for them is unpredictable (Arrow 1963). Health insurance can only be utilized in the case of illness, so the utility of the private health insurance in case of illness is greater than it in case of well-being. In addition, certain individual characteristics may cause more healthcare consumption (such as high risk groups). So, one would expect that, elderly, those with disabilities or chronic health problems and females have higher demand for private health insurance. Some researcher distinguishes between direct and indirect risks; while the direct risk includes past and present health problems (which are observable), the indirect risk represents potential healthcare consumption such as older people or females with children.

In order the individual's decision to purchase health insurance, let's assume that an individual has a budget of (m) and has a possible loss of (d). So, this individual can take out insurance (K) which would compensate him in the case of loss. The cost of this insurance is denoted by (Y). In reality an individual would face two situations; "loss" and no "loss". Given the budget limit of (m) and the consumption level of (c), so this individual would consume tow different goods; good (c1) in case of loss and (c2) in case of no loss. The presence of insurance allows for shifting the purchasing power between the two situations:

$$c_1 = (m_1) - yk + k$$

If we drop out the (-yk) from $\quad c_2 = m_2 - yk \quad$ the equation, we will get the following $\quad yc_1 + (1 - y)c_2 = ym_1 + (1 - y)m_2 \quad$ equation
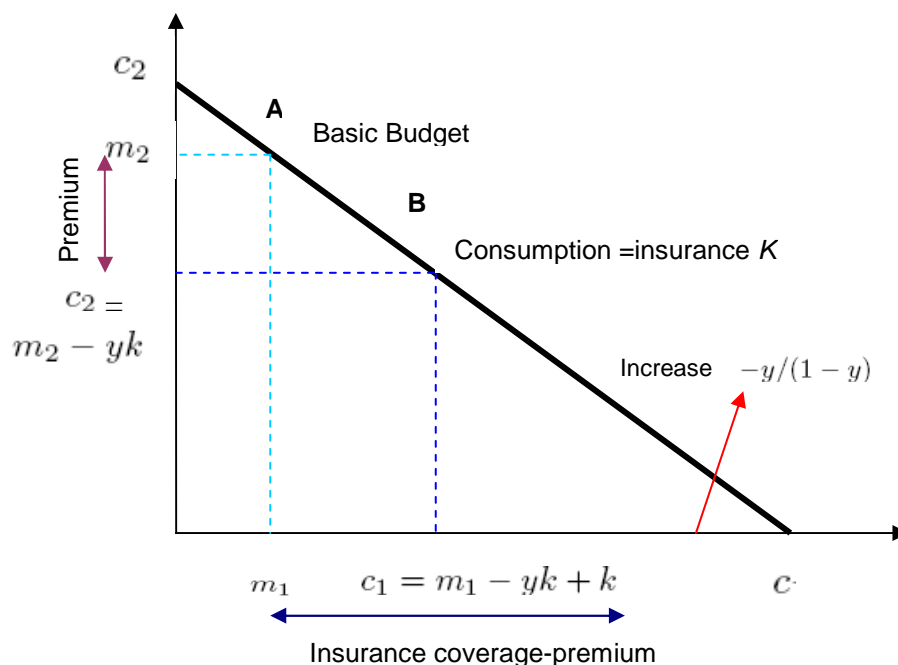
Figure (9) illustration of the insurance theory

Presumably, you have a budget (m), if you buy from (c1), then this budget converts to the amount of money (m1) and if you decide to buy from (c2), then (m) will become (m2). So, if you watch figure (9), you see point (A) on the slope, this point represents the basic amount of money you have. At this point you purchase an amount of (c2) which is denoted by (m2) and amount of (c1) which is denoted by the amount of money (m1).

Now, let's assume that an individual decides to take out insurance policy. In this case an individual is facing catch-22 since he has to decide which good he wants to get insured for. Assume, that he/she wants to get insured for the consumption of good (c2)

This, $c_2 = m_2 - yk$ means that, the costs of this good are the amount of money that is assigned for this good minus the costs of the insurance coverage (denoted by the point B on the slope). In reality, this decision is not taken haphazardly, this means an individual is weighing preferences. Whereby, a decision to be taken to purchase one of the two goods is based on expected utility.

This drives us to talk a little bit about the expected utility function. As previously mentioned we have got two situations "loss" and "no loss". If we assume that the probability of "loss" is μ_1 then the probability of "no loss" is $(1 - \mu)$. So, the expected utility function is $EU(c_1, c_2, \mu_1, (1 - \mu_1)$, then we can drive the following hypothesis

$$u(c_1, c_2, \mu_1, (1 - \mu_1)) = \mu_1 u(c_1 + (1 - \mu_1)u(c_2))$$

This leads to the theory expected utility maximization which was introduced by the Nobel-price winners von Neumann and Morgenstern in 1945. Although this theory has been frequently criticized, it is considered as a milestone in understanding the optimal insurance decisions. In their pioneering "Theory of Games and Economic Behaviour",

they studied the individual's decision to purchase insurance policy. An individual chooses insurance policy (A) over the insurance policy (B) if the expected utility of (A) is greater than the expected utility of (B). They put this relationship in a linear model (where the expected utility gain of utilizing (A) is greater than the expected utility gain of utilizing (B)

$$EU_A \succ EU_B \qquad\qquad (1)$$

Then, in the early 60s and 70s, a group of papers published in the book of (A. Kenneth and K. Koch) can be seen as the beginning of economic analysis of insurance dynamism (Arrow, K.J. 1963, Arrow, K.J. 1965 and Arrow, K.J. 1974). The papers addressed the concepts of uncertainty and risk aversion. By having insurance policy, individual averses risk by paying a definite amount of money to an insurer who bears mostly the whole risk.

From an economic perspective, consumer allocates when selecting among various services. Consumer would buy health insurance if the probability of an event –health problem- to occure and the return of this event are equal to the loss or payment he has to make. That means, the degree of satisfaction derived from consuming a quantity of health care services determines the individuals demand for health care insurance.

The satisfaction individual gets increases up to a certain limit; then an additional consumption decreases the level of satisfaction. This is known as the marginal utility. The theory of marginal utility presents the additional satisfaction an individual gets from consuming an additional unit of commodity. The marginal utility is important since it can be applied for the economic modelling (Folland, Goodmann and Santo 1997).

Figure (10) the Marginal Benefits and the Amount of Insurance purchased
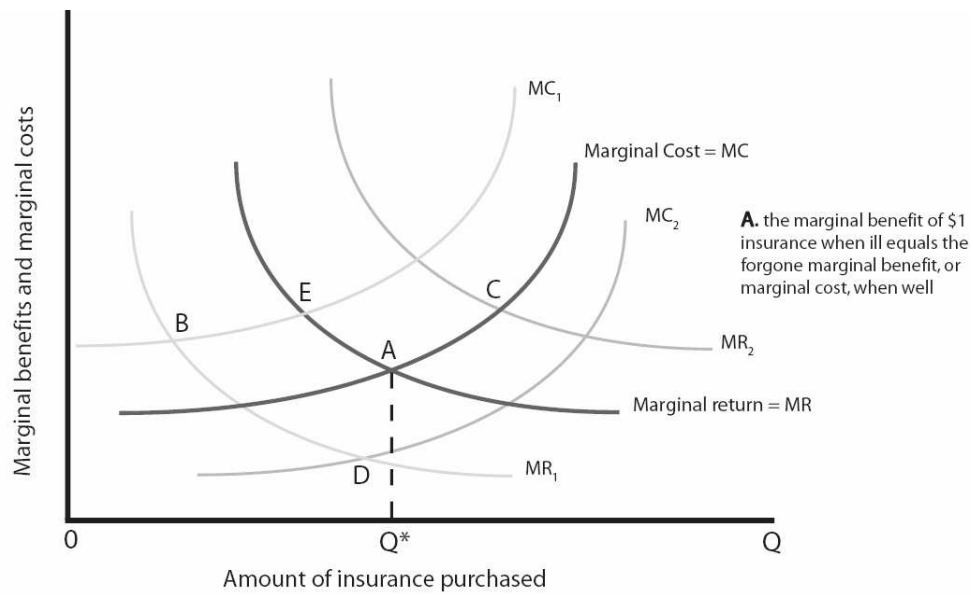
Source: Folland, Goodmann and Santo "The Economics of Health and Health Care" 1997

For better understanding of the marginal utility, let us consider a situation where (E) represents an event (occurrence of health problem), (P) represents the probability of this event to occur and (R) states for the return of this event (*see figure 9*).

Then:

$$E = (PR) \qquad\qquad (2)$$

How much health insurance an individual would purchase is driven by the expected utility which based on individuals income and wealth. This situation can be seen under two conditions: health and illness.

first,

$$E = P \left(\text{Utility of net wealth if sick} + (1 - P)\right) \qquad (3)$$

second

$$E = P \text{ Utility of (net wealth if ill)} + (1 - P) \text{ Utility of (net wealth if well)}$$

$$\text{Where } (1 - P) \text{ is the probability of being healthy. Or;}$$

$$E = P \text{ Utility of } (W - L) + (1 - P) \text{ Utility of } (W) \qquad (4)$$

If an individual is worry about his health he would purchase an insurance that gives him (Q) dollars if he gets ill. Under optimal conditions he would choose (Q) insurance equal to expected loss (L). So, in order to buy this amount, individual has to pay part of this amount called premium (a). In the case of illness the probability of wealth will be; New wealth = original health (W) Loss (L) insurance premium (aQ) + payment from insurance (Q).

$$\text{Wealth (ill)} = W\,L\,aQ + Q = WL + (1-a)Q \qquad (5)$$

Considerably, not all people are covered by health care insurance (coverage is relative; in Germany around 2 percent of the total population has no coverage whatsoever). Furthermore, in some cases insurance does not cover all health problems. Given the fact that; an individual would buy health insurance to maximize utility; so he weighs the marginal utility against the expected costs. E = P Utility of

$$(W - L) + (1 - a)Q + (1 - P) \text{ Utility of } (W - aQ) \qquad (6)$$

From equation (1), an extra purchasing of health insurance increases utility equation, when a person gets ill an extra quantity purchasing (Q) gives a wealth increase of (1-a). Then the extra utility an individual gets from this extra money payment is equal to (1-a) spending multiplied by the marginal utility (utility gain per extra spending). Presumably, each new extra spending on health insurance provides smaller expected utility.

Despite the reality that; the total utility increases with an amount (Q), the marginal utility (MU) -in case of illness- of incremental level of wealth (1-a) multiplied by the probability of illness will fall as (Q) rises. Marginal return to insurance; P(1-a)(MU) falls as (Q) increases (negative slope marginal return relationship (MR) (see figure 10). In case of well-being, (Q) increases, so wealth falls by incremental amount of (a) wealth declines as premium paid out. Given that the probability of being well is (1-P), then the

expected marginal utility of coverage when well is P (1-a) (MU) then the marginal utility of wealth (slope gets larger as wealth decreases).

What happens in the insurance market?

From the above discussion we can conclude that an optimal health insurance is individually designed. That means; high risk group pays more premium and vice versa. Since, when individual gets sick, the benefit is a fixed money amount "called indemnity". Therefore, peoples' decision on the amount of indemnity is based on comparing the costs and benefits of additional health services in each health problem (Mark V. Pauly 2006).

In reality, premium has tow components; the real costs of health services plus the loading (also called administrative) costs. And an individual pays both, if the loading costs increase; individual may need to make some payments in form of deductibles. Generally, a risk averse individual will decide to take out health insurance rather to remain without. So, if illness occurs the insurer will pay the costs of the services.

Sometimes, in the insurance market we face asymmetry of information; that means the insured individuals have different knowledge about their health status than the insurer do. Such situation is described in the insurance economy as an adverse selection. Another situation that might appear is the effect of insurance on the demand for health care. Suppose an individual has to pay nothing for the health care services and we assume that the demand for health care is elastic (that means, demand changes with changed prices), we can expect that individual will utilize more health care. This is knows as moral hazard. In health literature, moral hazard is defined as a situation where an additional quantity of health care demanded resulting from a decreased net price of services (Folland, Goodmann and Santo 1997).

These two situations have been extensively discussed by the health literature, since they affect the decision and the amount of health insurance (Finkelstein, A. and K. McGarry 2003, Pauly, M. V. 1968, Cameron, A.C., et al., 1988 and Bajari, Hong, and Khwaja, 2006). After reviewing these literatures we could say that insurance has two effects; a desirable one which is associated with individual's wish to reduce risk and a less desirable one which is linked to moral hazard (Meza, D. 1983). But suppose individual (x) has managed to be classified as low risk he would harm himself by being in reality sicker than it looks to the insurer. On the other hand, if this individual has managed look sicker than he in reality is and tries to get more benefits, this predisposes him to higher charges. So, the best situation is that one in which all parties agree (insurer, provider and consumer) on the individual's classification of health status and possible health needs.

Unequivocally, in a competitive market health insurance companies compete with each another aiming at winning more people and delivering benefits at the lowest possible level of money. Addressing benefits necessitates good understanding of the market design, since many actors could participate in healthcare delivery (such as physicians, hospitals, rehabilitation centres and home care). When an insurance company decides to include less costly health care service in its policies, it aims to reduce the total costs of care and subsequently reducing health insurance premium. This is not done haphazardly, but based on five factors:

1. price elasticity of demand for the newly included service;

2. the co-payment;

3. the cross-elasticity of demand between the whole services and the newly included service;

4. the cross-elasticity of demand between the new benefit and any complementary components of services; and

5. the relative price of whole services, the new benefit, and any other complementary components affected.

We must say that, the German private insurance sector has been growing. This growing role contributes to increasing per capital spending in health. People are given the ability to choose between public and private (according to the income ceiling limit). This interaction between both insurance sectors has been creating distribution problems of insured individual's profile. Younger healthier people and those with high income tend to have privately insurance coverage.

The competition within the (SHI) system in Germany has been boosted by the decree (Health Structure Reform Act 1993), which got in force in 1996. This decree led to movement of insured individuals from the sickness funds of high contribution rates to those with low contribution rates. Switching within the (PHI) is quite confinedly compared to the (SHI), since it is mostly associated with loss of some benefits.

Studying the switching behaviour of insured individuals is a daunting task. It requires knowledge of the characteristics of the insured individuals and the insurance market. This market involves many players such as the insurers on one side and the healthcare providers on the other side. The insurance market –to some extent- shares same characteristics of other markets in the economy. It can be exposed to change in investment. For example, when in an economy is slowing down, governments might decrease investment in health sector or seek more privatization.

STUDY FRAMEWORK, DESIGN AND METHODOLOGY

CHAPTER

5

The Study Theoretical Frameworks

The study is dealing with two different frameworks. First, we use a descriptive framework, which to deal with the category (A) of the research questions. And second, we use a mathematical framework to find out what factors could be included in studying the possibility demand for health insurance.

1   The Descriptive Framework

The descriptive framework is used to describe a certain phenomenon, by answering questions of what, who, where, when and how. By answering these questions, the descriptive framework aims to identify the characteristics of an observed phenomenon or help explore possible correlations among different aspects of one phenomenon or more. It examines a situation, without trying to detect cause-effect relationships.

It includes four types of research studies; the observation studies, development designs, correlation studies, survey studies. The observation studies focus on specific aspect of behaviour; it achieves this by precisely defining the manner, segmenting the observation into periods, putting scales to rate behaviour. The development designs include cross-sectional and longitudinal studies. The first design aims to collect data on people or

phenomenon at one point of time, while the longitudinal design aims to collect data over more than one period of time. In this study, we focus on the cross-sectional.

The cross-sectional aims to collect data on one point of time. In this context, the cross-sectional design attempts to gather data on the following individual's behavior: the socio-economic characteristics of the study participants and the characteristics associated with the health care provision such as type of health insurance, number of medical consultations, presence of health problems, individual perception of quality, and waiting times. For this purpose we developed a structured question as a data collection instrument. The data collection instrument mostly entails close ended and scale-based questions which allows the study subjects to respond easily.

2 The Mathematical Framework

 We would like to verify the allegations arguing that, the individual' decision of purchasing health insurance is influenced by some factors: the insurance premium, income and the perceived quality gap between both insurance sectors. We should mention, that the health insurance premium is strongly related to the individual income. So, when an individual is about to decide to purchase health insurance, he is weighing income lost against the utility gain which is yielded if he gets sick.

The perception of quality has been modeled as dependant factor ($\mathbf{Q}$), this linear model is denoted by the following equation ($Q=\beta i + Xi$), where (Xi) represents explanatory variables such as individuals characteristics and non-clinical aspects of quality.

Based on the expected utility hypothesis of Von-Neumann and Morgenstern and the risk aversion which is largely ought by Milton Friedmann and Leonard J. Savage; individuals tend to averse risk and maximize utility. The existence of illness is considered as a random event that influences individual's utility. The course of this

event can be set as (P^-) when an event occurs and $(1 - P^-)$ when an event does not occur.

In the case of illness, the quality of health care is (Qi), where (i) can be (1) if individual has (PHI) and (0) if he/she does not (has public health insurance). We assume that health care does not differ between the public and the private sector. So, individual utility can be determined by the quality (Qi) and his income.

And this income will be decreased if individual purchases (PHI). Purchasing (PHI) can be set in the formula $(\pi = PP^-\alpha)$, where (P) refers to the price of the health care, (P^-) refers to the probability of being ill. The public health insurance in Germany is called the statutory. So, when we say statutory health insurance (SHI) we mean the public insurance sector. Due it's homogeneity the quality of the (SHI) depends on certain observable factors such as waiting times and waiting lists and it's lower flexibility (Costa, Joan, and Jaume Garca 2003).

Allegedly, the private insurance sector provides individualized health care and shorter waiting lists. So, we can assume that the quality of the private insurance sector (Q^1) could be the same or higher than the quality of the statutory sector (Q^0). Remember we are not talking about the clinical quality. So, we can say:

$$(Q^1 \succeq Q^0) \qquad\qquad (1)$$

If an individual becomes ill, he/she may choose statutory health care at fixed Quality and pay nothing $(Q^0, 0)$

$$(Q^1, I - Pn) \qquad\qquad (2)$$

,where (I) is the income, (P) is price and (n) is the quantity. He/she may go for other options and buy (PHI) and obtaining higher quality coupled with lost of income (Q^1, π).

As it is previously mentioned individual seek to maximize the expected utility. So the decision to be made on the purchasing (PHI) will be based on the maximum expected utility of the available options. Let state that the expected utility is (EU) and purchasing (PHI) is (1) so:

Option (1): if you purchase (PHI)

$$EU_1 = P^- U(Q^1, I - \pi) + (1 - P^-)U(I - \pi) \tag{3}$$

where (ui) utility when ill, (U) is the utility when healthy, $(1 - P^-)$ the probability of being healthy.

Option (2): if you do not purchase (PHI)

$$EU_0 = P^-(Q^0, I) + (1 - P^-)U(I) \tag{4}$$

Option (3): if you consume only statutory health care or pay out-of-pocket, then expected utility (EUp) then:

$$EU_p = P^-(Q^1, I - P) + (1 - P^-)U(I) \tag{5}$$

An individual will then decide to purchase (PHI) if the expected utility gain (EGU) of this decision   is positive

$$EUG = EU_1 - max(EU_1, EU_p) \succ 0 \tag{6}$$

where $(EU_1) \succ (EU_p)$ is the expected utility if not purchasing (PHI). De facto, for a positive (EUG), the following should be fulfilled $(EU_1) > (EU_0)$ and $(EU_1) > (EU_p)$. So,

$$EUG_0 = EU_1 - EU_0 \succ 0 \tag{7}$$

$$EUG_p = EU_1 - EU_p \succ 0 \tag{8}$$

From the equations (1 to 8) we get to the conclusion that the following variables are important for the deciding on purchasing health insurance: insurance premium, (I), perceived quality of private (π) healthcare (Q^1) perceived quality of statutory healthcare (Q^0), the probability of illness (P^-) and the cost (P).

We assume that income and the probability of illness have an indeterminate impact on the probability of purchasing (PHI). So, an increase in income could lead to greater increase in (EU_1) than in (EU_0). When it comes to quality we propose that increasing quality of (SHI) will reduce the probability of purchasing (PHI) since (EU_0) increases with increasing (Q^0), while (EU_1) and (EU_p) remained unchanged.

Model Specification

According to the theoretical framework, individual decides to purchase private health insurance (D_i) when his/her expected utility gain is positive (see equation 6). As it previously proposed the expected utility gain depends on variables such as the quality of the private care provision (Q^1), quality of the statutory care provision (Q^0), the insurance premium (π), income (I) and probability of illness (P^-). We put these variables in a discrete binary model:

$$D_i = \begin{cases} 1 & \text{if } \alpha_1 Q_i^1 + \alpha_2 Q_i^0 + \alpha_3 \pi_i + \alpha_4 P_i^- + \alpha_5 I_i + \alpha_6 X_i + \epsilon_i \\ 0 & \text{otherwise} \end{cases} \tag{9}$$

In the equation (9) the demand for the (PHI) is a dummy variable which is equal to (1) when the individual (i) purchases (PHI) with an (ϵ_i) distributed normally (with zero mean and one unit difference) e.g. a probit model specification. In the vector (X) we include variables such as measuring risk aversion. Remember we do not measure the probability of illness directly; we include proxy-indicators such as age, presence of disability or disorder and self-perception of health status.

The database can not tell us anything about the perceived quality of private healthcare for those who have (SHI). Also about the premiums the individuals should have paid for the private healthcare services. So, in order to deal with these missing data we estimate supplementary equations:

$$\pi_i = F_i + u_i \qquad (10)$$

$$Q_i^1 = B_i + v_i \qquad (11)$$

where (Fi) and (Wi) are vectors of individual characteristics and (ui) and (vi) are the error.

Limitations of this Model

Although the theoretical assumption has been formulated, the study data lack information on some of the explanatory variables. Among these explanatory variable; (Q^1) denotes the perception of quality that has been yielded by consuming healthcare of the private insurance policy holders. In this context, we can not jugde how the publicly insured individuals would evaluate healthcare if they have private insurance coverage. This is also applicable to (π)- denotes health insurance premium. The data can say nothing about how the privately insured individuals would have paid if they had public insurance coverag and also the publicly insured individuals.

Study Variables and Their Measurements

In this section, we address the study variables, definitions and measurements. We split the variables into two categories; the main variables and the co-variables. The first category deals with variables that have direct relationships with the study focus. While the co-variables represent the socio-economic characteristics of the study population. Below is the definition and the measurements of all variables.

1. Main Variables

This category includes variables, that have directly to do with healthcare utilization and health insurance, and these are;

1.1 Health Insurance

We ask the study participants about their health insurance; the type of health insurance they hold (either public or private). In addition, we ask them report on the premiums they pay for the insurance company. So, we focus on the declared premium which individual pays for being insured.

1.2 Healthcare Utilization

We are interested to know about the individual's pattern of healthcare utilization. We ask the study participants about the number of visits to in the last six months to general practitioners and specialists (dental visits are excluded).

1.3 Self-reported health status

Given the reality that probability of illness is difficult to observe, we use proxy-indicators. Perceived health status is previously mentioned in form of self-reporting and presence of disability. The self-reporting is based on a scale from (1) for bad perceived health status to (10) to excellent perceived health status.

1.4 Attitudes towards risk

From an economic perspective, risk aversion is considered as typical characteristics of utility function. It shows paradoxical behaviour when watch people dealing with risk; on one side they purchase health insurance in case of uncertainty while gambling on the other side. However, individual does purchase health insurance to protect himself/herself against financial uncertainty when gets ill. Several studies have been conducted in this field; A study made by (Manning, W. G. and Marquis M. S. 1996),

they examined the trade offs between the gain from risk reduction and the burden of loss from moral hazards. They estimated the demand for health insurance and the demand for health care services using experimental data on insurance preferences over complete coverage and catastrophic limit insurance. So, we ask the subjects if they would consider co-payment when they go to take health care services.

1.6   Individual's perception of quality

In this study; we focus on the individual's perception of quality of both insurance sectors. We ask the study subjects about their perception of health care of the last visit. They are given a scale from (1) representing bad quality to (10) representing excellent quality. They only need to rate the quality of the last medical visit according to how they see it.

1.7   Waiting times in office-based clinics

As it has been mentioned before, we focus on the waiting times in office-based clinics. The study participants are asked about how long they had to wait until they have seen their doctors. They need to express the waiting times of the last medical visits in minutes.

1.8   Velocity of getting appointment

In order to measure the velocity of getting appointments the study participants are given an ordinal scale that ranges from "no experience" to "excellent". They need to rate the velocity of getting appointments to see doctors.

1.9   Time devoted

We introduce a scale ranges from "no experience" to excellent". The study participants were asked to recall the last medical visit. They then asked to rate their perception of time devoted by doctors for them.

2. Co-Variables

The co-variables are the variables that include individual characteristics such as age, gender, level of education and annual income we called them the socio-economic characteristics of the sample subjects. (*See table 4*).

Table (4) List of Variables

Variable	Type	Characteristic
PHI	Dummy	Has purchased PHI policy
Perceived quality private	Qualitative	Response from 1 to 10
Perceived quality public	Qualitative	Response from 1 to 10
Appointment	Qualitative	Response from 0 to 6
Time devoted	Qualitative	Response from 0 to 6
Premium	Numerical	Premium paid
Age	Numerical	Respondent Age
Age 1	Dummy	Less than 30
Age 2	Dummy	Between 30 and 45
Age 3	Dummy	Between 46 and 64
Age 4	Dummy	More than 65
Net Income	Numerical	Declared income
Pre-tax income	Numerical	Declared pre-tax income
Education 1	Dummy	*Realschule*
Education 2	Dummy	*Abiture*
Education 3	Dummy	*Ausbildung*
Education 4	Dummy	University
Self-reported Health Status	Qualitative	Response from 1 to 10
Health Status 2	Dummy	Has chronic health problem or disability
Risk attitudes 1	Dummy	Willingness to pay for health care
Risk attitudes 2	Dummy	Full or catastrophic limit coverage
Health Care Consumption 1	Numerical	Number of visits to GP
Health Care Consumption 2	Numerical	Number of visits to specialist

2.1 **Age:** Age is categorized into give groups: group one (from age of 18 to 29). It captures the period after Childhood till the age where people tend to have children, group two (from 30 to 35), 30 years where the first child is born and 35 where last is born, group three (from 36 to 44) refers to the period where some health problems might appear, group four (45 to 64) refers to the period where these health problems might intensify, group give (65 and over) where health care utilization is at maximum.

2.2   **Education:** Education is almost associated with every measure of health and health related aspects, this indicator is divided into four categories; preparatory, secondary, *Ausbildung* and university.

2.3   **Income:** Income has direct influence on demand for (PHI). The higher income the more likely individual would purchase (PHI), it is measured in pre-tax monthly income. Also we asked about the net-income, since this where individuals have to make possible co-payments from.

STUDY DESIGN

This study uses a cross-sectional design; this design is often used by researchers to study problems or phenomenon in a descriptive manner. In the cross-sectional desing a snapshot of individuals have been taken at a certain point of time. As this study aims to measure peoples' attitudes and knowledge regarding healthcare delivery, the cross-sectional design has been deemed to be suitable. We seek to assess individual's reaction to non-clinical aspects of healthcare. We select a sample of 150 individuals living in the city of Bielefeld.

1. Study Sample and Sampling Process

Before start selecting the study sample, it is necessary to identify the sampling process (Wamboldt 1992). The sampling refers to the process of selection a portion of a specific population in order present the entire population. A second important definition is the study sample which refers to the entities that makes up the study population. When it comes to the sampling plan we will be choosing the probability sampling. In this type of sampling plan, each member of the population has the probability to be a member of the study sample.

1.2   Sample Population

In this section we would like to distinguish between two different categories; the theoretical population and the accessible population. While the theoretical population refers to the population whom results can be generalized to, and the accessible population refers to those who are selected in the sampling process. In this study the entire population of the city of Bielefeld constitutes the theoretical population, while our sample size (150 inhabitants) comprises the accessible population.

In Bielefeld live around 329.037 inhabitants (males-females ratio of 47.7 to 52.3) distributed over 10 districts with the total area of 258 km2 and it is considered as one of the biggest 20 cities in Germany. Bielefeld capitulated on the 4th of April 1945 to the Americans. In 1973, 7 districts were become part of the city (Heepen, Joellenbeck, Dornberg, Gadderbaum, Senne, Sennestadt and Brackwede). The districts are Brackwede, Dornberg, Gadderbaum, Heepen, Joellenbeck, Mitte, Schildesche, Senne, Sennestadt and Stieghorst (*see figure 11*).

In the Centre of the city -German synonym Mitte- lives the largest percentage of the city population (23.5) with a males-females ratio of 47.7 to 52.3. While the smallest percentage lives in the district of Gadderbaum (3.3). In general, the males-females ration in the all districts show no significant difference. Further details about the population can be found in the section of Data Analysis.

Figure (11) Percentage of Population living in each District 2005
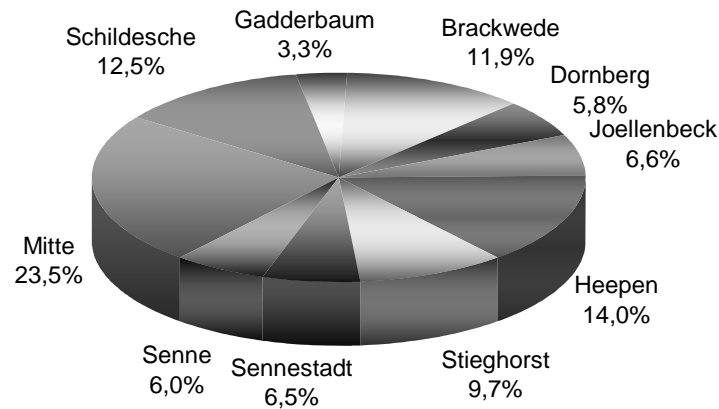
1.2 Systematic Sampling

The study participants have been selected using the systematic sampling technique. This technique involves the selection of every K^{th} case from a list or a group. We use the electronic telephone book of the city of Bielefeld (on compact disk). We start by choosing a starting point (this point represents a telephone number) randomly, then we take every 5th number. If this number is a not a private number (for example a number of firm, clinic, or etc.) we jump this and calculate another five telephone numbers.
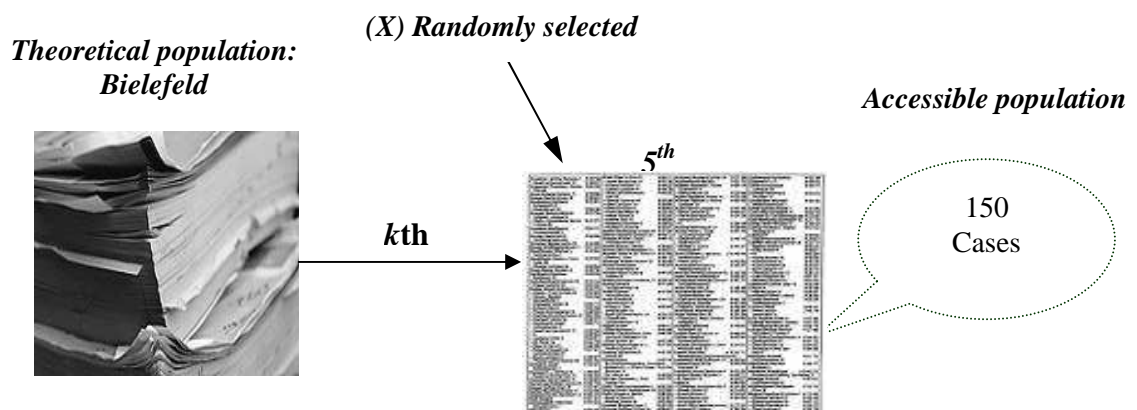
We bought the compact disk (CD) from the AVG-Verlag and installed it on a personal computer. From this CD you get all the telephone numbers which are registered by the German Telecommunication company. The CD offers several possibilities of searching for telephone numbers; according to name, city or postal address. Or you can delimit

your selection to more specific geographical area, this can by done by entering the postal code. For the purpose of this study we have preferred to enter some letters (D, N and M).

The above sketch is copied from CD. It shows how the names have been listed within the electronic telephone book. This listing process makes the selection quite practical, since you just need to mark the name numbered K[th.]

2. Data Collection

The study data were based on primary sources; since all insurance companies refused to provide us with any information. And the costs of having the data collected by some institute are unbearable for the researcher (some institute takes around 400 EUROS per questions for a sample size of around 400 participants). So, we did that in which preparatory phase. A pre-test was undertaken on some people from the city of Bielefeld. Around 30 persons were given the questionnaire; this was intended to ensure a valid data collection instrument. The ethical consideration was insured by assuring the study subjects complete anonymity, Furthermore we did not press people to give specific answers or to answer what they did not want to answer (*see questionnaire in appendix 1*).

The data collection process started on the 10th of December 2005 and lasted until the end of February 2006. It was a tough job to do; three persons conducted the telephone-based interviews. These persons are females, German and between 25 and 40 years old. Two of them have worked for institutes for telephone surveys in Bielefeld such as "EMNID". We first put a time framework for phoning the people, we started from 17:00 till 21:00 and worked on Mondays Wednesdays and Fridays, we avoided calling people on the week ends.

In general, the response rate was good, we can put it a proportion of 60 percent. Like many other telephone interviews we were confronted with people who declined to answer the questionnaire, or those who answered only part of the questionnaire, these questionnaires have been discarded from the analysis. As soon as the 5th telephone number was selected we have dialed it and then we have introduced ourselves (the text: Guten Tag, I am a doctoral student at the Bielefeld school of health sciences, I am doing my doctoral theses about the health insurance and we would like to ask you some questions, would like to participate?).

People's reaction to our calls has been coded as the following:

§ **N**: when the interviewee did not want to answer

§ **K**: when no body at home

§ **A**: when the interviewee hang up

§ **AB**: Answering machine

When it comes to the codes (K) and (AB) we tried once more after while. The following figure shows some of our calls.

We can say that most of the telephone interviewees reacted in a satisfactory way. Here are some of these reactions: No, I do not want, sorry I do not have time, or may you call again, I have to feed the kids, you can call later when my husband at home and we have got around five individuals who hanged up directly. As we have mentioned before the caller introduced the questions and the research filled the questionnaire. The time needed to get one questionnaire filled was around 10 minutes, but it some cases where we got older people this time extended to 20 minutes. The costs of the interviews were paid by the study researcher himself.

3. Missing Data

As in any study, surveys might have missing data due to different reasons. Some of the respondents did not want to answer questions about income or age. In our case we have included all these missing data. But, data on they type of health insurance was crucial for this study, therefore, we put this question at the top of the questionnaire. Those who did not know, which type of health insurance they hold, were excluded from the survey.

In the aftermath, we realized that some people did not know the type of health insurance there were holding (they could not tell us whether they have private or public coverage). So, in this case, we should have asked people about the name of their insurance company. However, and due to personal reasons some people do not like to answer this question.

DATA PRESENTATION & ANALYSIS

CHAPTER

6

This chapter is devoted to the presentation and analysis of the study data. We divide the analysis into two parts; the first part presents a descriptive summary of the study data. It addresses how the study participants are distributed according to selected variables. We present this distribution according to individual's characteristics, and then we describe the clinical aspects of healthcare according to the type of health insurance. In the second part, we present the inferential statistics. This part is designed to make some deduction that would resolve the health research problems. The inferential statistics include the corelational analysis and the linear analysis. For achieving this, we use the Statistical Package for Social Sciences (SPSS version 11) program and STATA (version 9). The STATA is programming-based analytical tool that is being widely used in analyzing health statistics.

First, we present a summary of the study participants (*see table 5*).

Table (5) The individuals characteristics of the study participants		
Factor	**N**	**Percent**
Gender		
Male	62	41,3
Female	88	58,7
Total	*150*	*100,0*
Level of education		
Preparatory	23	15,3
Ausblidung	78	52,0
preparatory	23	15,3
University	24	16,0
Total	*150*	*100,0*
Age group		
18-29	20	13,3

30-35	28	18,7
36-45	46	30,7
46-64	31	20,7
65+	25	16,7
Total	*150*	*100,0*
Pre-tax income		
1-400	2	1,3
401-1000	30	20,0
1001-1500	36	24,0
1501-2000	36	24,0
2001-3000	25	16,7
3001-3524	11	7,3
3525-3899	2	1,3
Total	*142*	*94,7*

The table summarizes the study cases according to four characteristics; gender, level of education, age group and pre-tax income. The table reflects the following facts:

§ Around 58.7 percent of the cases are females and more than 50 percent of them had apprenticeship (Ausbildung).

§ Around 30 percent of the cases belong to the age category between 36 and 45 years old. The fast majority of the cases participants were in the age group between 36 and 64.

§ About 48 percent had a monthly pre-tax income between 1001 and 2000 Euro.

1. THE DESCRIPTIVE STATISTICS

§ Age

Figure (12) presents the age groups, as it is noticed from the diagram; the participants are classified into five age groups. The classification shows that, more than 30 percent of the cases are located in the age group between (36-45) years while approximately 15 percent of the cases are located in age group 18-29. It is worthy to mention that 18 percent of the cases are above 65 years old. Approximately, 50 percent of the cases are located in the age groups between 36 to 45 and 46 to 64 years. In these age groups, the level of healthcare consumption could be increased due to pregnancy, lowering physical ability and appearance of some health problems.

Figure (12) Distribution of the cases according to age groups
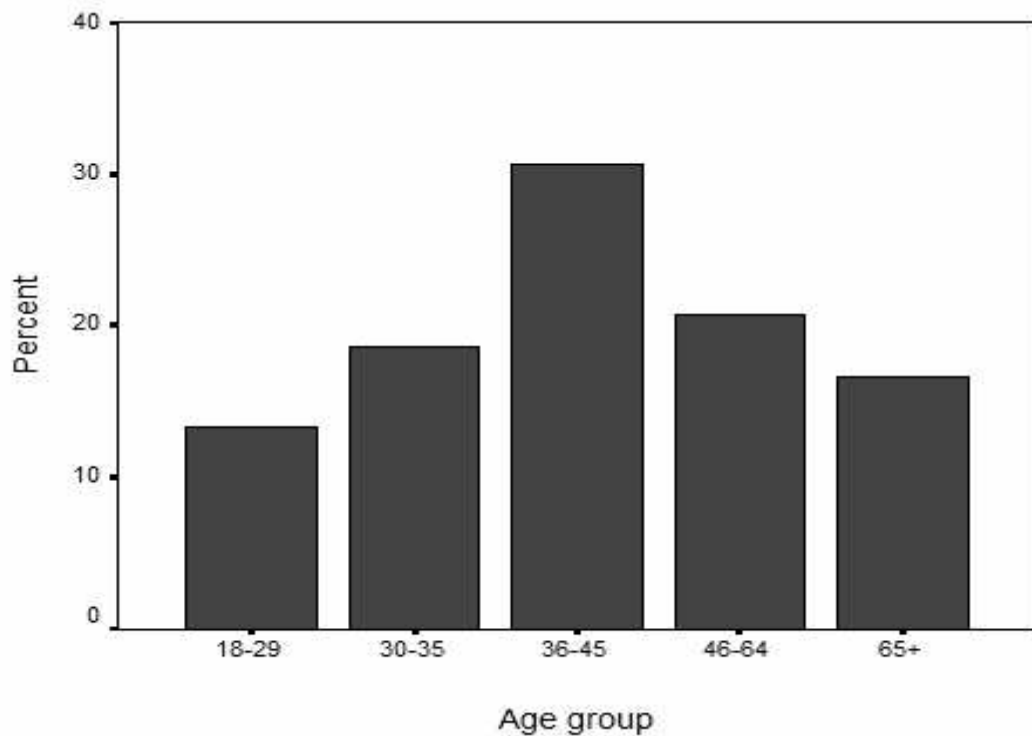
In the same context, it would of high interest to have an idea about the pattern of healthcare consumption. As we have mentioned before, the pattern of healthcare consumption has been measured by the number of visits to general practitioners and specialists in the last six months. Figure (13) shows that, the number of visits to general practitioners has been slightly grown with the increasing age of individuals. This increase mostly appears in the age groups (between 36-45 denoted by the number 3, 46-64 years denoted by the number 4 and in the age group 65 and above denoted by the number 5).

Age Group	Presence of health problem	Absence of health problem
18-29	15	5
30-35	22	6
36-45	33	13
46-64	15	16
65+	8	17

The above box shows that, by increasing age the presence of chronic health problem tends to increase. This would clarify the slightly increase in the number of visits to doctors.

Figure (13) Number of visits to general practitioners according to age group
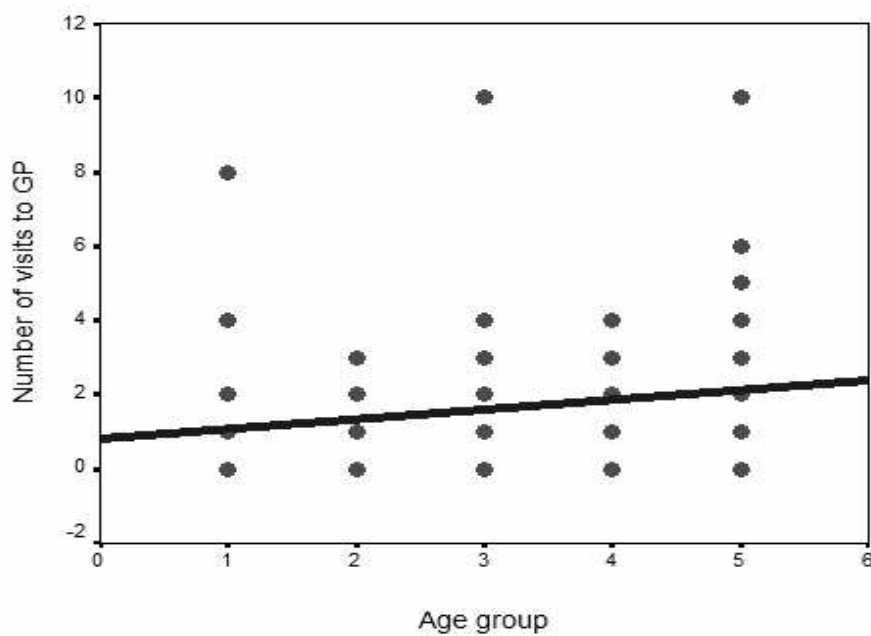
§ **Education**

The level of education has been approved by many studies as an important explanatory variable when the demand for healthcare or the perception of quality of healthcare need to be examined. In this study, education has been split into four levels: the preparatory, the *Abitur*, the *Ausbildung* and the university. Under the level of *Abitur,* we have included those who completed all degrees of gymnasium. Under the level of *Ausbildung,* we include all types of post-secondary school education (such as schools of paramedical sciences) but not university or faculty of applied sciences (*Fachhochschule*). Under the level of university, we include those who already had university degree (such as professors). Students have been included under the third level (Ausbildung). Based on these four levels of education, the distribution of the study participants is shown in figure (13). In this figure, we notice that, around 50 percent of

the participants were holding *Ausbildug*, where the rest was nearly equally distributed among the other three levels

Figure (14) Distribution of cases according to the level of education
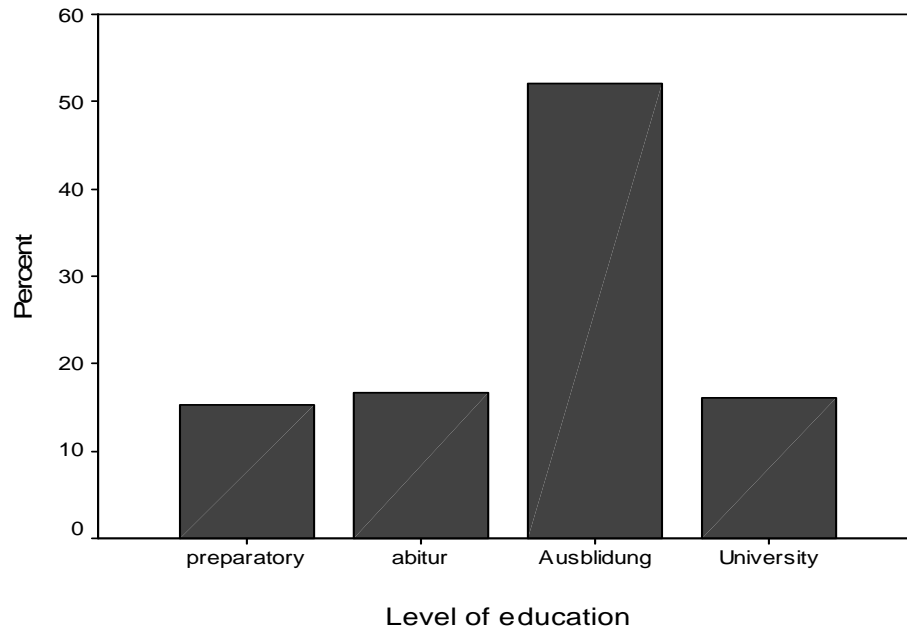
§ **Income**

Another important explanatory variable is the individual's level of income. Figure (15) shows the pre-tax income per month in Euro, only 5 percent of the study subjects refused to give information about their income, which is understandable. The figure shows that, around 25 percent of the participants have been earning between 1001 and 2000 Euro per month, while around 18 percent have earned between 2001 and 3524 Euro per month.To the highe income categories (3001-3524 and 3525-3899) belong around 10 percent of the total population.

In this context, we would like to see how individual's pre-tax income is distributed according to the type of health insurance. We run a cross-tabulation (see table 6) has been done for the pre-tax income and the type of health insurance, we notice that;

§ Around half of the privately insured individuals belong to the higher income groups, while most of the publicly insured individuals belong to the lower income groups.

§ Around 35 percent of the privately insured individuals belong to the income

category (6: 3001-3524 EURO), in compare to around 8 percent of the publicly insured

individuals. In general the income of the fast majority of those who held public

insurance policies is located between 1001 and 3000 EURO.

Figure (15) Distribution of cases according to the level of pre-tax income
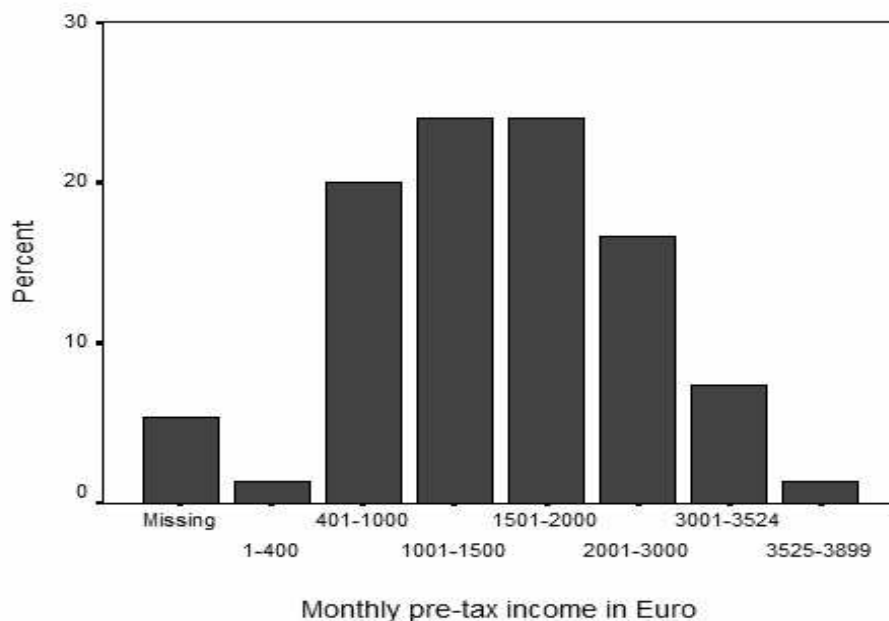
Table (6) the distribution of the study participants according to the type of health insurance and the income category

Category	Income in Euro	Public	Private
1	1-400	1	
2	401-1000	16	1
3	1001-1500	27	2
4	1501-2000	27	5
5	2001-3000	16	13
6	3001-3524	7	18
7	3525-3899	2	5
8	3900+	1	5

The Description of the Non-clinical Aspects of Healthcare According to Type of Health Insurance

We seek here to show the differences of the non-clinical aspects of quality according to

the type of health insurance. In other words, we would like to know whether the waiting

times, the velocity of getting appointment with doctors and the time devoted by doctors

for treating them are affected by the type of health insurance. As it has been mentioned before, waiting times have been measured by the length of stay in the office-based clinics in minutes (remember, we referred here to the last visit).

A deep look at the waiting times (see figure 16) reveals that, no case of the privately insured individuals has waited longer than one hour until they got in contact with treating doctors, while the publicly insured individuals have. We also notice that, around 8 percent of the publicly insured individuals waited between 60 and 120 minutes until they got in contact with their doctors. Generally, the bulk amount of the privately insured individuals waited shorter than the publicly insured individuals.

Figure (16) the differences in waiting times between the two insurance sectors
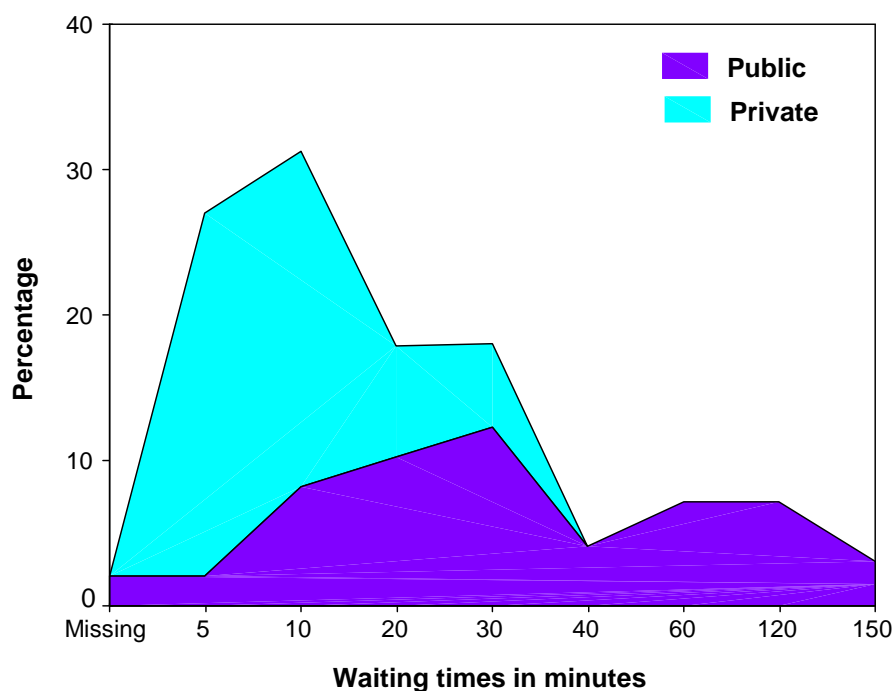
Then we move to the velocity of getting appointment with doctors. Here we asked the study participants to report about their experience in getting appointment in the office-based clinics. Figure (17) shows their responses; we notice that, the privately insured individuals gave better scores to their perception of appointments velocity than the pulicly insured individuals. More than 50 percent of the privately insured individual

rated the velocity of getting appointment with "excellent" (score 6), while less than 10 percent of the statutory insured individuals gave the same score. There is a small percentage of individuals who had no experience (have never visited doctors).

Figure (17) the velocity of getting appointment in the office-based clinics
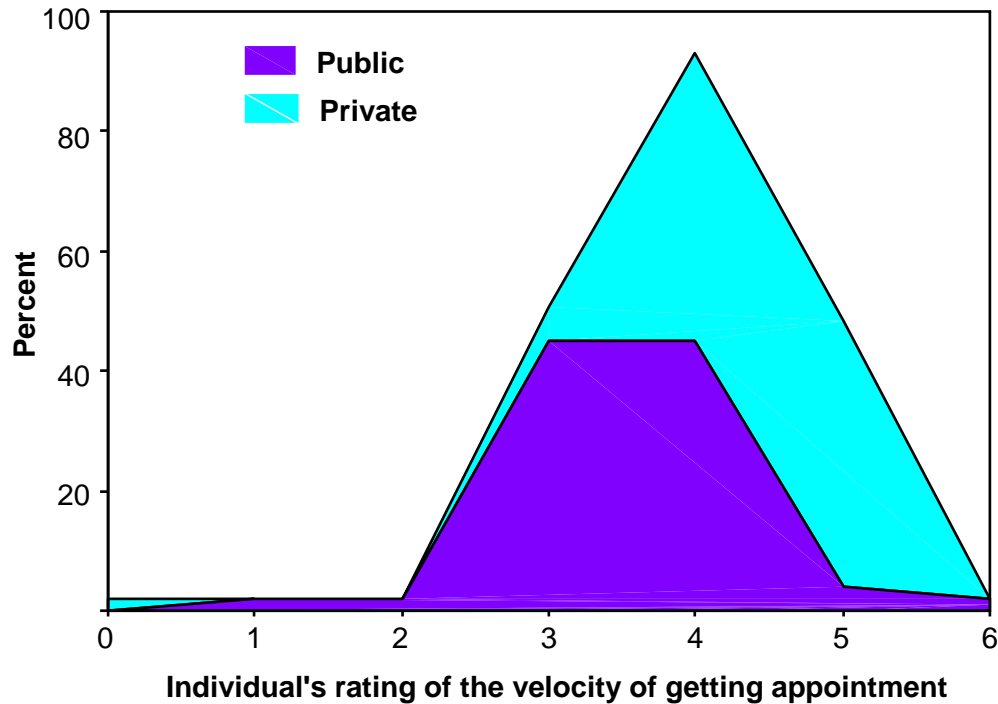
Another crucial aspect of the individual's perception of quality is the time devoted by doctors to listening and consulting them. Here we asked the study participants to report on their experience of how they perceived the time devoted by doctors for listening to their complaints and treating them. We gave them an ordinal scale ranging from (0) for "no experience" to (6) for "excellent".

Generally, a marked difference can be found between the privately and the publicly insured individuals in their perception of the timed devoted (see figure 18). We notice that, almost 80 percent of the privately insured individuals answered with "good" (given by score 4) compared to 40 percent of the publicly insured individuals who gave the same answer. The zero score was set for no experience (when the participant did not make any visit to doctors in the last six months).

Figure (18) Individual's evaluation of the time devoted by doctors
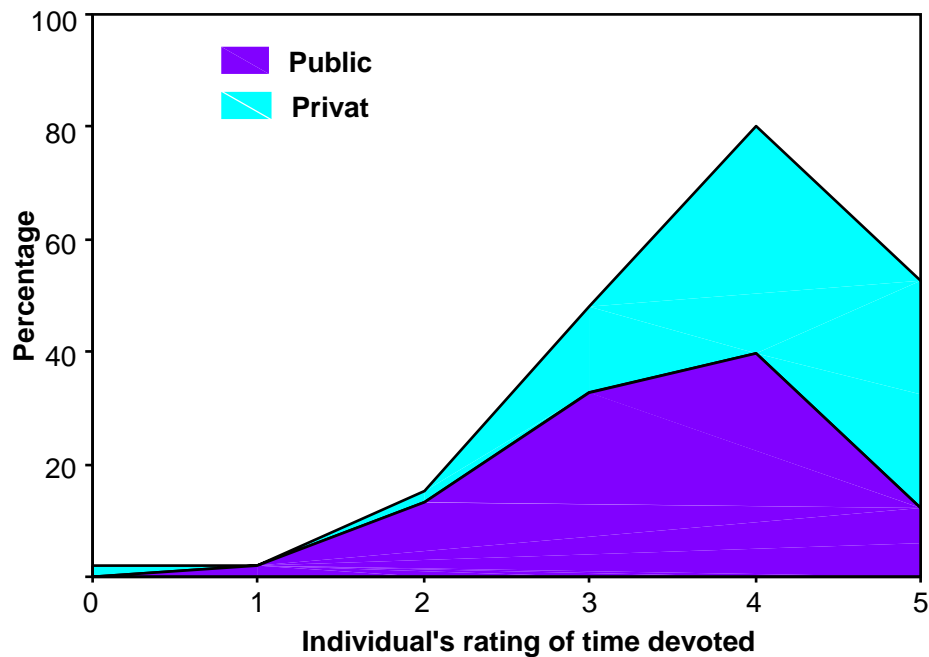
More interestingly, the perception of timed devoted by doctors has tended to decrease by the increasing number of visits. A deeper look at the number of visits to general practitioner and the individual's perception of the time devoted for them reveals that; when people visited doctors more their evaluation of the timed devoted went down (see the following box

Number of visits to general practitioner and the time devoted by doctors					
Scale	**no experience**	**bad**	**acceptable**	**good**	**very good**	**excellent**
1		2	2	16	17	11
2			8	8	20	8
3					7	2
4				4	1	2
5				1		
6			1		1	1
8				1		
10				1		1
	33	2	11	31	46	25

The Individual's Perception of Quality

We assess the individual's perception of quality; the assessment is based on an ordinal scale from 1 for (bad quality) to 10 for (excellent quality). Results are presented in table (7). The table depicts wide differences in the perception of quality between both insurance sectors. We notice that, the fast majority of the privately insured individuals gave higher scores to quality (around 77 percent of them gave scores between 8 and 10). While around 44 percent of the publicly insured individuals gave scores between (8) and (10). We also notice that, the lowest score given to quality by the privately insured individuals was (5), while the lowest score given to quality by the publicly insured individuals was (2).

Table (7) Cross-tabulation, Individual's perception of quality according to the type of health insurance

Scale of quality	Type of health insurance	
	Public	Private
1		
2	2	
3	3	
4	7	
5	16	2
6	16	1
7	11	9
8	20	23
9	17	12
10	6	5
Total	98 (65.4)	52 (34.6)

More interestingly, when the perception of quality is stratified according to age groups (*see table 8*), we notice that, it has been slightly grown with the increasing age. People who gave higher scores to quality were belonging to older categories, a phenomenon that requires further investigation (*see inferential analysis*).

Table (8) Cross-tabulation, Perception of quality according to age group

Scale	Age Group				
	18-29 **(11%)**	30-35 **(20%)**	36-45 **(31%)**	46-64 **(21%)**	65+ **(17%)**
2	1		1		
3	2			1	
4	1	1	3	2	
5	2	5	8	1	2
6	2	4	7	3	1
7	4	2	9	2	3
8	5	9	13	11	5
9	2	6	4	7	10
10	1	1	1	4	4
Total	**20**	**28**	**46**	**31**	**25**

Also, when it comes to the level of education, we notice that, the perception of quality is disproportionately related with education. Most people with Apprenticeship (Ausbildung) which represents the largest education category of the study participants, gave higher scores to quality (*see table 9*).

Table (9) Cross-tabulation of perception of quality according to the level of education

Scale	Level of Education			
	Preparatory	Abitur	Ausblidung	University
2		1	1	
3			3	
4	1	1	5	
5	4	6	7	1
6	3	1	12	1
7	1	1	14	4
8	5	5	21	12
9	5	7	11	6
10	4	3	4	
Total	**23**	**25**	**78**	**24**

Then, we construct a relationship between the individual's perception of quality and waiting times. This has been accomplished as followings: we divide waiting times into two categories; the first category represents waiting times of less than or equal to 30 minutes and the second category represents waiting times of more than 30 minutes. Table (10) shows that, people who waited shorter than 30 minutes in the office-based clinics evaluated quality better than those who waited longer. Around 74 percent of the

participants waited less than 30 minutes or equal until they got in contact with their

doctors. Around 81 percent of them rated quality between (7) and (10).

On the other side, around 25 percent of the total number of participants waited more

than 30 minutes. We have noticed that some of them had to wait more than one hour

until they got in contact with doctors. Around 32 percent of them rated quality between

(7) and (8). So, we have a marked difference in quality evaluation between the two

categories. When your waiting times increase the individual's evaluation of quality goes

down.

Table (10) Cross-tabulation of perception of quality and Waiting times in office-based clinics

Scale	Waiting times	
	Less than 30 minutes (label: **1**)	More than 30 minutes (label: **2**)
2	1	1
3	1	2
4	3	4
5	7	11
6	9	8
7	17	3
8	37	6
9	28	1
10	9	2
Total	**112**	**38**

2. INFERENTIAL

After we have seen the description of the relationships among the study variables, we

shift to find out whether we can contruct any deducation from those relationships. First,

we seek to figure out what factors might affect the individual's perception of quality. To

achieve this we introduce *Correlation Analysis* and then we use *Linear Regression.*

Correlation

Table (11) presents the correlation analysis of the type of health insurance, the velocity of getting appointment and the time devoted by doctors for treating patients.

Table (11) Correlation analysis

		Type of health insurance	Getting appointment	Time devoted
Type of health insurance	Correlation, Pearson	1	,358**	0,317**
	Significance		,000	,000
Getting appointment	Correlation, Pearson	,358**	1	,643**
	Significance	,000		,000
Time devoted	Correlation, Pearson	,317**	,643**	1
	Significance	,000	,000	

** Correlation: 0,01 significant.

We notice that, the type of health insurance is strongly correlated with the velocity of getting appointment (correlation coefficient 0,358). This means that, patients who were holding private insurance policies highly rated the perception of the velocity of getting appointment higher than those who were holding public insurance policies. The same results can also be noticed between the patient's perception of the time devoted by doctors for consultation and treatment. We noticed that patients who perceived that, their doctors invested enough time in listening to their health problems, consulting and treating them properly, evaluated this highly (correlation coefficient 0,317).

Table (12) Correlation analysis

	Perception of quality	Self-reported health status	Presence of health chronic health problem	Willingness for Co-payment	Premium Low or high	Education	Age group	Gender
Perception of quality	1,000	,128 ,120	-,011 ,895	,123 ,134	-,152 ,064	,000 ,996	,278** ,001	,005 ,949
Self-reported health status	,128 ,120	1,000 ,	-,588** ,000	,241** ,003	-,104 ,206	,148 ,070	-,229** ,005	-,114 ,165
Presence of health chronic health	-,011 ,895	-,588*** ,000	1,000 ,	-,163* ,046	,019 ,816	-,167* ,041	,317*** ,000	,239** ,003

problem								
Willingness to out-of-pocket	,123 ,134	,241** ,003	-,163* ,046	1,000 ,	,104 ,205	,261** ,001	-,107 ,192	,026 ,749
Premium Low or high	-,152 ,064	-,104 ,206	,019 ,816	,104 ,205	1,000 ,	,116 ,160	,078 ,342	-,025 ,762
Education	,000 ,996	,148 ,070	-,167* ,041	,261** ,001	,116 ,160	1,000 ,	-,248** ,002	-,110 ,182
Age group	,278** ,001	-,229** ,005	,317*** ,000	-,107 ,192	,078 ,342	-,248** ,002	1,000 ,	,112 ,174
Gender	,005 ,949	-,114 ,165	,239** ,003	,026 ,749	-,025 ,762	-,110 ,182	,112 ,174	1,000 ,

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

We run the correlation analysis for another group of variables, results are presented in

We notice that, the individual's perception of quality and age are significantly correlated; aging (correlation coefficient 0,275**), this is previously shown by the cross-tabulation (see table 8). The self-reported health status was also significantly correlated with the presence of chronic health problem or disability (correlation coefficient 0,588***) which is comprehensible. Individuals who perceived their health status as bad are those who were willing to make out-of-pocket payment for healthcare services, if these services are not covered by the insurance schemes (correlation coefficient 0,241**). This result might lead to the relationship that, the study participants have shown positive attitudes towards their health status. However, we could not assert a conclusion of this relationship, since; other factors should have been included in the correlation (such as the socio-economic characteristics of the individuals). Also the self-reported health status is inversely correlated with age (correlation coefficient -,229**), this means that ageing people gave lower scores to their level of health status than younger ages.

Educated people have been willing to pay out-of-pocket for the healthcare services that are not covered by the insurance schemes (correlation coefficient 0,261**). The study sample shows gender disparities when it comes to the presence of chronic health problem, we notice that females tend to have more chronic health problems than males (correlation coefficient 0,239**).

In the following analysis we run a linear regression model to find out what factors have an impact on the individual's perception of quality.

Regression

Here we present the linear regression analysis using the techniques of (STATA 10), for more information go to (http://www.stata.com/stata10/).

```
                    Figure (19) Regression Analysis

{Linear Regression}                              Number of obs =      138


                                                 F(  9,   128) =    13.21
                                                 Prob > F      =   0.0000
                                                 R-squared     =   0.4321
                                                 Root MSE      =   1.4384


       -----------------------------------------------------------------------
               |               Robust
       quality |    Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
       --------+--------------------------------------------------------------
      appointm |  .1225682   .1893228    0.65   0.519    -.2520394    .4971757
      waitingd | -.0126065   .0042928   -2.94   0.004    -.0211005   -.0041125
      timedevo |  .7684517   .1727489    4.45   0.000     .4266385    1.110265
      attitude |  .0958084   .3104728    0.31   0.758     -.518515    .7101318
       beitrag | -.8357671   .2725852   -3.07   0.003    -1.375123   -.2964108
      educatio | -.0037218   .1483614   -0.03   0.980    -.2972801    .2898364
      agegroup |  .1655441   .1137548    1.46   0.148    -.0595392    .3906274
      netincnm | -.0489022   .3021975   -0.16   0.872    -.6468517    .5490472
      pretaxic |  .1273741   .2560084    0.50   0.620    -.3791823    .6339305
         _cons |  3.890621   .7561013    5.15   0.000     2.394546    5.386697
       -----------------------------------------------------------------------
```

P-value of significance test is < 0.05, ** is < 0.01, and *** is < 0.001.

Figure (18) shows the regression analysis of the individual's perception of quality. The variables included in the analysis are; the velocity in getting appointment (appointm), the waiting times in office-based clinics (waitingd), the time devoted by doctors for

treatment and consultation (timedevo), individual's attitudes towards health risk (attitude); the willingness of individuals to pay out-of-pocket for healthcare, individual age group (agegroup), the monthly net-income (netincnm) and the monthly pre-tax income (pretaxic).

We notice that, three of the variables have shown significant effect on the individual's perception. These variables are; waiting times (waitingd, coefficient -,0126065), time devoted (timedevo, coefficient ,7684517) and individual's attitude towards health risk (beitrag, coefficient -,8357671). However, the time that, doctors invest in listening to patients and for consulting them (timedevo) is the strongest predictor of the quality perception, this is even stronger than the waiting times (has higher coefficient 0.7684517 compared to -0.0126065 for waiting times).

In box (1) we include the possible factors that can be related to the type of health insurance. The results reveal that, the health insurance premium, the individual's perception of quality and in the individual's willingness to make out-of-pocket payment have positive effects on the type of health insurance.

Box (1) Linear Regression. Dependant variable, the type of health insurance

Predictors	Standardized Coefficients	t	Significance
Insurance premium	,288	3,045	,003
Perception of quality	,266	3,448	,001
Pre-tax income	,310	1,321	,189
Net income	-,097	-,422	,674
Presence of health problem	-,116	-1,523	,131
Willing to pay out-of-pocket	,181	2,298	,023
Premium preference	,097	1,318	,190
Ihre Altersgruppe	-,052	-,619	,537
(Constant)		-4,797	,000

P-value of significance test is < 0.05, ** is < 0.01, and *** is < 0.001.

These factors show different effects;

1. There is a strong relationship between the insurance premium and the type of health insurance. The health insurance premium of the privately insured individuals of the study participants is higher than those of statutory insured individuals (coefficient 0,288**). However, we do not know how much premium would the privately insured individuals have paid if they had public insurance coverage.

2. The pereception of quality is strongly affected by the type of health insurance (coefficient 0,266**). We notice that the privately insured individuals gave higher scores to quality than the publicly insureds (P-value 0.001). Here also we do not know how the publicly insured individuals would have evaluated quality if they had private insurance coverage.

3. We notice also that those who were holding private insurance policies were willing to pay out-of-pocket for the healthcare services that are not covered by the health insurance (coefficient 0,181*).

3. DISCUSSION

The German's statutory health insurance is a nationwide system. It offers compulsory coverage for workers with certain income level and reimbursement is based on pay-as-you-go principle. The establishment of the (SHI) backs to 1883, and since that year, it has been passing through many reform policies. The co-existence of the private insurance sector has been designed to bring significant relief to the public health system. However, it is necessary to investigate the micro-effects of that co-existence on the healthcare provision. For example, the private and the statutory insurers reimburse healthcare providers at different levels. This can lead to creation of favourite group and imposing some access limitation on the members of the statutory insurance sector.

This work was aiming to study some of the micro-effects of the public-private insurance sectors coexistence. This study was focusing on the non-clinical aspects of healthcare quality. We have been attempting to find out whether differences exist in healthcare provision between both insurance sectors.

In this study, we found that the privately insured individuals waited shorter in the office-based clinics than those who had public insurance coverage. In some cases, waiting times have exceeded 150 minutes for patients who were holding public insurance policies. We also found that, waiting times affects individual's perception of quality. Patients who waited shorter, evaluated quality better than those, who had to wait longer until they were able to see their doctors. Similar findings have been reached by Lungen M. et. al., (2008).

 Waiting times have been considered an attribute of health services quality. However, focusing on waiting times alone as a possible factor for increasing demand for private health insurance would lead to overestimation. Since it is necessary to consider other attributes such as socio-economic characteristics of individuals, their health status and foremost the quality of the public healthcare services (Bazel 1974). Nonetheless, waiting for surgical procedure has been approved to be positively related with the probability of purchasing private health insurance (Besley, Hall and Preston, 1996 and Bonet 1999). However, due to data limitations, we can not conclude that waiting times can be considered as a stimulus for choosing private health insurance.

The impact of waiting times on the individual's perception of health care with the presence of other factors such as the time devoted by doctors remains uncertain. That means, hypothesizing the effect of waiting times on the individual's perception of health care while ignoring these other factors could be implausible.

So, in a further analysis (a regression model) we have weighted the impact of waiting times against the individuals' perception of time devoted by their physician on the perception of quality. We came to an interesting conclusion; we found that waiting times appear to be not significant (P-value 0.65). This conclusion has also been reached by others. In a study conducted in the USA, the researcher compared the strength of waiting times and the time that physician spends with patients in relation to satisfaction. He came to the conclusion that the time spent with physician is a stronger predictor of patient's satisfaction than the time spent in waiting rooms. This could be related to the notion that, waiting is something patient invests to see doctor and since he gets in contact with the doctor the focus shifts to the quality of this contact (Roger T Anderson, et. al. 2007).

The velocity of getting appointment has been investigated be several studies (Sawicki 2005, Bonet 1999, Preusker U K 2002 and Busse 2002). In this study, we found that the privately insured had a rapid access to doctors than the publicly insured individuals. These results have been also achieved by Harrison Interactive Inc. (2005), where they found that the privately insured waited shorter than one week for an appointment by specialists, while the publicly had to wait longer than one week. The Scientific institute of the General Regional Sickness Fund (WIDO) came to similar conclusion. Each fourth publicly insured individual had to wait more than 14 days for an appointment, while less than 8 percent the privately waited around two weeks. This trend has been markedly seen among elderly, eople who were 60 years old and older; around 13 percent of the publicly insured reported waiting times for almost 4 weeks to get an appointment, while on other side only 1.4 percent of the privately insured had to wait the same period. This has been also reported when seeking health care by specialists.

We found a marked difference between the privately and the statutory insured individuals in their perception of the time devoted by doctors. We notice that almost 80 percent of the privately insured patients answered with "very good" whereas, around 40 percent of the statutory insured patients gave the same answer. Among the possible explanations is that doctors can sell individuals health care services which usually the privately insured can purchase or his insurer covers. In some office-based clinics marketing takes place in waiting rooms, where some doctors make their patients curios in cooperation with some pharmaceutical companies (examples of this marketing can be found in the following commercial websites http://www.igelarzt.de/13/index.html, http://igel-kalkulator.de/home/).

As we have seen, differences are existing in healthcare provision between the members of both insurance sectors. Generally, members of the private insurance sector have enjoyed more privileges over the members of the public insurance sector. When some groups of patients have to wait longer than other groups, this raises question about the accessibility of the health system to the people it is supposed to serve.

Peoples' attitudes towards health risks as a predictor of individual's decision to choose health insurance has been measured by several studies (Propper C. 1993 and Costa J. and Garcia J. 2001). In this study we have chosen the same variable, we asked individuals whether they would consider paying for healthcare services, when these services are not covered by their insurance companies. We found, that this factor has strong effect on the health insurance premium. That means, people who pay higher premium would consider paying out-of-pocket for the healthcare services that are not covered by the insurance company. Nonetheless, we can not contribute this to the individual's decision of choosing health insurance.

CONCLUSION, FINDINGS, RECOMMENDATIONS AND LIMITATIONS

CHAPTER

7
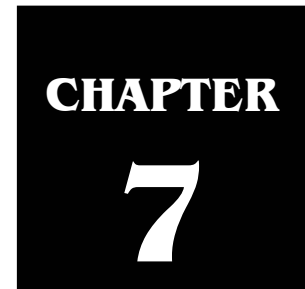
Studying health insurance and the insurance market is tuned to be a hard task as this market is influenced by several actors. Generally, health insurance is a mechanism that transfers financial risk from one individual to a group of individuals. The financial risk- that has been caused by health risk- is shared with others through deductibles.

The health insurance market was firstly discussed by Arrow (Arrow K. 1963 and Arrow K. 1965). He illuminated two aspects of health insurance; the form of insurance contracts and the function of the insurance market. With respect to the insurance contracts, he stated that, the insurance was created to protect individuals against the occurrence of unexpected events. So, health insurance could not cover predictable events such as services of pregnancy and maternity care. He explained also that the old insurance contracts were limited and did not cover illness-related disabilities. This from his point of view was the market response to moral hazard. He contributed the escalation of healthcare expenditures to lack of incentives for patient and provider to seek low cost healthcare. Arrow stated that, the insurance market of his time was lacking competition, for example the dominance of BlueCross which he considered as an institutional response to the lack of long-term healthcare.

Arrow's papers were considered milestones in studying health insurance market. However, applying them on the current situation would be implausible. Since the function of the whole healthcare system has changed. Investigating the insurance market needs to consider the epidemiological and demographic transition (such as the appearance of new diseases and aging of population). The generous coverage of some insurance scheme has pushed healthcare providers to adopt new technologies.

In the aftermath of Arrow, the role of the insurance market has been broadened and the insurance contracts have taken different forms and the scope of coverage has widened too (from hospital stay to glasses). This was automatically followed by changes in the risk pooling. Most of costliest people (such as elderly and those with permanent disabilities) are now covered by the public insurance schemes.

Another thing one has to consider when investigating the insurance market is the private-public mix. In the last decades, we have been witnessing a rapid growth of the private insurance sector. This trend, on one hand, has been viewed as a factor of alleviating financial burden of the public sector. On the other hand, it might be seen as a market imperfection. When a new insurance company emerges, it first studies the market and then provides insurance policies that might attract a large portion of people. This has been accomplished by either offering low premium insurance policy with high co-payment for low risk groups or offering high premium with low co-payment for high risk groups. At this moment individuals tend to weigh the benefits and losses that might be reached when purchasing insurance policy. The market imperfection can lead also to over-utilization; this might happen since in the case of third-payer party neither the provider nor the patient have the incentive to be concerned about costs.

Therefore, individuals have strong incentives to hide underlying health problems (a phenomenon known as adverse selection (for further readings about the evidence of this phenomenon on the health insurance see Altman, et al. 1998, Rodgers and Smith 1996 and Merrill, et al., 1985) and those who believe they are healthy will try to pay lower premium, even if they become underinsured. This in turn may push the insurance company to impose benefit cap or to exclude some services from the benefits package.

The insurance market is also influenced by the performance of it's actors, such as physicians, nurses as well as paramedical personnel. The performance of those providers is determined by the achievement of health outcomes as well as by the enhancement of healthcare quality

This quality can be either objective or subjective and it's improvement leads to more transparent healthcare. It also contributes to protecting patients against unnecessary health services and thus minimizing costs (Badura and Siegrist 1999). However, evaluation of quality has been differently conceptualized (Kerssens, et. al. 2004). While some researchers were focusing on the objective aspects of quality (some researcher call it internal quality), others focus on the quality from the view of patients (subjective).

This study was undertaken to verify the surfacing allegations that, differences in healthcare provision exist between the privately and the publicly insured individuals, and these differences can be affected by the type of health insurance. This study comes up with following three basic features.

First, the descriptive analysis shows that, there are differences in healthcare provision between both insurance sectors. The privately insured individuals enjoy some privileges over the publicly insured individuals. They waited shorter in the office-based clinics, they got appointments with doctors quickly and the time devoted by doctors for treatment and consultation was longer. These differences have led the insured

individuals to differently evaluate the quality of healthcare. The privately insured individuals have rated quality higher than the statutory insured individuals.

Second, the perception of quality is affected by the type of health insurance, people who had private insurance coverage gave higher scores to quality of healthcare of the last medical visit. However, we can not conclude that, this perception can be among the determinants of purchasing private insurance coverage. Since the study survey does not contain enough data to make such a conclusion. We do not know how much premium should the publicly insured individuals have paid if they had private insurance coverage. This is also applicable for the privately insured individuals. The study survey suffers from data limitation on how the publicly insured individuals would have evaluated quality if they had private insurance coverage.

As any other studies, this study suffers from some limitations;

§ We have a problem of generalizability; unfortunately we can not generalize our results, since this study has been undertaken in a small group of people who could not be representative of larger population.

§ During the data collection process, we could have been confronted by same recall bias. This bias could be found in the pattern of healthcare utilization, when we asked participants to report on the number of visits they have made to doctors in the last six months.

§ When it comes to the impact of waiting times, our study has added the time devoted by physicians for patient's treatment and consultation. However, our sample does not have data on possible confounders such as the physician's characteristics, the characteristics of the healthcare facility as well as the type of healthcare it's provides.

There are also no data on the severity of patient's illness which could affect patient's perception of healthcare.

STUDY RECOMMENDATIONS

§ Due to the different purposes of waiting times, we recommend in-depth studying of this phenomenon. It would be of high interest to differentiate waiting times according to the healthcare settings; for example, specialist office- and general practitioner-based clinics. Furthermore, it is necessary to keep a balanced mix of both insured individuals, since having only private insurance policyholders would not lead to shorter waiting times.

§ The perception of quality is a wide term, this makes it not easy to investigate what factors could affect it. However, this study has tried to show some of these factors. For further investigation, we recommend studying the impact of the number of visits on the individual's perception of quality. We could expect that, patients who visit doctors often are tend to evaluate quality different to patients who rarely visit doctors.

§ A major lacuna in healthcare research is the lack of data to examine the technical quality versus the individual's perception of quality.

§ It is highly recommended to better understand the insurance market and to know what kind of competition does this market offer it's actors. The annual report of the Private Insurance Association (PKV Facts and Figures) reveals growing demand for supplementary coverage such optional hospital benefits, outpatient benefits (such as dental care) and insurance coverage against loss of income. This trend would be also of high interest to investigate.

LAST WORD

There is no doubt that the German health system is one of the best functioning systems worldwide. It provides universal access with comprehensive insurance coverage. The new reform policies require that every individual living in Germany have the minimum coverage of the benefits package (hospital and out-patient care). People have several options to get insurance coverage; they can either have government-regulated health insurance coverage (provided by the different sickness funds) or private insurance or have a combination of both, which needs to be overseen by governments. This can be accomplished when government establishes a framework for competition within the insurance market. This means that quality of health services and qualification of health care providers should be the focus. Contributions should be set based on the average expected expenses and the average risk. This will exclude insurers who charge high or low premiums from the market.

This study has sought to open up debate over the micro-effects of the expanding role of the private insurance sector. From our point of view, the study findings would be of considerable consequences for health policy-makers. It states that, the introduction of universal health insurance coverage does not necessarily mean an equal access to healthcare. Rather, disparities in the reimbursement of healthcare providers should be reduced. Otherwise, doctors will find more incentives to treat the privately insured patients than the statutory insureds.

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Appendix (1) Fragebogen zur Krankenversicherung

Krankenversicherung

1. Sind Sie gesetzlich oder privat versichert? | Gesetzlich | | Privat |

2. Wenn, gesetzlich, haben Sie noch eine zusätzliche Krankenversicherung? | |

3. Wie hoch ist Ihr Versicherungsbeitrag? | |

Ihr Gesundheitszustand

4. Haben Sie in den letzten sechs Monaten Gesundheitsleistungen in Anspruch genommen?

| **Ja** | | **Nein** |

5. Waren Sie in den letzten sechs Monaten beim Allgemeinmediziner? Wie oft? _____

| **Ja** | | **nein** |

6. Waren Sie in den letzten sechs Monaten beim Spezialisten- Kein Zahnarzt ? Wie oft? _____

| **Ja** | | **nein** |

10. Waren Sie in den letzten sechs Monaten im Krankenhaus?

| **Ja** | | **nein** |

11. Bei Ihrem letzten Arztbesuch wie lange haben Sie warten müssen bis die ärztliche Behandlung erfolgte? _____

12. Bei Ihrem letzten Krankenhausbesuch, wie lange haben Sie warten müssen bis die ärztliche Behandlung erfolgte? _____

13. Bezogen auf Ihrem letzten Besuch, auf einer Skala von 1 bis 10, wie würden Sie die Qualität der Gesundheitsversorgung bewerten? Wobei 1 ist schlecht und 10 ist gut

1	2	3	4	5	6	7	8	9	10

14. Auf einer Skala von 1 bis 10, wie ist die persönliche Wahrnehmung Ihres Gesundheitszustandes? Wobei 1 ist schlecht und 10 ist gut

1	2	3	4	5	6	7	8	9	10

15. Wie leicht ist es, einen Termin beim Arzt o. im Krankenhaus zu bekommen?

keine Erfahr.	schlecht	es geht	gut	sehr gut	ausgezei

16. Wie umfangreich ist die Zeit, die der Arzt und die Angestellten der Praxis für Sie aufwenden?

keine Erfahr.	schlecht	es geht	gut	sehr gut	ausgezei

17. Haben Sie ein chronisches Gesundheitsproblem oder eine Behinderung?

Ja	**Nein**

18. Falls die Kosten der erforderlichen Behandlung nicht von Ihrer Krankenkasse übernommen würden, wären Sie bereit die Kosten privat zu tragen?

Ja	**Nein**

19. Was ist Ihnen lieber, wenn sie wählen könnten? ein höherer Beitrag, wodurch alle Arztkosten abgedeckt sind oder ein niedrigerer Beitrag und Sie sind bereit Arztkosten mit zu übernehmen?

hoch	**Niedrig**

Sozioökonomischen Determinanten

20. Was ist Ihre höchste Ausbildung? _____, was machen Sie beruflich? _____

21. Ihre Altersgruppe

Gruppen	Alter	Geschlecht
18-29		
30-35		
36-45		
46-64		
65 und darüber		

22. Ihr monatliches Einkommen in Euro

Kategorien	Brutto	Netto
Keins		
0 bis 400		

401 bis 1000		
1001 bis 1500		
1501 bis 2000		
2001 bis 3000		
3001 bis 3524		
3525 bis 3899		
3900 und darüber		