Which variables influence having private health insurance and to which extend PHI is attractive compare to other fridge benefits offered on the employment market.

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15.05.2010

Acknowledgements

Private Health Insurance is a relatively new trend on the market in Norway and I had the opportunity to follow it up during years 2009 and 2010 while writing my work.

I am glad I could use my creativity and hard work and write about nowadays trends in health care in Norway. It was a challenging process from creating primary data basis up to analyzing it and making conclusions.

I dedicate this master thesis to my beloved family. I would like to thank you my supervisor Professor Terje P. Hagen at the Institute of Health Management and Health Economics for his constructive feedbacks and his always helpful advices. To Johan, Zinajda Zolic,Sabrina Bertoldin and Maria Kimasheva for their help in data gathering, inspiration and friendly support during these months. Sincerely thanks to all the respondents for their time and patience to answer questionnaire.

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Oslo,10.05. 2010

Abbreviations and Acronyms

BC	Before Christ
EU	European Union
EEA	European Economic Area
FRp	Fremskrittpartiet
GDP	Gross Domestic Product
GNP	Gross National Product
GPs	General Practitioners
HDI	Human Development Index
PHI	Private Health Insurance
MMI	Markeds og Mediainstituttet
NIS	National Insurance Scheme
NHS	Norwegian Health System
OECD	Organisation for economic co-operation and development
PPP	Purchasing Power Parity
SINTEF	Scandinavian biggest research concern
SSB	Statistisk Sentral Byrå
SPSS	Statistical Package for the Social Sciencies

Abstract

Private Health Insurance is a relatively new phenomena in Norwegian health care. This study investigates which variables influence having PHI and to which extend PHI is preferred compare to other fridge benefits. I check whether socio-economic factors like education, marital status, personal income and type of work also age, gender and personal attitudes toward PHI have any meaning for my dependent variable in my questionnaire.

The analysis is performed is a logistic regression in SPSS and all the results can be found in descriptive and regression statistics.

Surprisingly enough the only meaning have variables like risky job, access to information about PHI and gender (young men). As for the fridge benefits, PHI is the third preference out of five presented in the questionnaire.

It looks like Norway with its developed welfare system made a step toward market oriented system-existence of PHI. It is also challenging to observe how both the market and different groups adjust to it.

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1. Introduction

National health care or universal health care is a broad concept and has been implemented in many different ways worldwide. Each country's system is a product of its unique conditions, history, politics and national character and many are undergoing significant reforms.

However , a closer look shows that nearly all health care systems worldwide are wrestling with problems of rising costs and lack of access to care. There is no single international, common model for national health care, of course. (Michael Tanner 2008)

Critics of Norwegian health care system debate over issues as the ability to choose a health care provider, involvement in decisions regarding care or treatment, and long waiting lists for care.

Hence health insurance with its obstacles like: long waiting lists for treatment, rationing care or restrictions on physician choice does not mean universal and fair coverage. In spite of above mentioned, it does not seem as Norway with its national health care system would make a drastic changes in respect of universal coverage to its inhabitants.

The step toward more market –oriented system existing PHI besides national health insurance is made however.

It is important to take into consideration all social, historical, economical and political aspects in order to understand the tendency and attitude toward private health insurance on employment market in Norway. It is also challenging to observe how the different groups in the typical social-democratic welfare system adapt to the market of private health insurance in Norway.

Research questions in my work are the following:

1.What kind of variables influences having of PHI?

I am making a research regarding probability of having PHI in my sample and whether the results will indicate importance of having of PHI for the respondents.I am checking which variables have an impact on having PHI among the respondents.If this is important for the

sample then there is a probability that offered PHI by employers will be attractive to employees.

2. To which extend PHI offered by employers does attract the employees compare to other fringe benefits offered.

If having PHI is important for the sample, then offered PHI by employer will be attractive to employee. Hence, if having PHI is an important issue, then it is important who is covering the cost of it in this case. I am checking if and to which extent it is attractive to the employee to have the cost of PHI is covered by the employer together with other fridge benefits. I am making also a research to which extend covering of PHI is important compare to other fridge benefits offered.

The result from Finansnæringens Hovedorganisasjon shows that 1 July 2009 there were present 178773, 00 of PHI (health private insurance) in Norway. This is a meaningful rise since year 2003 where only 24 843 of population had such kind of insurance. It means that if the amount of population will grow in the same tempo, over 1 million Norwegians will have PHI in 6 years in theory (Gunnar Thorenfeldt 2009).

The research done by Synovate for Manifest Analyse by Magnus E.Marsdal shows that majority of population in Norway does not want a type of health insurance to influence waiting time for treatment.

81 % of respondents answered that there should be the same waiting time for all patients once asked whether there should be the same waiting time for treatment in health care for every patient or whether patients with PHI should be prioritised in order to avoid waiting time according to manifestanalyse, see kildelista. Hence, the primary goal for the health care sector is to provide adequate and appropriate health care services for everyone in Norway irrespective of geographical location, financial circumstances, social status, age, sex and ethnical background (Helse- og omsorgsdepartementet 2007;Helse- og omsorgsdepartementet 2009b). In this case usage of PHI as a trade off between public waiting queues for treatment versus private faster treatment does raise a lot of debates.

An important issue in a system with predominantly public health care is how the government should treat alternative private treatment. It has been argued that a private alternative may undermine the public system, so the government ought to discourage any private alternative. The most drastic form of discouragement would be to forbid various types of private treatment. A less drastic form of discouragement would be to impose a tax on private

treatment or to implement quotes for amount of private providers. One could also argue at those who choose the private alternative should be subsidized by the public health insurance.

(Michael Hoel et.al 2007)

PHI trend in Norway is not only considered to be as a new one but also as controversial in many social and political aspects. There are particular attitudes and preferences toward having PHI, which is mentioned further but this is not the main aspect of my work, however.

The aim of the work: is to establish what kind of variables influence probability of having PHI (dependent variable).What are the preferences in respect of having PHI among women and men, accordingly to age,to social status, health condition. Are these preferences influenced by salary, risky job, attitude toward PHI (waiting list versus paying for stay in the hospital) , health status (independent variables).I am also interested whether supply side (personal and organizational revenue) influences the choice of PHI. To which extend PHI offered on employment market is attractive compare to other fridge benefits.

It is important to bear in mind, that private health insurance is a relatively new trend on Norwegian market. I find it challenging to start writing the work in the times of global financial crisis, which does influence the employment market in general.

This Master thesis consists of 4 chapters. First chapter describes the health care system and financing structure in Norway in order to give a general idea of health care sector and its mechanism. Second chapter concerns theory data and methodology. Supply and demands sides are discussed. Data collection issues, response rate and problem of generalization.

There is attached questionnaire in Appendix. Results of questionnaire together with descriptive and regression statistics can be found in chapter three. The last chapter consists of conclusion and discussion.

1.1 Norwegian health care system

"...Into whatever houses I enter, I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption ... "

The Hippocratic Oath

The Norwegian economy may be described as welfare capitalism, featuring a combination of free market economy and government interventions and regulations.

Norway has gradually become one of the richest countries in the world since discovering vast amount of Petroleum resources in the North Sea. In 1990 the Norwegian Petroleum Fund was established and from then on the surplus on the state budget from oil industry was transferred to a fund outside the domestic economy. In 2007 the market value of Petroleum Fund's assets was more than 373 USD billion according to Norwegian Ministry of Finance in 2007.

In comparison to other European countries, its GDP is 43% above the average in the EU (allowing for price differences in the different countries).Regarding personal consumption, which includes general government consumption expenditure on the individual –e.g. .health and education services), Norway is somewhat above the average.(Jan Roth Johnsen 2006)

Norway ranks among the top 10 countries of the world in GNP per capita and has one of the world's highest standards of living. Since the 1950s Norwegians have spent a smaller share of their income than formerly on food, beverages, and tobacco. Travel and leisure activities have increased their share rapidly, however, as have such household goods as electrical appliances. During the 1960s the number of automobiles per inhabitant increased dramatically, from 1 car for every twenty firs person, to 1 car for each third person; it now is about 1 car for every second person. A four-week vacation every year with somewhat more than full wages was established by law in 1964. Working hours may not exceed 9 hours a day or 40 hours per week. A five-day workweek had become the rule by the late 1960s. (SSB)

The Norwegian welfare state can be regarded as an insurance institution aimed at protection of the citizens against risks related to disease, disability, unemployment or old age, and many more. Equality in respect of provided access to service is guarantied regardless of social status, location and income. These rights are regulated by two laws-The National Insurance Act and The Social Care Act, which are the statutory mainstays of Norwegians' social rights.

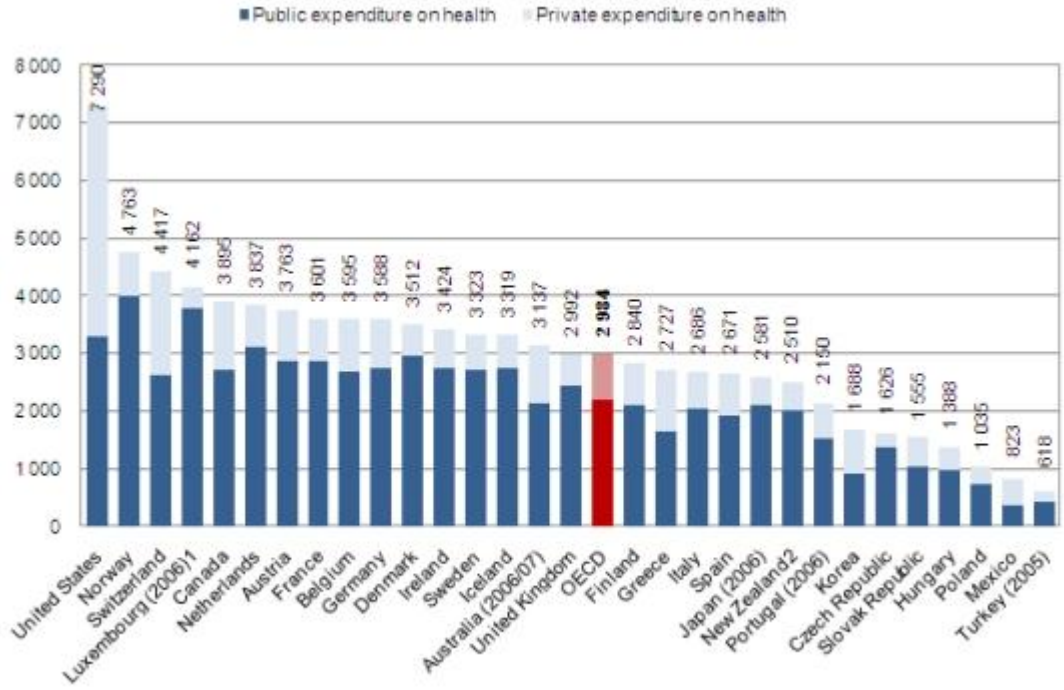
The universalism and comprehensiveness in the Norwegian welfare system has distinguished it from that of most countries. The Norwegian welfare state is further distinguished by a high labour market participation particular for women and an institutionalised commitment to full employment through active labour market measures. Central trade unions have contributed to equality in wages and the base level of income is relatively high and unemployment is

relatively low. Norway is then regarded as a prototype of the social-democratic welfare regime.

Major public social service policy programs such as sickness benefits, national medical insurance covering the entire population, day care and family allowances lags before that of many nations. State institutions have major responsibilities for the administration and delivery of service. Public social expenditures are than higher than the most nations in the world.

In 2007, total expenditure on health sector was 8, 9 %, compare to 16 % in USA. Total expenditure on health per capita in USD in 2007 in Norway was 4763 annually compare to USA 7290. Public expenditure per capita is USD was 4005 compare to USA -3307. Data is taken from OECD health data, 2009.

Table 1. - Total health expenditure per capita, public and private, 2007



Source :(OECD data, 2009)

The nowadays trend toward total health expenditure per capita in Norway can not be described better than below.

Quote ”In social provision the market has a weaker role than in most other countries ,which means that provision through private insurance and employers sponsored schemes are less

widespread. These facts mean that high level of public social expenditures lead to less need for private insurance (including health insurance. However, the result from the last years show that there is an increased tendency in expenditures on private insurances, private health insurance including ".Unquote(Per Arne Tufte et.al 2007).

It is so true that Norway offers a broad welfare concept with obligatory health insurance provided by employers. This of course leads to less share of PHI on health care marked as the whole. Patients have of course their preferences too in terms of choice of the form of health insurance and this can not be denied.

Principle of equal access to services -all inhabitants should have the same opportunities to access health services, regardless of social or economic status and geographic location is the ground for the organisational structure of Norwegian health care system. These rights are regulated by National Insurance Act and Social Care Act, and are also implemented in the culture of the Norwegian welfare system.

Norway has a universal, tax-funded, semi-decentralized national health system. Main actors involved in health system are the public ones .However, local governments have some taxing autonomy. In comparison for example with the centralized British NHS, local and country governments have an important role in allocating resources. The national health care ensures almost free access to health care for all citizens in order to guarantee universal cover for illness. The supply of health care is organized mainly by the state and funded by taxes. The described model has its bias though like questionable quality of treatment and extremely long waiting lists before access to specialist care might be possible (Teje P.Hagen et.al 2006).

During last decades there have been change of the NHS model in Norway from a decentralized to semi-centralized. The health care systems in Scandinavian countries are often characterized as being run according to a decentralized NHS model: funding is raised by taxation regulated by public actors. As a consequence of The Norwegian Hospital Reform of 2002 the responsibility for and ownership for public hospital in Norway was taken over by central government. As the result, the responsibility for primary care and secondary care has been divided between different governmental levels. The regional health authorities are responsible for specialized health care, while the local governments are responsible for primary health care. The organization of the regional health authorities and the health enterprises is unique to Norway, since it combines mix of private and public elements. The regions have two roles, the authority role and the enterprise role. In their principal role

regions have a “care role” in providing the population with specialized health care services. The other role is as a supplier and producer of specialized health care, since regions own the health enterprises. During the last three decades Norway has developed enterprises that enjoy an element of freedom similar to that seen in the private sector, although the state has built-in directing/steering and control mechanisms in the organization. (Jan Roth Johsen 2006). Norway can be seen as a great example of delegation of power within health care organization.

Principal health policy objectives and frameworks are determined by central government and form the basis for managing the enterprises. The municipalities have a great deal of freedom in organizing health services, which is one of the many tasks for which they are responsible. There is no direct command and control line from central authorities down to the municipalities who are responsible for primary health care. The funding system was changed in 1986 giving the municipalities a greater degree of autonomy in the global transfer from the state. The earmarked funding system from the state to the municipalities is considered to be an effective tool to increase resources in certain areas as well as improving quality standards.

Unlike the regional health authorities the municipalities have the right to levy taxes on the population in order to finance their activities. Even though the responsibility for the health services is delegated there is a large element of third-party payment involved and legislation is a useful control tool .

Below is specified description of organization of health care system on the levels from national to local.

The Norwegian health care system is organized on three levels:

a. National level: Overall responsibility for the health care sector rests at the national level, with the Ministry of Health and Care services. The government sets a global budget limiting overall health expenditures, and setting capital investment expenditures for hospitals. Reimbursement rates are set by the government and balance-billing is prohibited. Although the central government retains responsibility for and authority over the system, some management and funding responsibilities have developed to regional and municipal governments.

b. Regional level is represented by five regional health authorities, who have responsibility for special health care; and the local level represented by 434

municipalities has responsibility for primary health care. This includes both somatic and mental health institutions, as well as other specialized medical services, such as laboratory, radiology, and ambulatory services, special care of persons with drug and alcohol addictions. There are at present 32 health enterprises under the five regional health authorities.

c. Local level: the municipalities have a great deal of freedom in organizing health services, which is one of the many tasks they are responsible. The funding system was changed in 1986 giving the municipalities a greater degree of autonomy in the global transfer from the state. The earmarked funding system from the state to the municipalities is considered to be an effective tool to increase resources in certain areas as well as improving quality standards. In general, the municipal governments are responsible for primary health care, while regional health authorities are responsible for specialist care. Unlike the regional health authorities the municipalities have the right to levy taxes on the population in order to finance their activities (Jan Roth Johnsen 2006)

The Norwegian health care system includes both private and not-for profit and private profit –making agencies. Private sector services are in most cases fully embedded in the public system, with some exceptions. Not-for profit agencies, typically include hospitals or institutions set up as trust that, in principle, are financed and seen as an integrated part of the public health services i.e. the diaconal trust owned by the Norwegian church. Private profit-making agencies have a subordinate role within the Norwegian health care system and were established primarily to complement publicly-funded services, for example, plastic surgery. As an illustration of the private sector's subsidiary role in the health care system, it is worth mentioning that in 2004 there were only 284 private somatic hospital beds, while there were 13 000 hospital beds in the public sector.

All Norwegian citizens, as well as anyone living or working in Norway is covered under the National Insurance Scheme. Norwegians can, however, opt out of the government system, by paying out of pocket. In addition, many Norwegians go abroad for treatment to avoid the waiting lists issue or to obtain the treatment, which is not supplied under the government program.

The Norwegian health care system has undergone several important reforms during recent decades. Generally, national reforms that have had an impact on the health care system have

focused on three broad areas: the responsibility for providing health care services, priorities and patients rights and cost efficiency. Future challenges according to National Health Plans for Norway (2007-2010) include further cost containment, professionalism and quality, equality and fair distribution of health care.

The health status of the Norwegian population is one of the best in the world. The key strengths of the Norwegian health care system include provision of health care services for all based on need (regardless of personal income), local and regional accountability, public commitment and political interest in improving the health care system. While Norwegians generally report that they are "fairly satisfied "with the way their health care system is run, there has been growing discontent over such issues as the ability to choose a health care provider, involvement in decisions regarding care or treatment, and waiting times –which has been an ongoing issue in Norwegian politics.

However, the citizens of Norway are more likely to have a significant faith in government actions and to be suspicious of fee |markets. Norwegians are known for social solidarity and equality ahead of quality and choice when it comes to health policy. (Michael Tanner 2008)

1.3. Financing of health care system

The Norwegian health care system is financed through **a. general tax revenues** with no earmarked or dedicated tax for health care. Thus, health care becomes one large contributor to a tax burden that consumes 45 % of GDP.

The municipalities have the right to levy proportional income taxes on their respective populations, while the regional health authorities must rely on transfers from the central government. Resource allocation does not vary among the regional health authorities and the municipalities .The regional health authorities are financed by basic **b. grants, earmarked** means and activity-based funding (based on DRG system and other free-for-service, and local taxes. The authorities have the freedom to set up their own financing arrangements (except for user charges, which are set by the central government),but in practice the same financing arrangements owned ,and therefore, health care personnel are mainly salaried employees, with the exception of GPs (Michael Tanner 2008).

The entire resident population of Norway is covered with regard to needs and the financial burden of using health care services, and there is only a small connection (limited to out –of pocket payments) between individual health risks and costs. There is no specific health tax in Norway though.

Block grants provide the primary source of funding, but the financing of health care services is also supplemented by state grants, earmarked means and some user charges. Benefits are extensive and include inpatient and outpatient care, diagnostic services specialist care, maternity services, preventive medicine, palliative care and prescription drugs.

At public hospitals there are no charges for staying or treatment including drugs. However, small co-payments, out of pocket payments are charged for outpatient treatment and for treatment by a general practitioner, psychologist or psychiatrist. The program also provides "sick pay", and disability benefits. With regard to health care services, inpatient care in general hospitals does not involve **c. out of-pocket payments**, but these are payable for consultations with private specialists, ambulatory care, GPs consultations, X-rays, laboratory tests and drugs. Most of these out-of-pocket expenditures are included in the cost ceiling scheme that was introduced in the early 1980s. The ceiling is set each year: in 2006 it was NKr 1615. When the cost ceiling has been reached in any calendar year, most of additional out-of-pocket expenses are reimbursed by the NIS, and remaining treatment in that calendar year is therefore free of charge. In 2005 around 1 million Norwegians reached this ceiling. According to OECD, the share of out-of pocket expenditure in the Norwegian health care system has been stable during the last two decades at about 15 % (Jan Roth Johnsen 2006).

Individual spare funds, social spare funds and private insurance funds are also considered as part of financing mechanism of health care service.

The social insurance system, managed by National Insurance Scheme (NIS), provides financial security in case of sickness and disability. There is no exact definition of the "coverage package" in the Norwegian health care system. (Michael Tanner 2008). Persons insured under the National Insurance Scheme are entitled to retirement, survivors` and disability pensions, basic benefits and attendance benefits in case of disability, rehabilitation or occupational injury.

The government sets a global budget limiting overall health expenditures, and setting capital investment expenditures for hospitals. Most general practicing health care specialists and physician specialists outside hospitals receive a fixed salary, although some specialists

working on a contract basis receive both an annual grant and fee-for-service payments. Reimbursement rates are set by government and balance –billing is prohibited. Most other health care personnel are salaried government employees.

As it is presented in Table1.high level of public social expenditures also means that the need for private insurance to secure social security would be less than in a typical liberal welfare state system. However, no welfare state system can secure all kind of social service demanded.

Table 2. Coverage of public health insurance schemes over total population, 1980-2003

Public health care coverage, per cent of total population

Sources of revenue as a percentage of total expenditures on health 1980–2003, selected years
Public expenditure on health %

	1980	**1985**	**1990**	**1995**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Government, excluding social security	85.1	85.8	82.8	84.2	84.7	85.2	85.0	85.5	85.3	85.5
Private expenditures on health	14.9	14.2	14.6	15.2	14.8	14.3	14.5	14.0	14.7	14.5
Other private funds	0	0	2.6	0.6	0.5	0.5	0.5	0.5	0	0
Total:	100	100	100	100	100	100	100	100	100	100

Source:(OECD Health Data 2005; a Statistics Norway, 2006)

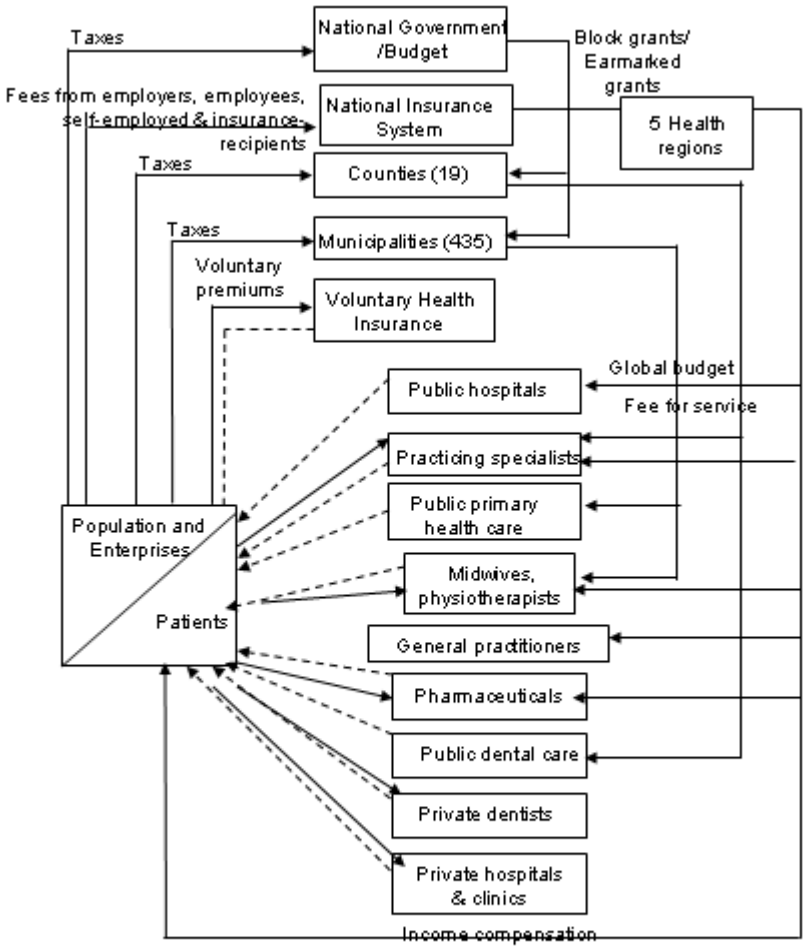
Table 3. Trends in health expenditure

Trends in health expenditure, 1997-2008(selected years)											
	1980	**1985**	**1990**	**1992**	**1995**	**1998**	**2000**	**2001**	**2002**	**2003**	**2004**
Total health expenditure at 1995 GDP price level (in NKr billion	42.6	47.4	60.2	67.8	74.3	95.9	112.6	135.3	150.0	160.0	167.9*a*
Total health expenditure per capita PPP	659	943	1 385	1 643	1 897	2 314	2 784	3 287	3 616	3 807	–
Total health expenditure as % of GDP	6.9	6.6	7.7	8.2	7.9	8.5	7.7	8.9	9.9	10.3	9.9*a*
Public expenditure on health as % of total expenditure on health	85.1	85.8	82.8	84.8	84.2	84.7	85.0	85.3	85. 6	85.5	–
Private expenditure on expenditure on health as % of total expenditure on health	4.9	14.2	17.2	15.2	15.8	15.3	15.0	14.5	14.7	14.5	–

Source: (OECD Health Data 2005; a Statistics Norway, 2006.)

Total expenditure on health in Norway amounted to NOK 168 billions on 2004 or 36 000 NOK per capita. Public sector spending on health accounted for about 84% of total expenditures. Central government, local government and the NIS are sources, while the private sources mainly consist of household out of pocket payments. According to OECD data, the percentage of GDP taken up by total health expenditures in Norway in 2004 reached 10%. The general trend in health expenditure in Norway is increasing from 6, 9% of GDP in 1980 to 9, 9% of GDP in 2004. The reason for this high growth may be that Norway was less significantly affected by the economic downturn in the beginning of 1990s and it has a political commitment to spend more money on health.(Jan Roth Johnsen 2006).

Table 4.Norway: Financing of health care, 2006



Source: 2006, adapted from *Health Care Systems in Transition: Norway*. European Observatory on Health Care Systems, 2000.

Table 4. Describes the mechanism of financing system of health care in Norway and its actors.

1.4. Mechanism of health insurance

All persons who are either residents ,or working as employees in Norway or on permanent or movable installations in the Norwegian Continental Shelf must be insured under the National Insurance Scheme. Insurance is also compulsory for certain categories of Norwegian citizens working abroad.

Major public social service policy programs, such as sickness benefits, national medical insurance covering the entire population, day care and family allowances lags before that of

many nations. State institutions have a major responsibility for the administration and delivery of health care service. According to the EEA agreement, Norway follows the EU regulations with regard to social security. Employees, the self –employed and freelancers are all members of social security system. Those who do not fulfil there requirements can apply for voluntarily membership in the NIS if their stay exceeds three months. Persons insured under the National Insurance Scheme are entitled to retirement, survivors and disability pensions, basic benefits and attendance benefit in case of disability, rehabilitation or occupational injury. There are also benefits for single parents, cash benefits in case of sickness maternity, adoption and unemployment, and medical benefits in case of sickness and maternity, as well as funeral benefits. All insured persons are granted free stay and treatment, including drugs, in public hospitals. The patient has to pay part of the cost of treatment by a general practitioner or for specialist treatment as an outpatient, to visit a psychologist/ psychiatrist, for the prescription of certain drugs and for their transportation costs in connection with examination or treatment. The municipality and/or the National Insurance cover the major part of the expenses. There are certain exemptions from cost-sharing provisions for special diseases and groups of people. Since 1 January 2003 those who receive minimum retirement or disability pensions can receive their essential drugs and nursing requisites free of charge. Routine medical examinations during pregnancy and after delivery are also free.

Employment-based health insurance however and generous welfare system may have an impact on the moral hazard behaviour tendency on employment market in Norway. This kind of behaviour may take different forms from outright shrinking, to just a slight bias in the assessment of one's own health condition. There is no independent variation in the sizes of sickness benefits, since virtually all workers receive a full replacement of their normal income. However, after 12 moths of absence, this benefit is no longer available, and alternative benefits (such as rehabilitation or disability) provide much lower replacement. Hence in cases of long-term absence, it is possible to investigate the consequences of quite substantial changes in economic incentives.

Table 5. **Coverage of public health insurance schemes over total population, 1960-2001**

Public health care coverage, per cent of total population

	1960 b	1970c	1980	1990d	2000e	2001f
Australia	76.0	85.0	100.0	100.0	100.0	100.0
Belgium	58.0	97.8	99.0	97.3	99.0	99.0
Canada	100.0	100.0	100.0	100.0	100.0	100.0
Germany	85.2	89.2	92.3	88.8	90.9	90.9
Greece	44.0	55.0	88.0	100.0	100.0	100.0
Ireland	85.0	85.0	100.0	100.0	100.0	100.0
United States	24.5	24.7	25.3	24.5	24.7	25.3
Netherlands	71.0	71.0	74.6	73.9	75.6	75.7
Norway	100.0	100.0	100.0	100.0	100.0	100.0
OECD point average *i* 80.4 86.6 92.3 93.9 93.0						

Source:(OECD Health Data 2003, 3rd ed.; Barraza-Llorens et al. 2002)

NIS covers many risks related to loss of income and expenses. The total expenses of the NIS in 2002 were 205 273 million, which rose to 228 255 million. This amount would make more than 35% of total public expenditures.

The private sector gives the same type of treatment as public one but without almost any waiting time, at some established price .In some cases like assisted fertilization ad dental care for example when the treatment is not offered by the public system, private treatment is the only solution .Obviously, if there were no costs associated with waiting for treatment, everyone would prefer public to private treatment. There is, however, different type of costs associated with waiting for treatment. One such cost could be that the medical condition deteriorates during the waiting time-cost of health condition. The cost of deterioration would either be a more severe treatment once the patient gets it, and/or a worse condition after treatment than the condition would have been after immediate treatment. There are also strict financial costs like loss or decrease of income by not participating in employment marked for the long period .Whatever the background for the waiting costs is, we shall assume that they are proportional to the waiting time. The cost per unit of waiting time is assumed to vary among the population. We would expect this variation to be correlated to income variations,

as a higher income typically will imply a higher willingness to pay to avoid waiting.(Michael Hoel 2006) .

1.5. Private health insurance system –substitutive and complementary PHI

Governments often consider PHI as supplement to the public sector and as a possible means of solving some health system challenges. For example, they may consider enhancing its role as an alternative source of health financing and a way to increase system capacity, or promoting it as a tool to further additional health policy goals, such as enhanced individual responsibility. Yet private health insurance is a complex financing mechanism that affects and interacts with public systems in multiple ways. This is why, when assessing the current and potential role for private health insurance, policy makers need to consider the intricate interactions arising between public and private coverage, and the effects that PHI has upon the health system under different public-private mixes.

While private health insurance represents, on average, only a small share of total health funding across the OECD area, it plays a significant role in health financing in some OECD countries and it covers at least 30% of the population in a third of the OECD members. It also plays a variety of roles, ranging from primary coverage for particular population groups to a supporting role for public systems. Policy makers in some countries regard PHI as a key element of their health coverage systems, and seek to guide PHI markets towards desired health system outcomes. However, especially in countries with more limited PHI markets, the question of whether private health insurance should cover larger population segments or finance a larger portion of the costs currently funded by public health systems is often controversial Driven by the need to attract clients and sometimes also by a profit motive, it is argued, competing insurers improve customer service and efficiency in administering insurance plans and can enforce pressures on health service providers to minimise costs, while providing more and better quality care. As a result, supporters see PHI markets as more dynamic, innovative, and sensitive to individual preferences and consumer demands than public systems, which are conversely plagued by bureaucratic slowness and rigidities. Proponents also observe that PHI represents an additional funding option by providing enhanced choice to people wishing to purchase additional health care goods or services.

(Francesco Colombo et.al 2004/6).

Substitutive insurance is an alternative to statutory insurance and is available to sections of the population who may be excluded from public cover or who are free to opt out of the public system. In Germany and the Netherlands for example, individuals with high incomes may purchase substitutive health insurance. As income is related to the risk of ill health, separation of public and private insurance according to income concentrates those with high risk in the public system. Those with lower incomes pay higher premiums to compensate for the higher risk and the lower average income of the subscribers. This undermines the redistribute effect of the funding arrangements and makes the combination of funding mechanisms regressive.

In general where health insurance is supplementary, it may allow quicker access to health care services

Supplementary of health insurance may allow quicker access to services or increase the quality of 'hotel' facilities in the public sector. This can result in differential access between those with and those without private insurance. In general, complementary health insurance offers full or partial cover for services that are excluded or not fully covered by the statutory health care system. 'Attempts to provide complementary voluntary health insurance have not been successful although there is an increasing tendency for private health care centres to be set up in the urban centres of Norway'. (Hit summary Norway, 2002).

Quote "Those policies which cover user charges nullify their effect on the utilization of services (van de Venn 1983). Moreover, complementary insurance is least affordable to those on the lowest incomes, so they often have to pay the charges. This leads to a disproportionate funding burden on poor people (Kutzin 1998). Other complementary policies enable access to services not available under the public insurance systems a top-up policy. (E.Mossailos et.al. 2002).This can result in a duality of benefits` system" .Unquote

Risk-rated premium are based on the actuarial calculations of the probability of an individual subscriber making a claim. This is the most common way of calculating premium in the individual private health insurance market. Where policies are purchased through an employer, premium are usually group-rated, that is, based on a calculation of the average risk of the employees in that firm. Finally, some insurance premium is community-rated, that is, based on the other hand. Critics argue that the capacity of private health insurance to deliver equitable outcomes and efficiently manage health care costs is not yet demonstrated. For example, they say that coverage provided by multiple competing insurers can be

administratively costly, thus taking away resources from actual health service delivery. PHI can contribute to higher cost borne by the public purse in other respects, for example by spurring demand.(F.Colombo et.al , 2004). Most OECD countries have some PHI policies supplementing services covered by public programmes (supplementary role). The benefits offered by supplementary PHI can be packaged together with other coverage types, as in many OECD countries, or can constitute separate policies as in Australia for example.

While PHI tends to cover certain typical services, there is diversity across OECD countries in both the health services and providers accessible by privately insured individuals. Such diversity reflects the scope of public coverage, and is affected by regulation and insurers' strategies. In almost all OECD countries, private health insurance covers what could be termed as "small risks" or ancillary and supplementary services, such as dental and optical treatments, choice of provider, upgraded hospital accommodation, and luxury services not covered, or only in part reimbursed, by public systems. In most countries, private health insurance also covers hospitalisation and doctors' expenses. However, this coverage is more comprehensive where PHI provides the primary form of insurance for particular population groups. In other cases, coverage is limited to access to private hospital facilities, often focused on care not provided by public health care or provided in limited number.

Different PHI functions give rise to specific policy challenges. Primary PHI markets often create access-related challenges, especially for high-risk and vulnerable groups, where they represent the sole form of cover for some population groups. Where public and private delivery systems are linked to different funding sources, as in systems with duplicate private health insurance, differences in access to care, choice levels and utilisation patterns occur between individuals with and without private insurance. Providers' and individuals' incentives to consume health care are particularly affected in complementary PHI markets that provide coverage for cost sharing under public programmes. The moral hazard implications of these incentives need to be weighed against the equity implications of a lack of coverage of these costs. Finally, while supplementary PHI policies insure services not provided by the public system, interactions between public and private coverage systems remain. Risk selection incentives and limited individual mobility across social insurers can also arise if the same insurers, or their affiliates

1.6. Types of PHI

Insurance companies offer a great diversity of insurance products. In Norway the insurance companies offers four different health insurances:

“Top up insurance “covers for a fixed share of expenditures within a certain level (relatively low) for treatment not offered by the public health care system domestically. Top us insurance covers: doctors visit, treatment in the policlinics and surgeries, dentistry treatment, medicine, physiotherapy, acupuncture, recreation treatment.

The insurance is affordable for all and widespread in countries with comprehensive public health care system and social security system. This type of insurance covers the treatment up to 250 000 NOK under condition the treatment is carried domestically.

There is only one such an insurer in Norway called “ Norsk Helseforsikrings supplerende helseforsikring”.

“Principle health insurance “ is more comprehensive that top –up insurance in all respects, among others in the insurance sum, the treatment offered and that it covers treatment wide world. This insurance is most widespread in countries with a poor public health care system. The sum of insurance is higher than in top-up insurance and the insured belong to the high – salary group of population or are the key personal in the company, There is two companies that offer these type of insurance ./BUPA International and The Norwegian Forum IHI Denmark AS.)

Principle hospital insurance” is world widespread and covers mostly hospital treatment, planned surgeries, and emergency situations at the intense level. The insured are entitled to choose the hospital and the physician .This kind of insurance is offered by:

Vesta :” Life Line” , Storebrand :” Behandlingsavtale”, ”Norsk Helseforsikring”.

“Critical disease” insurance offers payment after the critical disease has been diagnosed. The covering sum varies among 200 000 -300 000 NOK. Plenty of Norwegian insurance companies offer this kind of insurance titled “Critical disease” or “Dangerous disease”.

The other health insurance companies ;Gjensidige, If, TrygVesta, ,Storebrand, DnB NOR, Sparebank 1, Codan, KLP,Vital, Europeisk Reiseforsikring, Nordea, Postbanken, Tennant.

(Per Arne Tufte et.al , 2007).

Sold types of health insurances in Norway are different. They differ from each other in respect to amount of compensation, what they cover, max age of admittance, private or business marked, time of guarantee for treatment .In general there are two main forms of health insurance.

Treatment insurance, that guarantees quick treatment, so that that patient does not need to wait in queue. It does cover the cost of diagnosis and treatment provided by the specialists, and physiotherapeutic treatment.

Cash paid insurance that gives the opportunity to avoid the treatment queue. In this case one gets paid the precise sum that allows buying treatment in the private hospital. This form of insurance does not guarantee quicker treatment, but gives possibility to private treatment.Despite the small market for voluntary health insurance in the country there are many private insurance companies offering voluntary insurance in order to complement the benefits from the NIS. The insurance is not meant to cover specific services that are excluded from the NIS. This insurance is not meant to cover specific services that are most common include private pension insurance supplementing the pension benefits offered by the NIS. Sick pay insurance is common among self-employed persons, as are life insurance and some dental care schemes.

1. 7 Attitudes toward PHI on macro level

As all inhabitants are covered by the state system, voluntary health insurance does not play any significant role in Norway. Some attempts have been made to provide complementary health insurance, specifically targeted at patients who would like to avoid waiting for hospital treatment. A number of private health care centres are opening up in urban areas of Norway, whose services are available only to members. These might be compared to a form of health insurance. Medical technology has increased the possibilities for treating diseases in outpatient departments and, as a result, some private health care suppliers benefit from increasing demand both for general and specializes services. Thus far, Norwegian statistics do not provide data on private specialists who do not receive public funding, or on expenditure on voluntary health insurance. At present, there are few private voluntary health insurance schemes which quarantine hospital treatment at a private hospital if a public hospital cannot perform the same treatment within 28 days.

Hence, the average waiting time for non –prioritised patients varied from about 3 months (outpatients) to about 4 months (day case and inpatients).

We consider an economy where most of the health care is publicly provided, and where there is waiting time for several types of treatment. Private health care without waiting time is an option for the patients in the public health queue. However, by doing this, they often incur larger costs, as they have to pay for the private treatment directly or through a private supplementary insurance they previously have purchased, while the treatment in the public system would have been free or almost free.

In Norway, with dominantly public health care, they are often queues for some types of treatment. Patients who enter into such a queue sometimes have the option of using a private alternative to the public health care, thus avoiding the queue. In Norway, the average waiting time for non-prioritised patients varied from about three months to about four months. The cost of queue is huge, resulting in postponement in recovery. There is a private alternative to public treatment for those who are willing to pay. The longer the waiting time, the more loss is in productivity, the more people choose private treatment. The waiting time is thus an equilibrating mechanism making the demand for public treatment equal the supply, which is politically determinate.

In several countries there is a considerable opposition to letting private supplementary health care play an important role .Norway can serve as an interesting example, where the private-for –profit health care providers face a prohibitive tax in the form of legal regulation prohibiting new inpatient facilities. One reason for opposition to private health care is that private and sector competes for the same resources (doctors, nurses, etc), so that an increased size of private sector will make it more difficult for the public sector to recruit the personnel it needs. Another complicating factor is the fact that many public surgeons also engage in private practice. Hence, the waiting time will increase due to the private sector if public sector consultants are permitted to work in private sector in their spare time.

An important issue in a system with predominantly public health care is how the government should treat alternative private treatment. It has been argued that a private alternative may undermine the public system, so the government ought to discourage any private alternative. The most form of discouragement would be to forbid various types of private treatment. A less drastic form of discouragement would be to impose a tax on private treatment or to

impose quote on amount of private health care suppliers. One could also argue at those who choose the private alternative should be subsidized by the public health insurance.

The argument above for subsidizing private health care is based on fairness. However, even disregarding the issue of fairness, one could make an argument for such subsidization.

"...The policy in Norway is not very consequent. The local governments and the National Insurance Scheme are the key purchasers of private (outpatients) services to reduce the public waiting lists. During the last years there have been several initiatives to purchase privately provided services, also for inpatients .The Norwegian National Insurance Scheme finances private health care services for employed on sick leave, restricted to those with a prognosis for a rapid return to work. There are also municipalities that provide their community with a free private health insurance scheme. (Michael Hoel et.al 2000).

The private sector gives the same type of the treatment but without any waiting time at positive price. Obviously, if there were no costs associated with waiting for treatment, everyone would prefer public to private treatment, since the former is free and the latter is not. There are, however, costs associated with waiting for treatment. One such cost could be that the medical condition deteriorates during the waiting time**.** This may result in direct pain or all kinds of physical and psychological discomfort**.** Waiting time could also lead to direct or indirect loss of income .Lack of participation on employment market leads to losing of competencies and further professional development. The cost of waiting time can be correlated to income in case if the individual opts for PHI. Higher income typically will imply a higher willingness to pay to avoid waiting. However, waiting costs are also likely to vary among individuals for other reasons like type of work, social status, and political preferences. (Michael Hoel et.al 2000).

The most of Norwegian employees are opting for private health insurance during employment. 74% of the asked would prefer a rise worth 3000 NOK than the same raise in salary. These results show Store brand research in 2005, where MMI asked 3500 Norwegians.

“Private health insurance seems to be interesting option for employers, since it is possible to buy it without any tax withdrawn consequences for the employee. According to SINTEF, every day off caused by sick leave costs the company around 2000 NOK of possible income ,in addition to salary that has to be paid to the employee while sick leaving. The facts of such situation are the following: four of ten of employee on the waiting list is on sick leave, while

waiting for the treatment. The average annual amount of population being on the waiting list in Norway is 200 000,with average waiting time 90 days versus 28 days maximum or one week on average access to treatment guaranteed by Store brand ,explains a growing interest in buying out private health insurance options by the employers nowadays.

According to Store brand, companies signing the private health insurance can count on 20 present of sick leave reduction (Ola Jakob Amundsen 2005).

The idea of equal access to the health care has been a universal issue since 4 century BC. This medical ethic has been modified by time and health insurance becomes gradually a trade off on employment market near other fridge benefits.

While Norwegians generally report that they are ‘ fairly satisfied ‘ with the way their health care system is run, there has been growing discontent over such issues as the ability to choose a health care provider, involvement in decisions regarding care or treatment ,and waiting times .which has been an ongoing issue in Norwegian politics. Although these obstacles do not appear to be any widespread movement for large reforms, different debates and attitudes start to take place in Norway.

As Knut Erik Tranoy, Professor Emeritus at the Centre for Medical Ethics of the University of Oslo and an original member of the governments’ Health Care Priorities Commission explains:

Quote”It is important to see (a) that, in a public health service of Nordic type, any given amount of resources always has alternative uses. And (b) it is neither medically nor morally defensible to put scarce resources to uses which will foreseeable yield less favourable outcomes that other uses –save fewer lives, cure fewer patients " Unquote.
Tranoy differentiates between Norwegian style systems of national here and ‘a health care system where patients buy services in a market, and where justice means equality of opportunity to buy what you need. Decisions about alternative use are then largely patients’ decisions’ according to him. (Michael D.Tanner 2008).

2 Theory, data and methods

2.1 Theory – demand and supply

The Norwegian welfare state is distinguished by a high labor market participation particular for women and an institutionalized commitment to full employment through active labor market measures. Norwegian employment market is known for its low diversity in respect of wages distribution. Unemployment rate is low and there is equal participation of genders to labor market. Major public social service policy programs, such as sickness benefits, national medical insurance covering the entire population, day care and family allowances lags before that of many nations. State institutions have a major responsibility for the administration and delivery of service. Public social expenditures are then higher than most nations. In 2003 total public social expenditures were 25.1 % of GDP in Norway and the average for EU was 20.7 %, public expenditures on health were 6.5 % and the average for EU was 5.9 % and public expenditures on pensions were 7.0 % and the average for EU was 6.9 %. In social provision the market then have a weaker role than in most other countries which means that provision through private insurance and employer sponsored schemes are less widespread. However, no welfare state system can secure all kind of social service demanded. Public social expenditures have increased in Norway later years. At the same time private insurance to secure welfare service have also increased in Norway.

The Norwegian social security system is universal and based on principles of both high base level and on a certain connection to income (Per Arne Tufte et.al 2006)". A 2006 public health white paper, National strategy to reduce social inequalities in health, made the reduction of such health inequalities the central concern of Norwegian public health policy for ten years to come. The strategy was built on principle that the way to change the social distribution of health is to change the social distribution of health determinants ,which are ultimately be found 'upstream', in the social distribution of resources. One of the priority areas is to reduce social inequalities that contribute to inequalities in health-including factors such as income, childhood conditions, education, employment and working environment. These principles could give important contributions to explain the need and demand for all kind of insurances basically'.

People need health care and everyone is entitled to comprehensive and affordable health care in Norway. Demand for health care as an economic concepts, reflecting the perceived need for services like population, patients, health personnel; the willingness to pay depends on the price of the health care services, income / budget, individual preferences / utility. Demand relates to what is actually asked for in a market – expressed need. Met need means the services the patients actually get. Unmet need is different from met need and expressed need,

so they are not expressed in the marked or given to people. Need for health care is not only objective and globally equal for the equal diseases/patients or populations. Needs for health care should be measured at individual level. There are periods of high or low demand for health care, but these periods should be predictable if analyzing all the data and requests coming in the system. It is important to measure demand and supply continuously in order to have control of the equilibrium.

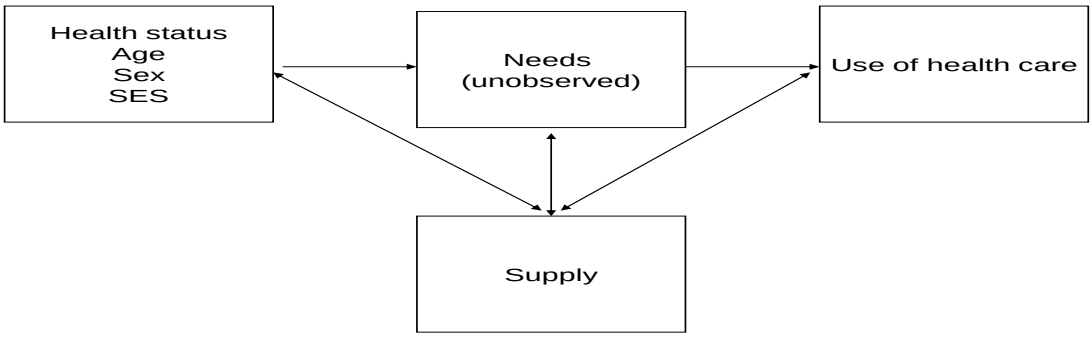
There are variables describing needs for health status, like age, socio economic status, education, disability, gender, diseases, distance to health care services and climate, interaction etc. Need of health care can be unobserved. Identifying unobserved need requires a public health focus which includes those not getting/seeking services. There is a relationship between needs (unidentified, unmet and met).

Use of health care services arises as a result met need and availability of services in the marked. But the frequency of use of these services depends on the several factors like distance to the hospital and local government, knowledge about its existence – perfect information in a free market, supply of services. The distance between hospital and local government will affect your use of health care. The relationship between need, demand and use of health care services we can see in figure nr 1.

2.2. Correlation between Needs and Supply

Figure nr 1.

Correlation between Needs and Supply.



In some situations need could be equal demand (if no supply side restrictions (if supply < demand) and perfect information). Without supply side restrictions we can observe needs by observing use. Use of health care could be equal to the needs and of course supply side could affect the needs.

If supply is equal demand than need will be covered. This would be a perfect market situation but in real life equality of needs, demand and supply is a problematic issue. The gap between supply and demand not only contributes to delay in meeting of patients` needs but it can also lead to some bias in the system in general.

Moreover, the level of revenue and the relative's prices of labor will affect both the amount of resources in each sector and the allocation between the sectors. Differences in demand side of factors are assumed to affect the allocation of resources through political decisions and priorities between the different user needs. (G.Botten et.al, HME4401,2007).

High-income groups are more likely to purchase private health coverage in most countries. The uninsured in the United States are concentrated among the poor or near-poor working population. In the Netherlands and Germany primary PHI is purchased by upper income brackets, due to different entitlements to social health insurance by income level. In other countries with universal public coverage systems, the wealthier are more likely to have purchased an additional PHI policy.

Employers play an important and growing role in sponsoring private health cover as a work related benefit. A large part of private health insurance policies in OECD countries with the highest levels of PHI population coverage are provided through the workplace. For example, this is the case in the United States and Canada (almost 90% of PHI policies), the Netherlands (60%), and France (50%).

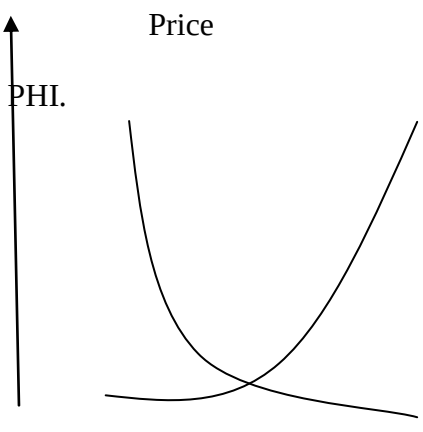
Employers appear to be more powerful agents than individuals in negotiating coverage conditions with competing insurers and benefit from greater risk pooling than do purchasers of individual policies – with larger employer groups accruing particular advantage from such pooling.

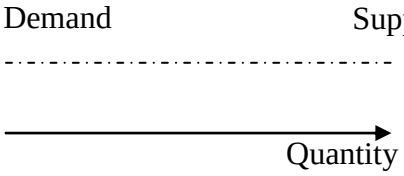
Real and perceived quality gaps in public coverage and delivery systems serve as an impetus for PHI purchases in some countries. Waiting times, increasing demand for choice, and perceptions of inadequacy of public systems are leading motivations in Ireland, Australia, Denmark, and the United Kingdom. Where public cover is not provided, primary PHI policies are purchased mainly to minimize the financial risks associated with illness. Finally, the diversity in consumer attitudes and preferences is difficult to compare across countries. Cultural factors and differences in risk aversion across national contexts may account for a higher inclination to buy private cover in some countries. For example, nearly all those ineligible to social sickness funds insurance buy a primary PHI policy in the Netherlands, and over 90% of the socially covered population buys supplementary. (et al. Francesca Colombo)

2.3 Demand and supply side of PHI

Probability of having PHI is defined by the amount of PHI solved (bought) and amount of potential owners of PHI in general (suppose it to be total working population, as people need salary in order to be able to buy PHI). Number of solved PHI is defined at the market by supply and demand sides of PHI.

Figure 2 . Demand and supply side of PHI





I am not going to discuss price variability for PHI in my work, and assume it as given. However, what is important to consider are variables, which forms supply and demand functions for PHI, and actually (under the condition of given price) forms both functions and amount of solved/bought PHI at the market. Supply side in the model is presented by possibilities to buy PHI, which are given by company revenues (if PHI is provided by employer) or individual revenues (wages).Demand side of the model is defined by all need variables, which defines the reasons to have PHI. All those variables are discussed in details below.

2.4 Discussion of supply and demand sides

My questionnaire and analysis is reflecting the problem of the demand for private insurance like whether it increases with income, affordability for example (supply side).

2.4.1. Socio –economic factors

I specifically extract a high salary positions like leadership jobs and entrepreneurs from job market to evaluate whether income has any impact on demand for private health insurance by asking whether it is leadership or entrepreneur position.

These questions are an expression of affordability to buy insurance. Hence, the demand for the private health care does not express only the need for it.

Ability to afford the most appropriate health care is the second complex issue here and this shapes the supply side. A link between low income and poor health has also been established. In Norway in the period 1994 – 2003 those with low income had higher mortality rates than those with high income. For women, the differences between low and high income groups increased in the period 1994 – 2003. The differences for men in the same period were unchanged (Nasjonalt folkehelseinstitutt 2007b).

Here however, should be taken into consideration a fact that key personnel is the companies are often offered private health insurance by employer automatically and therefore presence

of private insurance is simply effect of the position and its privileges, not explanation of the reason of having private insurance in this case.

In addition I analyze if demand for purchase of health insurance can be related to age and civil status that are indicators of life stage and generation differences.
Owning to the increasing life expectancy, the number of elderly has risen considerably. Age structure in 2007 according to data from Norwegian Directorate of Health looked like following:

Age structure:	Percent
0-14 years	19
15-64years	66
65 years and over	15

It means that one fourth of inhabitants in Norway are elderly, who demand health care due to different types of illnesses.
Needless to say demand and needs have an impact on supply, and vice versa, which is a natural circle. In a perfect world of health care demand would equal to supply, but even in comprehensive welfare system the equation is not always so easy to fulfill. Waiting lists and long queue for treatment in Norway is an effect of imbalance in an equation. This social phenomenon leads to demand of alternative source of health care in order to fulfill the demands.
I specifically divided the sample into age groups in my questionnaire[1]. I am also trying to indicate whether demand for private health insurance is dictated by generation gap and its attitude toward new trends on the market in general.
Moreover, I include different indicators of capital, namely educational level, household income and whether the household has been able to save money or not the last year.
As for civil status and its impact on PHI, it should be taken into consideration strong support from welfare state of the group of population like divorced with children for example. Besides, children are entitled to free health care, priority on waiting lists and dentist care included .In addition, some factors like low rate of unemployment and solidarity attitude in society leads to equality and safety of all groups in society.

[1] see questionnaire in appendix

I also asked the respondents the questions that reflect the issue of income among other aspect like also attitude toward PHI.

I am trying to establish whether there is any correlation between social status and demand. Education and income are assumed to have the same effect on the purchasing power of health care services, life style and health consciousness. A high income correlated to level of education is assumed to influence the purchasing power of health care services upwards, as people's income may influence their life style and health consciousness.

A set of control variables was also tried out, namely whether one has been exposed to different dramatic life events such: as serous illness or disability and health status in general.

The health status of the Norwegian population is one of the best in the world. The key strengths of the Norwegian health care system include provision of health care services for all based on need (regardless of personal income), local and regional accountability, public commitment and political interest in improving the health care system. While Norwegians generally report that they are "fairly satisfied "with the way their health care system is run, there has been growing discontent over such issues as the ability to choose a health care provider, involvement in decisions regarding care or treatment, and waiting times –which has been an ongoing issue in Norwegian politics. However, at this time there does not appear to be any widespread movement for larger reforms in this matter.

2.4.2 Information flow

I am checking also whether the respondents are informed about private health insurance options by the employee, so called information flow.

Hence access to information and its accuracy have an impact on decision making while fulfilling the need for specific service or product. It is not a common knowledge about forms of PHI and options, and therefore this is important to have full access to all information needed. There is an assumption that the individual's utility of consumption is state – dependent. This implies that the individuals may choose not to fully insure in a world of symmetric information, and thus, that their optimal level of insurance coverage is even lower in a world of asymmetric information. Secondly, the consequences of the insured –against event are made endogenous: individuals can choose their level of recovery, and thus also their loss in income, if ill. Taking all above into consideration, information flow is crucial while decision making.

2.4.3 Types of employment

I also tried out variables like unemployment, type of employment and specific fields of work to check if these social factors have any impact on demand for private health insurance by asking the respondent about employment status and sector of employment.

Since the early 1970th, employment rates among older people have more and more steadily declined across Europe, with Norway being the most significant exception. Norwegian policymakers have never needed to face the temptation of introducing public, early-exit schemes in response to high unemployment as unemployment has remained low the last 30 years. .Early –exit opportunities have been created solely in the context of social security, predominantly for the purpose of securing disabled or fatigued and ageing people with economic resourced outside their employment situation. Rather than cutting benefits in order to make people prolonging their working lives, the policy focus has been on improving working conditions, personal policy.

2.4.4 Employment market

Employment market in Norway is blooming. There is only 3,2 % of unemployment according to SBBS, plus aging group of employers that is on its way to go on retirement and has to be replaced, makes it easy to function on employment market. This employment situation in Norway provides safety and stability to many employers. Scarcity of specialists in some sectors leads to superiority of employers on employment market. The combination of an ageing population, high fertility rates and later entrance in the labor market suggests a future storage of active workers in Europe. Thus in the light of the demographic situation, it is important to increase our understanding to the non-financial factors that structure ageing people's decisions to stay in or leave the labor market .This demographic situation also means that employers are basically ensured work and this is up to employee to attract skilled workers in many cases.

Thus, the future scenario calls for means to keep people active the labour market to more advanced ages. Economic incentives to delay retirement have already been implemented in many European countries, with varying degrees of success. Although financial incentives affect people's motivation to work on a basic level, the limitation of such incentives is obvious as the decision to continue working is not up to the ageing people alone. The ability to work may decline as we age, or we may be faced with labour market discrimination.

All of us face an inevitable risk of falling ill. Long or complicated illness usually leads to a loss in income earnings and means rising expenditures on medical treatment. Individuals are thought to be protected against the potential loss in income –caused by sickness by holding a medical insurance. I am checking to which scale fridge benefit as PHI offered by employee is preferable compare to the others like mobile telephone, car, newspapers, and cabins.

Demand for private health insurance can be dictated by risk of loosing health or risk of loosing income while being on sick leave or simply being part of waiting list. I try out these variables by asking a question about preference of pay raise to PHI offered by the employer.

The waiting time begins from the date the clinician decided to admit the patient. The reliability of waiting lists has been criticized and they are sometimes referred to as the best misleading source of data on access to care, inaccurately registered and poorly monitored.

It is often assumed that waiting times are an inherent problem in tax-financed public health systems with free access, such as the Scandinavian systems. This is based on the fact that supply is limited and demand in principle unlimited, as there is no price mechanism to influence consumption patterns. Detailed comparisons of actual waiting times between different countries are limited, but it appears that there is some truth in the assumption. In any case, it is clear that waiting times have been a political issue in the Scandinavian health systems since 1980. (Katarina Østergren et.al 2007).

A very new data from Norwegian Register of Patients shows that waiting list for planed treatment within somatic, psychiatric department is rising meaningfully.
On average waiting time for treatment in specialist health care service is 75 days. This means 4 days longer in 2009 compare to 2008.Waiting time just increased for all specialist treatment except for psychiatric for children and teenagers, where waiting time decreased 9 days.

If it concerns somatic and psychological departments: 17 percent of the adult sick did not start the treatment within deadline[2].

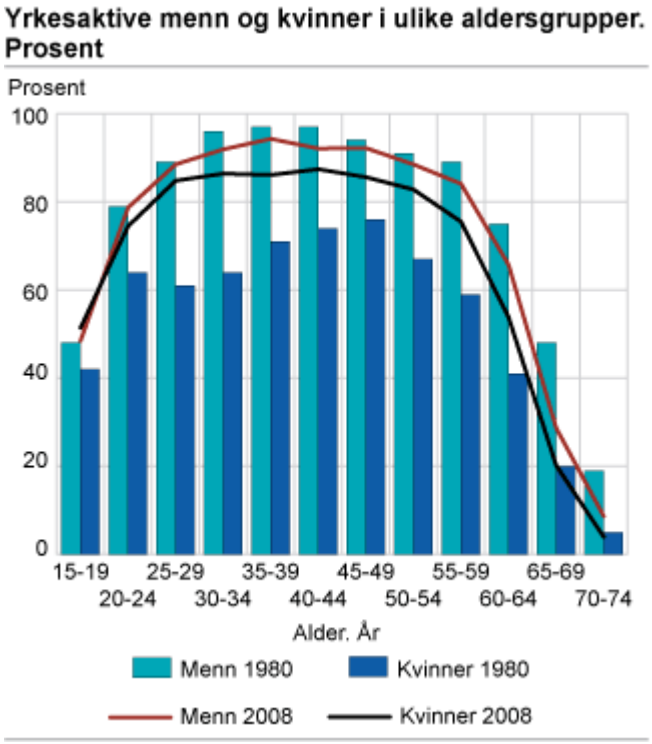
2.4.5 Biological factors –gender

I am trying to check whether biological factors like gender have any impact on PHI.

[2] http://www.helsedirektoratet.no/norsk_pasientregister/pasienter_venter_lenger_f_r_de_f_r_behandling__442374

I assume that women have simply more contact with the health care system because of biological order like giving the birth for example with total fertility rate of 1,78 % in 2007. Therefore it can shape the demand for all kind of health care insurances. On average, life expectancy for women versus men in 2007 is 82,7 years versus 78,2 (Norway and Health introduction, Health Directorate, published in 2009).

Figure 3. Employed men and women in different groups in %



Source: (http://www.ssb.no/arbeid/

There is also bigger amount of men on employment market than women in Norway and therefore gender can be a meaningful variable in respect to demand of private health insurance.

An important issue in a system with predominantly public health care is how the government should treat alternative private treatment. It has been argued that a private alternative may undermine the public system, so the government ought to discourage any private alternative. The most form of discouragement would be to forbid various types of private treatment. A less drastic form of discouragement would be to impose a tax on private treatment. One could also argue at those who choose the private alternative should be subsidized by the public health insurance.

2.4.6 Supply side, sum up

The workplace is the predominant source of private health insurance, hence the supplier workplace is pooling economies .There are enormous economies of scale in insurance purchase resulting from fixed costs in administration that must be paid for any size of the employed group. Large workplace pools also provides a means for individuals to purchase insurance without the adverse selection premium that insurers demand in the individual health insurance marketplace, since the unobservable components of health will average to zero in large groups(J.Gruber et.al 2000).Employees contributions for insurance is rising as a share of total insurance payments and in parallel to margins of the profit of the firms. There has been research done about correlation between economic results of the firms and its ability to offer PHI to employees by (Asbjorn Seim et al. 2006), 'Hva kjennetegner bedrifter som kjøper private helseforsikringer?' The results show that the higher income (marginal profit) the company has, the more probability of supplying the employees with PHI. The size of the company has no significant importance in respect of amount of PHI provided to the workers.PHI is also considered as a tool of attracting the most valuable human resource on the employment market, together with other fridge benefits offered. The results from my questionnaire show that PHI is an attractive fridge benefit to the workers. Conclusion of Asbjørn et.al (2006) that having PHI is rising among young workers not elderly ones is also confirmed in my work. The tendency of offering PHI to the workers is rising in the companies with risky types of jobs. This assumption is also confirmed in my work. It makes sense that the companies are interested in supplying with PHI the young resources, since the cost of insurance is increasing with the age of the workers by looking at the private insurance` offers. Although Norwegian population regards itself as one of the healthiest in the world and the results from questionnaire indicates that there is no special gap of generation present in respect of health status, the amount of having PHI among young working resource is rising compare to elderly one. Productivity, flexible working capacity and bigger access to risky jobs may be the reason for the companies to supply especially this group with PHI.

2.5 Methods

The study is designed as a cross-sectional analysis where a selected part of population is studies at single point of time. This is the same as repeated cross-sectional, or trend design. A "cross-section" – a slice that cuts across an entire population – is used to see all parts, or sections, of that population. In a pooled cross-sectional study, the data is collected over time so that the relationship between cause (independent variables) and effect (dependent variable) can be investigated (Chambliss and Schutt 2006). There is presence both of qualitative (interviews and discussion with colleagues) and quantitative research (questionnaire, with coded answers).

The basic empirical model should capture the effects the independent variables have on the probability of PHI (dependent variable). The demand side includes individual respondent specific variables .The supply side include an economics specific variable such as profit margins of the firm. The multiple linear regression models are run with independent variables and coefficients, which we obtain through estimation process. In order to get descriptive and regression statistics SPSS is used. The model chosen for the analysis is binary logistic regression. The variables are exported from results from quest back, which is a primary data extracted from sample out of population.

Logistic regression is used as a tool to establish which set of independent variables has influence on dependent one.

2.6 Data collection

Data was collected by questionnaire built electronically as a link on www.questback.com see questionnaire in appendix.

It consists of 17 open and closed questions, with one or more alternative answers. The aim of questionnaire is to establish how important offered PI is for employee while choosing the job offer. The responses were coded in order to use it as part of the date while working with statistical program -SPSS.

There have been 757 emails sent to randomly chosen respondents Response rate is 24 % with 249 responses. There have been 179 unique responses. Hence the link was sent to randomly chosen respondents working in the same environment, company or organization.

For quantitative data analysis there were collected total of 287 questionnaire responses.249 responses are generated from quest back. The rest of responses are paper based. It was

collected on face to face contact, while interviews or with those who does not have access to internet or simply find paper based method easier.

The survey was conducted in September-October 2009. All respondents are settled in Oslo. Representative sample is selected randomly by using different methods like network, internet, face to face contact, discussion with my colleges.

All information gained this way was noted and used while analysing data. Study includes both descriptive and analytical methods. The responds and the variables were coded numerically.

Basically I am studying individuals inhabiting Oslo analysed at micro level and every individual has a chance to be selected. I used a questionnaire as a tool for statistical analysis of the responses in order to determinate relationship between dependent and independent variables.

2.7 Data problems

Response rate is 23 % based on answers from questionnaire, summary from quest back. However, there are paper based answers and this can be considered as bias while calculating precise response rate, since frequency of answering by respondents can not be established. Results exported from quest back shows as beneath.

Basically data is gathered by internet and in general I can not admit that there have been difficulties to reach respondents. I found some obstacles while reaching the respondents from particular sectors though like fishery, agriculture, building industry. This can be basically caused by location (there is no meaningful fishing industry in Oslo area) and seasonal factor. There is presence of profession clusters, since unique answers

It should be taken into consideration that results can not be generalized outside Oslo due to some social, economic and cultural factors. In addition, there is time limit since gathering data from whole Norway could take extremely long time due to access to respondents.

As for social factors it should be mentioned that Norway with its regions specifics like infrastructure, access to hospitals or to advanced health care, particularly in a sparsely populated country like Norway. And access to new trends on the health market could definitely show extreme results in respect of results of questionnaire. Needless to say, mentality of smaller regions, towns, villages is always different to those in bigger

agglomeration, capital cities everywhere in the world. Hence, the attitude toward new trend like PHI may differ tremendously.

There are some other economic issues like employment market and demand side versus supply. It could be that supply side of employment market offers inadequate amount of jobs compare to demand side. Hence, the demands of employees would be lower in respect of job choice or to benefits offered by employer, fridge benefits and PHI included. Unemployment rate could be higher than in capital and once one has no mobility possibility; the supply side of the employment market simply does not need to make any extraordinary effort to attract employees.

On the other hand it could be that hard working conditions like in northern part of Norway or simply unattractive regions for living in terms of infrastructure, future mobility or attractions could lead to better economical offers from supply side in order to attract employees. Higher salary, and other fridge benefits, PHI inclusive could be a meaningful trade off to attract working force to such regions.

Moreover, amount and access to heath care is also one of the reasons why data can not be generalized. Supply side of health care could have an impact on attitude toward to PHI. The question to which extend waiting lists and waiting time is a meaningful problem in other parts of Norway remains open to me. Hence it could be that there are not enough of qualified specialists and therefore patients are facing longer waiting lists. It could be that there is no such a need for health care compare to Oslo as this is a hectic place with stressful, competitive and demanding employment market, which leads to rising amount of potential patients and imbalance between supply and demand in health care. This basically causes waiting time, which gives the basics for rising trend of PHI.

There is also common knowledge that the provision of hospital services per inhabitant varies amount the counties, and is correlated with council revenues.

2.8. Logistic regression

As the dependent variable of study is binary, the model chosen for the analysis is binary logistic regression. The dependent variable now reflects the probability of having or not having PHI by the respondent.

I am using logistic regression as a tool to predict a dependent variable having PHI or not having PHI on the basis of independent variables like gender, social status, working status, personal preferences toward PHI,ext. The dependent is dichotomy –has PHI or do not have PHI and the independents are selected on any type basis. Percentage of probability of variance in dependent variable PHI is explained by independents ones. Logistic regression in my work helps me to rank the relative importance of independent variables in aspect of influencing having PHI and helps to understand the impact of independents variables on the results.

Logistic regression is a variation of ordinary regression which is used when the dependent (response) variable is a dichotomous variable (e. it takes only two values, which usually represent the occurrence or non-occurrence of some outcome event, usually coded as 0 or 1) and the independent (input) variables are continuous, categorical, or both. Unlike ordinary linear regression, logistic regression does not assume that the relationship between the independent variables and the dependent variable is a linear one. Nor does it assume that the dependent variable or the error terms are distributed normally. In my case binary logistic regression predicts the "1" value of the dependent using the "0" level as the reference value (et al.G.David Garson).

2.8.1 Estimated quotations

The form of the model is

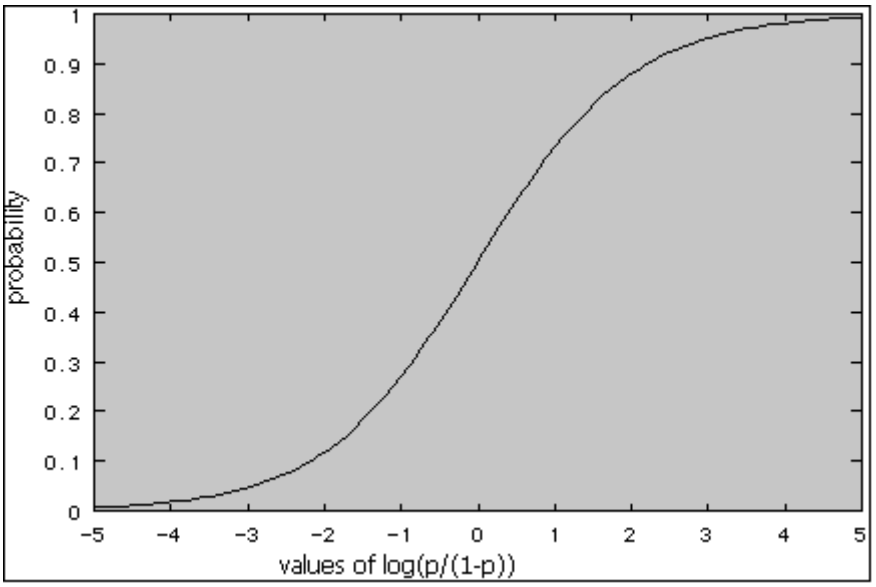
$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

Where p is the probability that Y=1 and X1, X2, Xk are the independent variables (predictors). β_0, β_1, β_2, β_k are known as the regression coefficients, which have to be estimated from the data. Logistic regression estimates the probability of a certain event occurring.

Logistic regression thus forms a predictor variable (log (p/ (1-p)) which is a linear combination of the explanatory variables. The values of this predictor variable are then transformed into probabilities by a logistic function. Such a function has the shape of an S.

On the horizontal axis we have the values of the predictor variable, and on the vertical axis we have the probabilities.

Figure 4 . Logistic regression



Source : (G.David Garson ,Logistic regression)
http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm

Mathematically model for my particular research questions can be written as the following:

$p = \frac{1}{1+e^{-z}}$, where $z = a + b_1 \cdot x_1 + b_2 \cdot x_2 + ... + b_n \cdot x_n$, xs are independent variables and bs are coefficients, which we obtain through estimation process.

It was already discussed in the theoretical section of the paper, which factors can influence probability of having PHI.

The first model specification includes all discussed factors and looks as the following:

Model 1:

$$p = \frac{1}{1+e^{-z}},$$

where

$$z = a + b_1 \cdot Info + b_2 \cdot Wages + b_3 \cdot PaidPI + b_4 \cdot MoneyPI + b_5 \cdot WaitPay + b_6 \cdot Hospital +$$
$$+ b_7 \cdot RIskJob + b_8 \cdot Health + b_9 \cdot Gender + b_{10} \cdot Age + b_{11} \cdot Educ + b_{12} \cdot Marital + b_{13} \cdot Kids + b_{14} \cdot Employment +$$
$$+ b_{15} \cdot Leadership + b_{16} \cdot Work + a \text{ , where}$$

- a is constant

(et al. G.David Garson)

2.8.2 Omnibus tests

I performed particular amount of tests in SPSS to analyze one or more dependents, please see the appendix. First of all entered all the variables into SPSS as covariates, then categorical variables are selected.

I am testing here if my model with the predictors is significantly different from the model with only one intercept. The omnibus test may be interpreted as a test of the capability of all predictors in the model to predict the response .In my case it would be variables influencing having PHI. I am checking a significance of the predictors that would prove the adequate fit of the data to the model. It simply means that there is a presence of at least one of the predictor significantly related to the response variables.

Forward selection vs. backward elimination is tested next .I start with the constant-only model and adding variables one at a time in the most reasonable order until some of elimination level is reached. For example until all variables not in the model have a significance higher than 0.5. Backward selection starts with all variables and deletes one at a time, in order they are worst by some criterion.

3. Results

3.1. Background

The analysis of the data from questionnaire, see appendix is divided into two parts. First, I describe dependent variable, which is my main research question- probability of having PHI. Descriptive statistics is run in addition to regression statistics.

Then, I focus on independent variables and their influence on the result in my two research questions. They are extracted from primary data; questionnaire and the results can be found in descriptive analysis. All the variables are coded .I try a model for all variables first. Next I try out a model for four significant variables for my research questions that are extracted from logistic regression. I run a model additionally for the group with leadership position, for I assume that this group will behave differently in respect of having PHI. The model also was

run for men in order to check gender specifics, for those, who consider having of paid PHI important (Paid PHI>3, importance is scaled from 0 to 5), for those with good health (Health>3, scaled from 0 to 5) and for those, who were informed about having or not having PHI when they were employed.

3.2. Statistical analysis tool

Descriptive and regression statistics is performed with SPSS, which allows analyzing data. SPSS also offers more detailed analysis options to look deeper into your data and spot trends that you might not have noticed. You can test out hundreds of different variables on your data to see how figures or performance would change under different circumstances.

3.3 .Dependent variables

There is one dependent variable descried in my work –having of PHI .It is described in descriptive statistics. The reason for it is that having PHI reflects actual, physical amount of PHI, which is the main research question.

It should be taken into consideration that some of the variables can bear effect of having insurance , not being necessarily explanation of the probability of having insurance like leadership position and attitude toward paying for a place for private hospital or wait for treatment in public health care. It can be that the answer is affected by the fact of having PI. However, this bias is not meaningful for my model and regression, since I am asking for preferences in my questionnaire. The questions are constructed to induce the opinion, which option would be chosen as the most appropriate one, not what respondent can afford thanks to PHI, which is already on hand. As I mentioned before key personnel in the companies can be privileged and being offered PHI automatically. I consider the situations once it can affect the response. But once again, analysing answers from leadership group, the data seems not to be necessarily effected of having PHI, since some of the respondents from leadership group with PHI prefer to wait in public health care than to pay for private hospital. It means that being offered PHI by the employer does not mean that this matches the preferences of the respondent. In some companies PHI as fridge benefit as an obligatory part of employment contract, not necessarily the willingness of the respondent. This shows attitude toward PHI and it means that questionnaire is basically reaches its aim to check preferences, not the effects of having PHI.

3.4. Descriptive statistics

Table 6 . Descriptive statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
participant	248	1.00	248.00	124.5000	71.73563
Have PHI	244	1.00	2.00	1.5123	.50088
Discussed	244	1.00	2.00	1.7090	.45515
Wages	248	.00	5.00	4.0202	1.08523
Importance of PHI	248	.00	5.00	2.1290	1.62205
Car	248	.00	5.00	1.6895	1.66543
Phone	248	.00	5.00	2.1734	1.63903
Cabin	248	.00	5.00	1.4032	1.56851
Other	248	.00	5.00	1.4556	1.62161
MoneyVSpi	246	.00	2.00	1.4919	.50904
Wait Pay	247	1.00	2.00	1.7004	.45901
Hospital	247	1.00	2.00	1.5789	.49473
Risk	248	.00	5.00	1.9960	1.05131
Health	248	.00	5.00	4.1532	.78492
Gender	245	1.00	2.00	1.4939	.50099
Age	244	1.00	5.00	2.1844	1.22844
Education	247	1.00	4.00	3.4332	.78773
Marital	246	1.00	2.00	1.5854	.49366
Kids	247	1.00	3.00	1.6113	.76160
Employment	247	1.00	4.00	1.4130	.85034
Position	239	1.00	3.00	2.5021	.86420
Work Type	247	2.00	18.00	12.9555	3.91189

Source (SPSS data)

The table describes, that we have 248 participants. In some cases they refused to answer certain question, that's why we have less than 248 observations for some variables. From the table it is also visible, that most variables have scale from 0 to 5, and some variables have the following specifics:

In probability theory and statistics, the standard deviation of a statistical population, a data set, or a probability distribution is the square root of its variance (Wikipedia, definition). It shows how much variation there is from the "average" (mean). A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data are spread out over a large range of values.

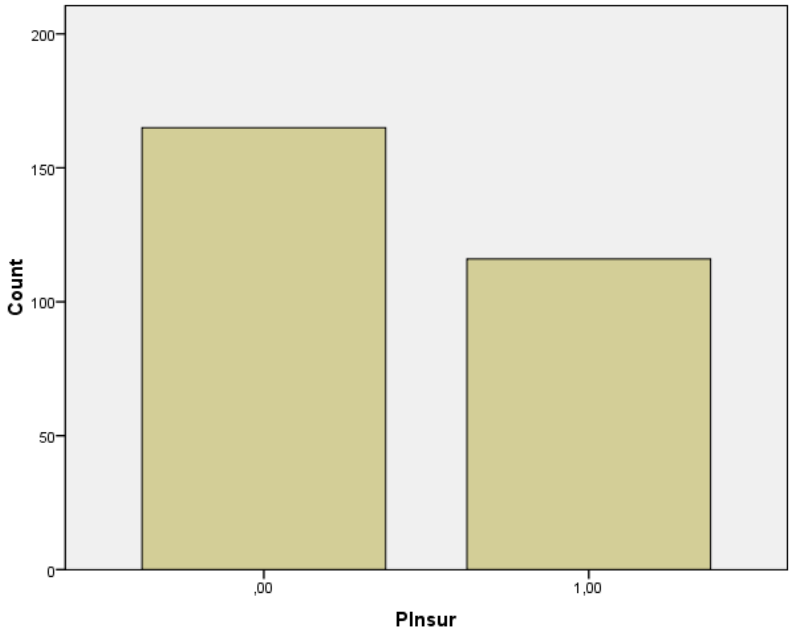
Looking at the data, we can make the following conclusions:

- for the most of respondents type of PHI was not discussed (mean is 1,7, when variable is binary, 1 - if it was discussed and 2 - if it was not) with quite small standard deviation 0.4
- wages seems to be a very important factor of job choice, as mean is 4.02 (with 5 for maximum importance) and standard deviation 1.08, meaning, that in most cases wages' importance is higher than 2.94 (4.02-1.08)
- importance of PHI have mean close to the median (mean is 2.12 with importance range from 0 to 5, median equals 2.5), however standard deviation is quite high, meaning, respondents have very diverse opinions about PHI
- low mean and high standard deviation for other fridge benefits (car, phone, etc.) means, that in general those benefits are not considered as very important, however, for some respondents they are
- money versus PHI factor have mean close to median (only one response is 0, meaning no answer on the question, 1 indicated preference for money, 2 - for PI): mean = 1,49,median is 1,5, standard deviation is 0,5, which reflects, that approximately half of respondents prefer Pi and half - salary increase
- wait versus pay variable have mean, close to "pay" preference with quite low deviation, meaning, most respondents prefer to pay than to wait for hospital treatment
- mean for hospital is slightly higher than median (1, 57 mean and 1, 5 median), together with small standard deviation this means that most respondents have not been in hospital last year.
- low mean and relatively small std. deviation for risk reflects that most respondents perceive their jobs as not risky
- high mean and low deviation for health reflects good health for majority of respondents, - mean is close to median for gender, standard deviation is small, which reflects almost equal gender distribution among respondents,
- high mean and small deviation for education shows, that most respondents have higher education

We have also almost equal number of married and non-married respondents. They differ a lot in terms of number of kids in the family, work type and employment status.

Table 7. Number of respondents with PHI vs. no PHI

The majority of respondents do not have PHI. In the yes-no form (0 – do not have, 1 –have):



The majority of respondents have no PHI and this confirms assumption that PHI is quite a new trend in Norway, which is implemented lately parallel to NHI (National Health Insurance). Another assumption is that Norwegian society is basically satisfied with their welfare system and therefore PHI maybe considered simply as not necessary.

However, there is a significant amount of respondents with PHI confirming assumption that amount of population opting for PHI is growing. This confirms also latest news that one of four Norwegian citizen can have PHI in six years, hence amount of citizens getting PHI grown up six times since 2003 according to www.dagbladet.no , published 23.08.2009,article " En av fire nordmenn kan ha privat helseforsikring om seks år".

Hence, present radical attitudes in Norway toward PHI as discussed in theoretical part can also influence the above result. Influence of socialistic party like "Høyre " and "Frp`s" and its attitude toward public versus private insurance can be also one of the reason of slower popularity of private health insurance compare to other countries ,even those with strong welfare system pattern. Magnus E.Marsdal in his Manifest Analyse, "Klassedelt helsevesen?" states "that most of population in Norway does not want any kind of form of health insurance to be a decisive factor about their waiting time for treatment".

Research was done by Synovate for Manifest Analyse in 2009.

3.5 Independent variables:

I am running descriptive and regression statistics where I check influence of independent variables on the research questions.

Coded variables from questionnaire are presented beneath in the table nr.1. , see questionnaire from appendix

Table .8 Definitions of independent variables

Variable	Definition
Wages	Importance of wages versus PHI to the employer; scaled from 0 not very important to 5 very important
Paid PHI	Importance of PHI versus wages to the employer; scaled from 0 not very important to 5 very important
Money	Willingness to have salary increased versus paid PHI to the employer; Binary variable where 1-money preference , 2 –PHI preference
WaitPay	Willing to wait for medical treatment as opposed to pay for immediate treatment ,scaled from 0 not important to 5 very important
Hospital	Binary variable where 1- if the respondent was in the hospital during the last 5 years, 2-if not.
Risk Job	Level of job risk for the respondent, scaled from 0 not risky to 5 very risky
Health	Level of health condition, scaled from 0 very poor to 5 very good
Gender	Binary variable where 1 –male , 2 –female
Age	Gathered in 6 groups , years 20-29, 30-39,40-49,50-59,60-69
Education	Gathered in 4 groups ;1-primary school,2-secondary school,3-up to 4 years high,4-more than 4 years high
Marital status	Gathered in 4 groups where ; 1 –single, 2-married,partnership,3-divorced, 4 –widow
Amount of children	Grouped in 3 groups ;1-no children, 2 –children under 18 years old,3-children over 18 years old
Type of employment	Gathered in 4 groups ;1-permanent,2-temporary,3-looking for a job,4-other
Type of work	Grouped into 18 professions, see appendix
Position in the company	Gathered in 3 groups ; 1 –leader, 2 –middle management, 3-subordinate
Enterprenour	Binary variable, where 1 means yes and 2 means no

SPPS is used in order to figure out which independent variables influence having PHI . Moreover, the results can be read both in regression statistics and descriptive statistics.

As we have some binary variables under analysis (Gender, MoneyPHI, Hospital,Education) and other variables are ordinal; they could be included into regression in a form of dummies. Converting ordinal variable into dummy, we would need as many dummies as we have scale points for that variable. This means, for gender we would need two dummy variables, and for risk - six. Creating dummies for gender, we would have dg1 = (1, 0) and dg2= (0, 1),

meaning, dg1 equals to 1 for man and 0 for women, and vise versa for dg2. Creating dummies for risk we would have:

dr1 =(1,0,0,0,0,0,),

dr2=(0,1,0,0,0,0),

dr3=(0,0,1,0,0,0),

dr4=(0,0,0,1,0,0),

dr5=(0,0,0,0,1,0)

dr6=(0,0,0,0,0,1).

Including dummies into regression analysis one should keep in mind, that due to multicollinearity issues one of dummies must be excluded from the regression (for gender we would have only one dummy in regression, and for risk -five).Dummies are usually included in the regression analysis for simplification interpretation of the results. Coefficient for respective dummy in linear regression reflects the exact meaning of the factor, which is shown by dummy: coefficient for dg1 from the example above would directly show the difference of effects between man and women; coefficient for dr3 would show the effect for those people, whose job is risky in the level 3.

One should note here, that the above is valid for linear regression. Given logistic regression methodology, one could interpret regression coefficients as changing the effect for the denominator power (z from the model formula $p=\frac{1}{1+e^{-z}}$), not for dependent variable directly. In such case dummies would not help simplification of the model.

3.6.Results

The table describes, that we have 248 participants. In some cases they refused to answer certain question, that's why we have less than 248 observations for some variables.

From the table it is also visible, that most variables have scale from 0 to 5, and some variables have the following specifics as seen in dependent variable chapter:

The estimation results [3] from SPSS lead to exclusion of all insignificant variables, so I am left with the following model and with following significant variables as seen in model nr 2:

Model 2:

[3] All estimation results are shown in the Table 14.

$p=\frac{1}{1+e^{-z}}$, where

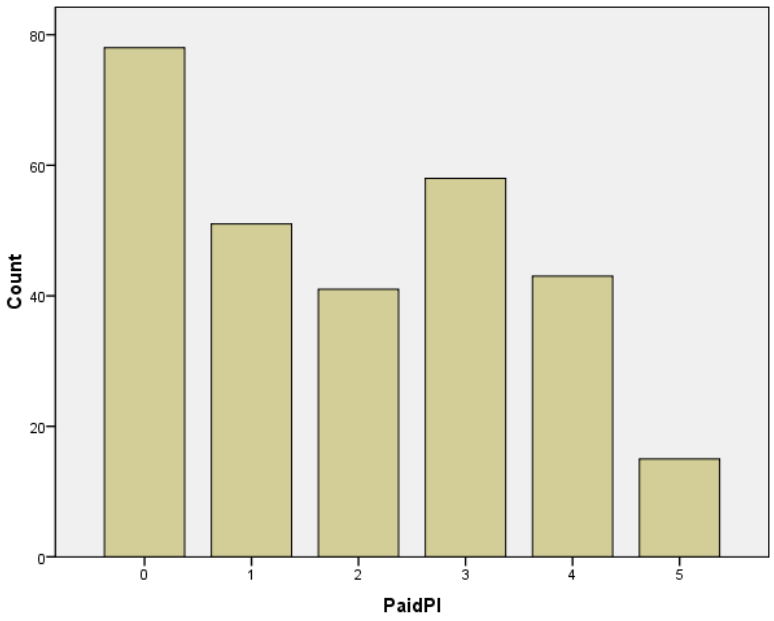
Theory gives a reason to suppose, that those, having leadership position, may have special attitude to PHI preferences. Like for example they are considered as key personal and this may lead to more valuing of their health status both by employer and by themselves.

Report from questionnaire shows no special attitude from group leadership and entrepreneurs

Descriptive statistics

Table 9. Importance of PHI in respect of the work choice.

The following diagram reflects the importance of paid PI as an incentive for the work choice (from 0 to 5)



From the diagram it is visible that there is no “general opinion” about the importance of paid PHI in employment in Norwegian society in Oslo. It makes sense taking into consideration importance of welfare system in Norway and its egalitarian and fair nature. 100 % of population in Norway is covered by National Health Insurance, which means providing adequate, equal, fair and appropriate health service irrespective to social status, gender, age and ethnical background.

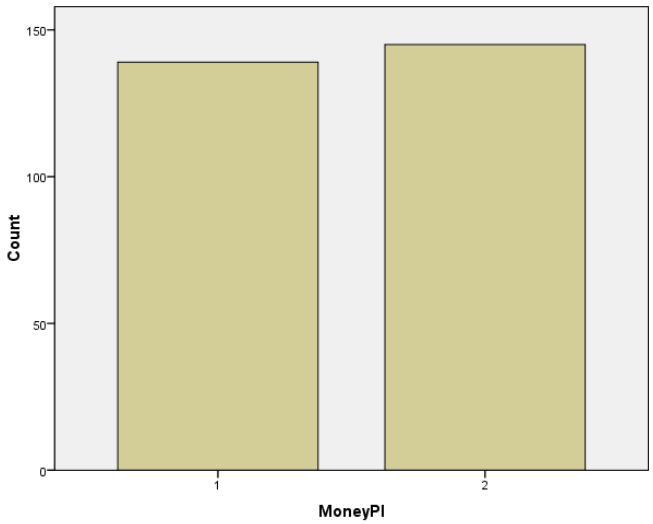
This explains above attitude of the respondents toward importance of PI in respect of choice of work. The majority of respondents do not consider it as a decision factor. This is explained by obligatory offered public health insurance by employer ,and fact, that private health insurance has been developing only lately on the market. Many companies do not offer option: private health insurance as additional fridge benefit and this option is not even discussed in most of the cases observed while obtaining results from questionnaire.

Another assumption here could be that Norwegians are generally satisfied with provided public health care and therefore offered PHI as an incentive for work choice by employer could seem to be not quite attractive compare to other fridge benefits like newspaper, cabins, car, and telephone or simply rise in salary. Many companies do not offer option: private health insurance as additional fridge benefit and this option is not even discussed in most of the cases observed while obtaining results from questionnaire.

The table shows spread attitude, which can confirm assumption about growing access to information about PI and access to it. In accordance with the next diagram almost equal amount of respondents have preferences for increase in salary vs. PHI.

Table.10 Increase in salary vs.PHI.

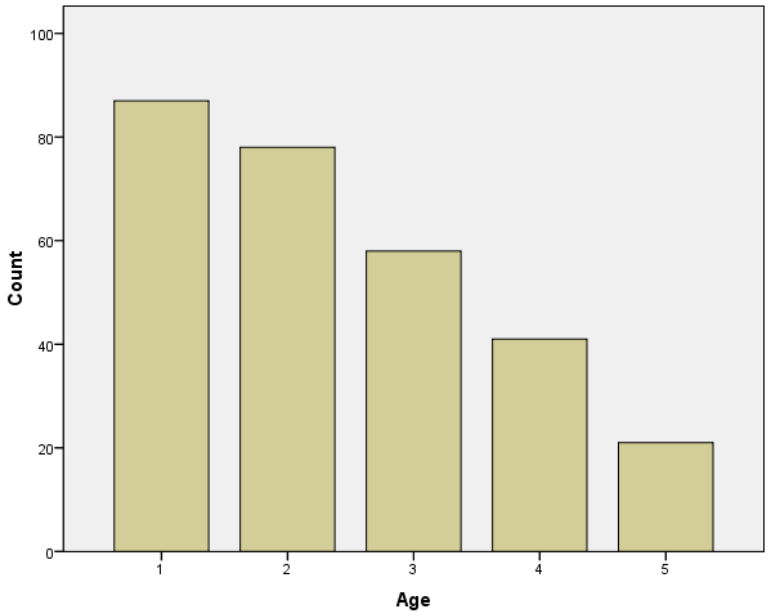
Increase in salary (1) vs. PHI (2)



The table confirms assumption that PHI starts to be reasonable and meaningful trend on the health insurance market. It is almost fifty/fifty trend. One of the assumptions is that population is more and more informed about option- PHI in parallel to public health care. Another assumption is that population is aware of waiting lists in public health care sector. PHI here can be considered as a form of fridge benefit.

Table 11. Age of respondents

Age of respondents (1 – 20-29; 2 – 20-39, 3 – 40-49; 4- 50-59; 5 – 60-69)



The biggest group of respondents is in the group nr 1, although this is random choice.

Table 12. Education

Most of respondent have higher education in accordance with the following diagram:

Education of respondents (1 – primary school; 2 – secondary school; 3 – up to 4 years of university; 4 – more than 4 years of university)

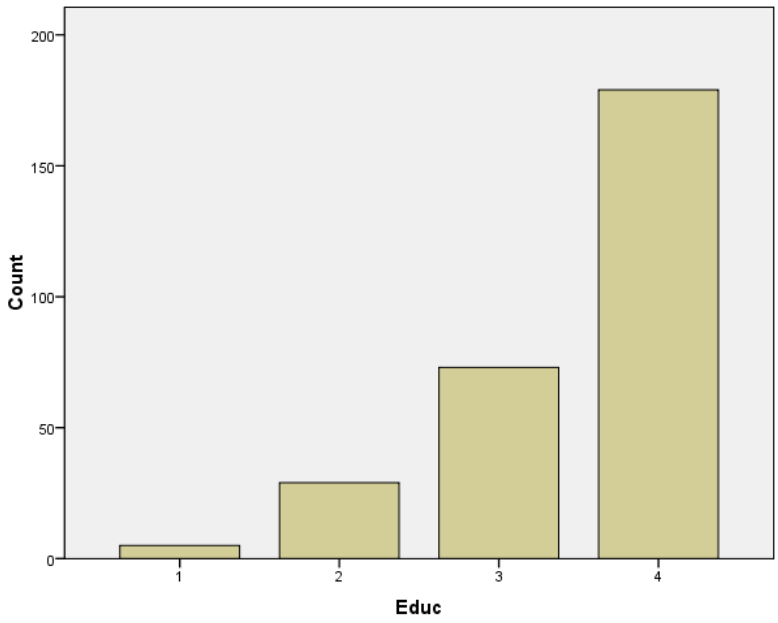


Table 13. Distribution of PHI.

The dependent variable for the study is binary, equals 0 if the respondent does not have PHI and 1, if the respondent has. However, the majority of respondents do not have PHI. Distribution of PHI among respondents is shown on the following diagram:

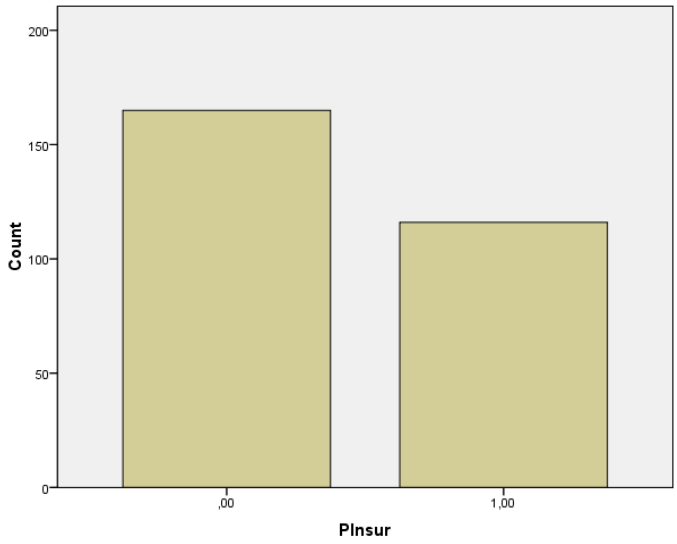


Table 14. Information about PHI versus lack of information.

The majority of respondents were not informed about health insurance at their job. Variable "Info", equals 1 for those respondents, who were informed.

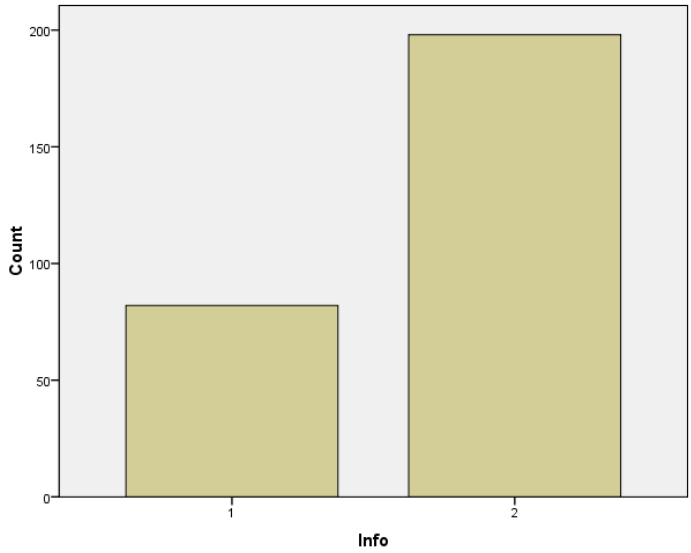
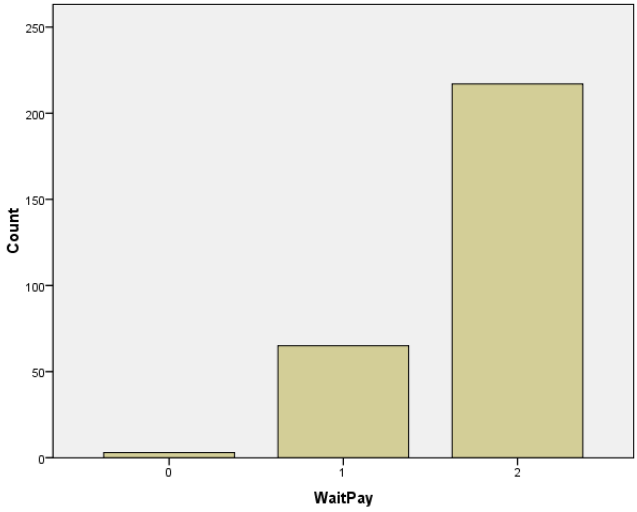


Table.15. Waiting time versus paying for the place in private hospital

Waiting list vs. payment for place in hospital (0 – no response, 1 – wait, 2 - pay).This is explained by awareness of waiting lists and long waiting times for some treatments. Needless to say Norway is one of the richest countries in the world and to pay for health care in order to avoid long waiting either via buying private health insurance of out of the pocket is simply affordable. This assumption also confirms results from quest back, where some respondents choose option: 3000 NOK in pay raise, but option to pay for place in hospital. It can be explained by cultural and social nature of Norway. Hence, individualism is a very common pattern in parallel to egalitarians and "Jante-loven" attitudes. Maybe the respondents are well aware of the option to buy place at the hospital both in Norway and abroad, and simply want to have a possibility to choose them.



There have been some other variables discussed in questionnaire like importance of wages and other factors (fridge benefits) for employer choice. The respondents were asked about amount of children, of age, gender, civil status, kind of job, nature of employment, of having or not leadership position, whether or not being in the hospital in the past five years. All these variables and answers were coded and taken into consideration while running SPSS regressions and while making conclusions.

Regression statistics

All estimation results are shown in the next table (only significant results are shown in the table):

Table 16. Significant results

	All respondents		Leadership=1		Health>=3	Gender=1 (man)	PaidPI>=3		Info=1 (informed)
	Mod1	Mod2	Mod1	Mod2	Mod1	Mod1	Mod1	Mod2	Mod1
Variable	PHI	PHI	PHI	PHI	PHI	PHI	PHI	PHI	PHI
Info	-1.615 (.000)	-1.745 (.000)	-1.561 (.012)	-1.399 (.003)	-1.883 (.000)	-2.096 (.000)	-1.630 (.001)	-1.659 (.000)	N/A
MoneyPI	1.226 (.000)	.251 (.007)	2.011 (.002)		1.237 (.000)	1.265 (0.10)			
RiskJob	.427 (.027)	.423 (.005)			8.255 (.004)	.802 (.005)			.514 (.006)
Gender						N/A	-1.279 (.007)	-1.306 (.005)	
Age						-.677 (.009)			-.443 (.032)
Constant								4.355 (.001)	
Model significance (Chi-squared (significance))	102.437 (.000)	67.541 (.000)	49.791 (.000)	22.961 (.000)	75.444 (.000)	64.543 (.000)	29.813 (.000)	28.142 (.000)	16.937 (.050)

I calculated results for model nr 1 and model nr 2.Once model nr 1 was significant it was taken into consideration. Once model nr 2 was significant it was taken into consideration as well. Below is some example of calculation to follow up. I am checking whether information about PHI supplied by employer has impact on our dependent variable.

In general it is possible to conclude, that being informed about the form of PHI at work place is important variable influencing having PHI by the respondents, $p<$ .05.Variable is statistically significant at the 5 % level. (Wikipedia) Negative coefficient, however, means

that respondents tend not to have PHI. Further explanation of this effect can be found in conclusions beneath.

Risky job is important factor in as it can be concluded from regression statistics ($p < .05$) and specifically for men (.005) and healthy people (.004). In all cases it has positive sign, meaning the higher respondents evaluate their job as risky, the higher is probability of having PHI.

Considering specific cases, we are able to conclude, that age becomes important in having PHI decision for man (.009) < (.05). Negative coefficient sign indicates that the younger men are, the probability of having PHI by them is rising.

We get support for the importance of PHI for men: from the condition for importance of PHI we see that gender factor becomes significant, and due to negative sign it is possible to note, that men are more interested in having PHI than women. Significant constant for Model 2 specification in this case means that "no matter what" people, who consider PHI as important factor of choice, tend to have PHI.

For those, who are informed about PHI condition at work, men again are slightly more interested in having PHI than women due to negative coefficient sign (-2.096). However, the results have low significance in this case, probably, due to small sample of informed respondents.

3.7 Conclusions

The aim of work is to study the variables that influence having PHI in my sample and to find out to which extend offered PHI is attractive fridge benefits compare to the others offered by on the employment market. Distinctions are made between dependent variables and the variables that may have bear effect of having PHI already.

Basically I tried out set of independent variables that may have an impact on dependent variable –.having PHI.

Research question nr 1. Which variables influence probability of having PHI

There are four variables like risky job, information about PHI and gender (young men) that may have an impact on rising interest in PHI offered by employer.

Surprisingly here the likelihood of interest in PHI is lower the older people are. In my model nr 1, PaidPi >3, age coefficient =-0.677(.009) with a negative coefficient. Hence, the rising age would lead to decreasing of z, and therefore decreasing of probability of having impact

on dependent variable. There can be several reasons for this. Young people may be more eager and dependent on avoiding the Heath Service queue .It may also be more expensive and more difficult for older people to get PHI, since this is unattractive group to health insurers. In addition PHI is relatively new product in Norway that may not be well known among old people.

Information about PHI is also a significant variable with negative coefficient sign in all cases.

For those who are informed, Info is coded as =1. For those who are not informed, Info is coded as =2. The higher result for z is, the lower is e^{-z} that means increasing of p and the higher probability is of having PHI in the sample.

$$p=\frac{1}{1+e^{-z}},$$

I mentioned before that Norwegian population has spread attitudes toward PHI, because of cultural, sociological and political issues. In this case information about possible alternative to public welfare arrangements is crucial. Hence, a security against financial losses caused by illness or unpredictable event is the main point for every individual while signing for PHI. (Per Arne Tufte et.al 2007).

Risky jobs sector mainly hires men; preferably young ones .It can be also explanation why these two variables have a significant effect on the result. For model 1 man gender =1. Positive coefficient for risky job variable mean that the more risky respondents consider their jobs, the higher is "z.", leading to increasing of "p", which means rising probability of having PHI.

Money versus PHI variable reflects the preferences between PHI and increase in salary. Positive coefficient sign means that for those who prefer PHI (Money versus PHI =2).Probability of having PHI is higher than for those who prefer money.

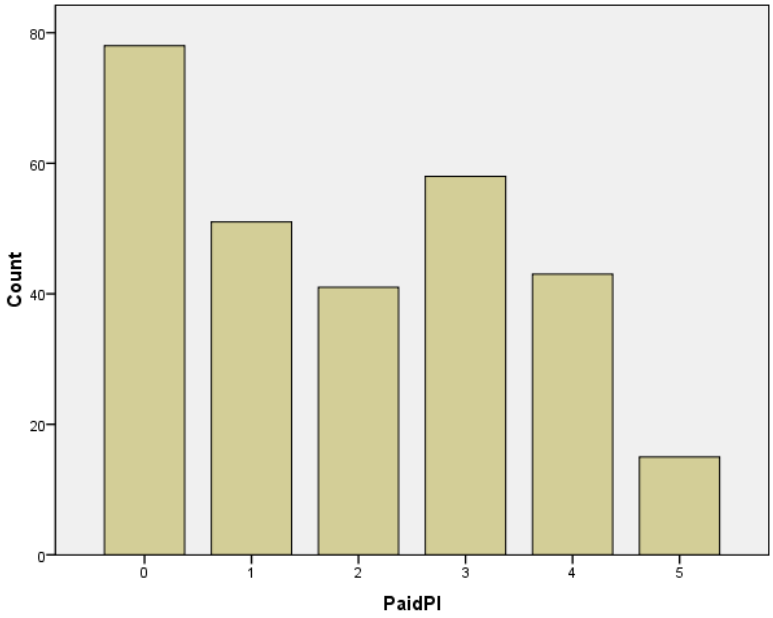
The last twenty years there have been on ongoing debate whether private insurance can supplement or even substitute public social security. It has been suggested that private insurance in many aspects may be better suited to insure people against risks (Norges forsikringsforbund 1996). Risky jobs, because of their nature are attractive for insurer. There is higher probability of accidents and diseases, which demands immediate and sometimes specific specialist treatment. PHI with its short waiting time and broad options of treatment

both locally and overseas seems to be an attractive product to those with risky jobs on employment market.

Other socio-economic factors like education, type of work, family status surprisingly did not have any effect on the research question number one. This is probably the effect of wealthy welfare, law unemployment rate and the fact that Norway is one of the richest countries in the world.

Research question nr 2. To which extend Private health insurance (PHI) offered by employer does attract the employees compare to other fringe benefits offered.

Table 17. How important are the following factors while your decision to change a job? data from quest back.



Salary PHI comp.car telephone comp.cabin newspapers

The most important factor to the respondents while changing a job is salary as seen from the table with telephone paid by employer as a second most preferred fridge benefit. PHI is placed on the third place .This is explained by rising popularity of PHI now days in Norway. Besides, assumption that PHI is a rising tendency now in Norway can be seen also in my last table. The least preferred fridge benefit is newspapers.

4. Discussions

All the results reported are significant, having significant overall model specification.

In general it is possible to conclude, that being informed about the form of PHI at work place may have influence on having PHI by the respondents. Negative coefficient, however, means that respondents tend not to have PHI. Probably, they are satisfied with the form of PHI they have from the employer already. It can mean also that the respondents are satisfied with having National Health Insurance ,which is every employer is obliged to provide and do not opt for any other form of insurance.

Even though respondents' opinion distributed almost 50x50 for preferences for salary increase vs. paid PHI, the variable is significant, and gives very logical interpretation for having higher preference for PHI means higher probability to get PHI. As it is mentioned before Norway is one of the richest countries in the world and pay raise 3000 NOK could be considered so low, that other fridge benefit is chosen automatically. The significant amount of respondents made a choice - 3000 NOK pay raise vs.PHI, but still buy place at private hospital vs. waiting in queue for treatment in public hospital. This confirms also fact that Norwegians consider themselves as healthy nation, with long life expectation and therefore frequency of necessity of treatment is so low, that they opt for the above version. Data collected from questionnaires also shows that most of the respondents have not been in the hospital during last 5 years, which can support the above statement.

Risky job is important factor in general and specifically for men and healthy people. In all cases it has positive sign, meaning the higher respondent evaluates risk, the higher is probability to have PHI. This confirms assumption that respondents having risky jobs are more aware of the importance of PHI due to higher probability of getting ill and more frequent contact with health care. I am not sure how the awareness of waiting lists and waiting time lead to such preference.

Considering specific cases, we are able to conclude, that age becomes important in having PHI decision for man, and the younger man is, the more probably he will get PHI (due to the negative coefficient sign). This result can be effect of wider access and information about PHI and its offer, plus growing popularity lately, which affect young generation entering employment market. Young people may be more eager and dependent on avoiding the Health Service queue. It may also be more expensive and more difficult for older people to get

private health insurance. In addition health insurance is a relatively new trend in Norway that may not be well known among old people. Older people have more trust in the provisions of the welfare state while younger people have tendency to check for new options and possibilities.

We get support for the importance of PHI for men: from the condition for importance of PHI we see that gender factor becomes significant, and due to negative sign it is possible to note, that men are more interested in having PHI than women. Significant constant for Model 2 specification in this case means that "no matter what" people, who consider Pi as important factor of choice, tend to have PHI.

For those, who are informed about PHI condition at work, men again are slightly more interested in having PHI than women due to negative coefficient sign. However, the results have low significance in this case, probably, due to small sample of informed respondents.

Variables like wait for treatment versus pay for private treatment, being in the hospital in last 5 years (in other words being informed of mechanism of health care), health status, education, marital status, amount of children, and type of employment and nature of employment are not related to attitude toward PHI.

Therefore these variables are not present in table nr.9, since they are not significant for my research. My assumption why the above mentioned variables are not significant confirms my theoretical part.

Like fact that Norway has developed solid welfare system, where every citizen benefits from it equally regardless of social status, education or gender. Employment market is blooming, even in the global crisis it is noted only 3, 2 % of unemployment in 2009 according to Statistical Central Office, Norway. It means that employment market provides security and stabilization. Besides, fact that Norway is one of the world`s wealthiest countries and has for several years been on the top of The Human Development Index (HDI) (United Nations Development Programme 2008) may influence tendency of having PHI. Wealthy nations have bigger purchase capacity in general. On the other hand wealthy state can afford providing wealthy welfare to their nations with excellent health care as part of it.

Other cultural factors like emancipation and focus on equal treatment of employers, employees irrespective of gender could be explanation why neither marital status nor gender shows any significant results in respect of attitude toward PHI.

Solidarity attitude of the nation and influence of Jenta loven in every sector of life can also be an explanation why specific groups like leaders and entrepreneurs have no special attitude toward PHI.

To conclude, Norwegian health care system leaves space for the groups opting for PHI and it is positive factor that there is more and more access to information and various treatments offer nowadays options in respect of health care. I am tempted to conclude that having PHI is a matter of individual choice of inhabitants of Norway and as mentioned in my work this trend is growing.

SPSS outputs and data

Logistic regression on other dependent variables:

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	102.437	20	.000
	Block	102.437	20	.000
	Model	102.437	20	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	257.461[a]	.322	.432

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than, 001.

Classification Table[a]

			Predicted		
			PInsur		
	Observed		,00	1,00	Percentage Correct
Step 1	PInsur	,00	124	28	81.6
		1,00	33	79	70.5
		Overall Percentage			76.9

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.615	.375	18.570	1	.000	.199
	Wages	-.298	.158	3.539	1	.060	.742
	PaidPI	.036	.130	.076	1	.783	1.036
	Car	.132	.127	1.084	1	.298	1.141
	Phone	.195	.134	2.108	1	.147	1.216
	Cabin	.238	.178	1.784	1	.182	1.268
	Paper	-.059	.151	.153	1	.695	.943
	MoneyPI	1.226	.347	12.474	1	.000	3.407
	WaitPay	.405	.407	.991	1	.320	1.500
	Hospital	.035	.338	.011	1	.917	1.036
	RiskJob	.427	.196	4.758	1	.029	1.533
	Health	-.298	.254	1.368	1	.242	.743
	Gender	-.434	.325	1.782	1	.182	.648
	Age	-.293	.190	2.378	1	.123	.746
	Educ	-.078	.234	.110	1	.740	.925
	Marital	.030	.362	.007	1	.935	1.030
	Kids	.211	.291	.527	1	.468	1.235
	Employment	-.318	.206	2.393	1	.122	.727
	Position	-.005	.208	.001	1	.980	.995
	Work	-.024	.038	.387	1	.534	.977
	Constant	2.497	1.992	1.571	1	.210	12.146

Coloured variables seem to be significant in equation. (if they were informed about PI during hiring process, also if they prefer PI vs wage increase and if they have risky job, they prefer to have PI)

Next version – all significant left, also some descriptive variables are left

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	79.717	15	.000
	Block	79.717	15	.000
	Model	79.717	15	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	281.282[a]	.260	.349

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

Classification Table[a]

Observed			Predicted		
			PInsur		
			,00	1,00	Percentage Correct
Step 1	PInsur	,00	124	29	81.0
		1,00	44	68	60.7
		Overall Percentage			72.5

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.685	.344	24.021	1	.000	.185
	Wages	-.123	.147	.705	1	.401	.884
	PaidPl	.322	.107	9.114	1	.003	1.380
	WaitPay	.359	.364	.974	1	.324	1.432
	Hospital	.140	.321	.190	1	.663	1.150
	RiskJob	.454	.174	6.787	1	.009	1.575
	Health	-.221	.233	.905	1	.341	.801
	Gender	-.466	.306	2.320	1	.128	.628
	Age	-.282	.175	2.586	1	.108	.755
	Educ	-.016	.212	.005	1	.941	.984
	Marital	.113	.340	.111	1	.739	1.120
	Kids	.198	.275	.518	1	.472	1.219
	Employment	-.303	.208	2.114	1	.146	.739
	Position	.062	.189	.107	1	.743	1.064
	Work	-.031	.035	.749	1	.387	.970
	Constant	3.189	1.861	2.935	1	.087	24.264

The result is similar.

Correlation analysis reflects correlation between PI and Gender, Employment and Type of work, so the next regression has them included.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	72.238	6	.000
	Block	72.238	6	.000
	Model	72.238	6	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	299.847[a]	.232	.312

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Classification Table[a]

			Predicted		
			PInsur		
	Observed		,00	1,00	Percentage Correct
Step 1	PInsur	,00	132	28	82.5
		1,00	44	70	61.4
		Overall Percentage			73.7

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.609	.323	24.778	1	.000	.200
	PaidPI	.265	.095	7.705	1	.006	1.303
	RiskJob	.440	.156	7.945	1	.005	1.552
	Gender	-.438	.288	2.321	1	.128	.645
	Employment	-.236	.184	1.644	1	.200	.790
	Work	-.022	.034	.418	1	.518	.978
	Constant	2.305	.829	7.738	1	.005	10.026

The result still remains similar.

Leaving only the significant variables, we have the following:

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	67.541	3	.000
	Block	67.541	3	.000
	Model	67.541	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	305.618[a]	.218	.293

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Classification Table[a]

			Predicted		
			PInsur		
	Observed		,00	1,00	Percentage Correct
Step 1	PInsur	,00	133	28	82.6
		1,00	45	69	60.5
		Overall Percentage			73.5

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.745	.317	30.380	1	.000	.175
	PaidPI	.251	.093	7.285	1	.007	1.286
	RiskJob	.423	.151	7.803	1	.005	1.527
	Constant	1.353	.653	4.301	1	.038	3.870

Meaning, that probability of having PI increases with being informed about PI conditions at work, preferences for having paid PI (importance of PI for the repondent), risky job.

For multinominal logistic regression with preference to have PI as a dependent variable the interpretation of results in terms of significance of variables will be similar:

Parameter Estimates

PaidPI[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0	Intercept	-4.605	3.872	1.414	1	.234			
	Info	3.611	.881	16.812	1	.000	36.987	6.584	207.773
	Health	.474	.485	.954	1	.329	1.606	.621	4.158
	Employment	.170	.522	.106	1	.744	1.186	.426	3.298
	Position	-.412	.442	.869	1	.351	.662	.278	1.575
	Work	-.040	.084	.228	1	.633	.961	.814	1.133
	Gender	-.664	.748	.788	1	.375	.515	.119	2.231
	Age	-.105	.411	.065	1	.798	.900	.402	2.014
	Educ	-.345	.557	.382	1	.536	.709	.238	2.112
	Marital	.841	.782	1.155	1	.282	2.318	.500	10.741
	Kids	.358	.661	.293	1	.588	1.430	.391	5.230
	WaitPay	1.626	.700	5.395	1	.020	5.083	1.289	20.045
	Hospital	1.041	.764	1.857	1	.173	2.832	.634	12.656
	RiskJob	.216	.424	.260	1	.610	1.241	.541	2.847
	MoneyPI	-2.811	.848	10.999	1	.001	.060	.011	.317
1	Intercept	-2.970	3.807	.609	1	.435			
	Info	2.955	.868	11.597	1	.001	19.202	3.505	105.191
	Health	.307	.467	.432	1	.511	1.360	.544	3.397
	Employment	-.159	.537	.088	1	.767	.853	.298	2.444
	Position	-.393	.443	.786	1	.375	.675	.283	1.609
	Work	-.021	.083	.065	1	.798	.979	.831	1.153
	Gender	-.192	.752	.065	1	.798	.825	.189	3.603
	Age	-.796	.418	3.632	1	.057	.451	.199	1.023
	Educ	-.698	.547	1.631	1	.202	.497	.170	1.453
	Marital	.843	.792	1.133	1	.287	2.323	.492	10.967
	Kids	1.135	.669	2.879	1	.090	3.111	.839	11.540
	WaitPay	1.808	.724	6.226	1	.013	6.097	1.474	25.221
	Hospital	.659	.768	.735	1	.391	1.932	.429	8.712
	RiskJob	.026	.428	.004	1	.951	1.027	.443	2.377
	MoneyPI	-1.673	.850	3.875	1	.049	.188	.035	.993
2	Intercept	-7.282	4.206	2.997	1	.083			
	Info	3.332	.931	12.811	1	.000	27.988	4.515	173.511

	Health	.435	.497	.764	1	.382	1.544	.583	4.092
	Employment	.021	.539	.002	1	.968	1.022	.355	2.941
	Position	-.275	.460	.358	1	.550	.759	.308	1.870
	Work	.013	.088	.022	1	.881	1.013	.852	1.205
	Gender	.303	.780	.150	1	.698	1.353	.293	6.245
	Age	-.976	.445	4.809	1	.028	.377	.158	.902
	Educ	-.926	.568	2.653	1	.103	.396	.130	1.207
	Marital	.516	.828	.388	1	.533	1.675	.331	8.486
	Kids	1.119	.700	2.555	1	.110	3.061	.776	12.064
	WaitPay	3.257	.916	12.650	1	.000	25.965	4.315	156.247
	Hospital	1.169	.813	2.064	1	.151	3.218	.653	15.843
	RiskJob	-.308	.470	.430	1	.512	.735	.292	1.846
	MoneyPI	-1.733	.879	3.891	1	.049	.177	.032	.989
3	Intercept	-7.960	3.892	4.184	1	.041			
	Info	2.027	.839	5.842	1	.016	7.589	1.467	39.259
	Health	.692	.478	2.100	1	.147	1.998	.783	5.096
	Employment	-.007	.522	.000	1	.990	.993	.357	2.762
	Position	-.240	.435	.305	1	.581	.786	.335	1.845
	Work	-.031	.081	.144	1	.705	.970	.828	1.136
	Gender	-.142	.737	.037	1	.848	.868	.205	3.679
	Age	-.364	.401	.825	1	.364	.695	.317	1.525
	Educ	-.194	.553	.123	1	.725	.823	.279	2.433
	Marital	.699	.760	.846	1	.358	2.011	.454	8.919
	Kids	.706	.639	1.222	1	.269	2.026	.579	7.081
	WaitPay	2.173	.723	9.046	1	.003	8.785	2.132	36.202
	Hospital	.734	.744	.974	1	.324	2.084	.485	8.963
	RiskJob	.776	.404	3.691	1	.055	2.172	.984	4.793
	MoneyPI	-1.327	.841	2.493	1	.114	.265	.051	1.378
4	Intercept	-5.541	3.735	2.201	1	.138			
	Info	1.886	.851	4.912	1	.027	6.591	1.244	34.925
	Health	.560	.450	1.552	1	.213	1.751	.725	4.228
	Employment	.037	.521	.005	1	.943	1.038	.374	2.884
	Position	-.269	.440	.373	1	.541	.764	.323	1.811
	Work	.012	.082	.020	1	.887	1.012	.861	1.188
	Gender	.500	.747	.447	1	.504	1.648	.381	7.125
	Age	-.658	.416	2.503	1	.114	.518	.229	1.170
	Educ	-.856	.539	2.523	1	.112	.425	.148	1.222
	Marital	.761	.775	.965	1	.326	2.140	.469	9.767
	Kids	.777	.658	1.396	1	.237	2.175	.599	7.893

	WaitPay	1.854	.734	6.382	1	.012	6.384	1.515	26.899
	Hospital	.095	.762	.016	1	.900	1.100	.247	4.896
	RiskJob	.556	.406	1.883	1	.170	1.744	.788	3.863
	MoneyPI	-.483	.864	.312	1	.576	.617	.113	3.358

a. The reference category is: 5.

So, coming back to binary regression – consider the response for those, having leadership positions: (Position=1)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	22.961	3	.000
	Block	22.961	3	.000
	Model	22.961	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	119.323[a]	.198	.266

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Classification Table[d]

			Predicted					
			Selected Cases[a]			Unselected Cases[b]		
			PInsur		Percentage	PInsur		
Observed			,00	1,00	Correct	,00	1,00	Percentage Correct
Step 1	PInsur	,00	45	14	76.3	84	18	82.4
		1,00	19	26	57.8	28	41	59.4
		Overall Percentage			68.3			73.1

a. Selected cases Var1 EQ 1

b. Unselected cases Var1 NE 1

d. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.399	.468	8.924	1	.003	.247

	PaidPI	.321	.152	4.424	1	.035	1.378
	RiskJob	.378	.331	1.301	1	.254	1.459
	Constant	.724	1.125	.414	1	.520	2.063

Low significance of all dependent variables. So it must be something else, what is important for leaders: Paid private insurance may show slow significance for leaders jobs since with high salary, once can opt for option –buy private health insurance itself.

New regression:

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	49.791	14	.000
	Block	49.791	14	.000
	Model	49.791	14	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	90.196[a]	.386	.517

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Classification Table[d]

			Predicted					
			Selected Cases[a]			Unselected Cases[b]		
			PInsur		Percentage	PInsur		
Observed			,00	1,00	Correct	,00	1,00	Percentage Correct
Step 1	PInsur	,00	46	11	80.7	91	9	91.0
		1,00	12	33	73.3	44	24	35.3
		Overall Percentage			77.5			68.5

a. Selected cases Var1 EQ 1

b. Unselected cases Var1 NE 1

d. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.561	.620	6.338	1	.012	.210
	PaidPI	.078	.204	.148	1	.700	1.082
	MoneyPI	2.011	.662	9.229	1	.002	7.469
	WaitPay	1.039	.965	1.160	1	.281	2.827
	Hospital	.538	.640	.705	1	.401	1.712
	RiskJob	.571	.458	1.554	1	.213	1.770
	Health	-.477	.477	1.001	1	.317	.621
	Gender	-.291	.554	.276	1	.599	.747
	Age	.360	.383	.883	1	.347	1.433
	Educ	-.619	.406	2.326	1	.127	.539
	Marital	.340	.718	.224	1	.636	1.404
	Kids	-.640	.630	1.033	1	.310	.527
	Employment	-18.921	6531.436	.000	1	.998	.000
	Work	.073	.057	1.665	1	.197	1.076
	Constant	17.369	6531.437	.000	1	.998	3.494E7

Nothing specific seem to be relevant for leaders.

What about those with good health?

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	75.444	11	.000
	Block	75.444	11	.000
	Model	75.444	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	250.569[a]	.270	.363

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

Classification Table[d]

Observed	Predicted			
	Selected Cases[a]		Unselected Cases[b]	
	PInsur	Percentage	PInsur	Percentage Correct

			,00	1,00	Correct	,00	1,00	
Step 1	PInsur	,00	113	27	80.7	18	0	100.0
		1,00	40	60	60.0	8	5	38.5
		Overall Percentage			72.1			74.2

a. Selected cases Var2 GT 3

b. Unselected cases Var2 LE 3

d. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-1.883	.345	29.870	1	.000	.152
	MoneyPI	1.237	.322	14.721	1	.000	3.445
	WaitPay	.307	.371	.686	1	.408	1.359
	Hospital	.240	.335	.512	1	.474	1.271
	RiskJob	.507	.176	8.255	1	.004	1.660
	Health	-.130	.318	.166	1	.683	.878
	Age	-.262	.180	2.129	1	.145	.769
	Educ	-.095	.215	.193	1	.660	.910
	Marital	-.033	.348	.009	1	.925	.968
	Kids	.151	.281	.291	1	.590	1.163
	Work	-.035	.036	.912	1	.340	.966
	Constant	.759	2.011	.142	1	.706	2.136

Risky job seems to be more important factor for them, the more risky is job, and the stronger is the preference for PHI. This is logical, since the more risky job, the more probability to be in need of sudden treatment. Waiting time and long sick leave can hit the financial status; therefore choice of PHI seems to be logical here.

For those, who have been in hospitals in Norway the result is the following:

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	47.574	10	.000
	Block	47.574	10	.000
	Model	47.574	10	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	103.607[a]	.351	.470

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

Classification Table[d]

Observed		Predicted					
		Selected Cases[a]			Unselected Cases[b]		
		PInsur		Percentage Correct	PInsur		Percentage Correct
		,00	1,00		,00	1,00	
Step 1	PInsur ,00	49	12	80.3	79	18	81.4
	1,00	13	36	73.5	31	33	51.6
	Overall Percentage			77.3			69.6

a. Selected cases Var3 EQ 1

b. Unselected cases Var3 NE 1

d. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-2.486	.637	15.240	1	.000	.083
	MoneyPI	1.259	.526	5.736	1	.017	3.523
	WaitPay	-.128	.574	.050	1	.824	.880
	RiskJob	.635	.273	5.422	1	.020	1.887
	Health	-.848	.375	5.115	1	.024	.428
	Age	-.038	.270	.020	1	.889	.963
	Educ	.294	.340	.749	1	.387	1.342
	Marital	-.012	.560	.000	1	.983	.988
	Kids	-.480	.513	.873	1	.350	.619
	Work	-.086	.057	2.259	1	.133	.918
	Constant	5.512	2.682	4.223	1	.040	247.586

Some specifics for men (Gender = 1)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	64.543	11	.000

	Block	64.543	11	.000
	Model	64.543	11	.000

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	64.543	11	.000
	Block	64.543	11	.000
	Model	64.543	11	.000

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Info	-2.096	.495	17.957	1	.000	.123
	MoneyPI	1.265	.488	6.712	1	.010	3.545
	WaitPay	-.137	.508	.072	1	.788	.872
	Hospital	-.194	.461	.176	1	.674	.824
	RiskJob	.802	.286	7.870	1	.005	2.229
	Health	-.225	.356	.400	1	.527	.799
	Age	-.677	.260	6.794	1	.009	.508
	Educ	.048	.293	.027	1	.870	1.049
	Marital	1.170	.553	4.484	1	.034	3.222
	Kids	.204	.409	.249	1	.618	1.226
	Work	-.100	.050	3.974	1	.046	.905
	Constant	1.982	2.600	.581	1	.446	7.259

Young men seem to be more interested in PI than old ones. It can be explained by tendency on the health care market nowadays. More and more information about private insurance lately and young generation is more flexible to adjust to changes on the market.

Appendix

Questionaire

Privat helseforsikring og yrkesvalg

Read about this option

Vedlagt følger noen spørsmål om private helseforsikringer og yrkesvalg. Helseforsikring er forsikringer som sikrer tilgang til legespesialister eller sykehus ved sykdom. Pensjonsforsikringer omfattes ikke av begrepet sykeforsikring.
Spørsmålene danner basis for min masteroppgave ved Institutt for helseledelse og helseøkonomi ved Universitetet i Oslo. Svarene blir behandlet anonymnt.
Det tar circa 5 minutter å besvare spørsmålene. Jeg håper du vil hjelpe meg.

1) Har du privat helseforsikring ?

Nei
Ja, betalt av arbeidsgiver
Ja, betalt av meg selv eller min familie

2) Private helseforsikringer var lite utbredt i Norge inntil for få år siden, men har økt i antall siste tiden. Har kjøp av helseforsikringer vært diskutert ved din arbeidplass som du vet om?

Ja
Nei

3) Hvor viktig er det følgende forholdene når du eventuelt skal skifte jobb? Kryss av på en skala fra 0 til 5, der 0 betyr svært lite viktig og 5 betyr svært viktig.

	0	+1	+2	+3	+4	+5
Lønn:						
Privat helseforsikring betalt av jobben:						
Firmabil:						
Telefon betalt av jobben:						
Firmahytte :						
Aviser betalt av jobben:						

4) Hvis du kunne velge melom Kr 3000 i lønnstillegg og betalt privat helseforsikring, hva ville du valgt?

Kr 3000 i lønnstillegg Privat helseforsikring

5) La oss anta at du skulle til sykehusbehandling for en skade i foten som gjorde at du var sykemeldt og ventetiden var 3 måneder med en offentlig sykehus.Alternativt kunne du kjøpe deg plass ved et privat sykehus for Kr.3000. Hva ville du velge?

Ventetiden ved offentlig sykehus Kjøpe plass ved et privat sykehus

6) Har du vært behandlet ved sykehus i løpet av siste 5 år?

Ja
Nei

7) Hvor ulykkesutsatt er din jobb?

Svært mye
Mye
Svært lite
Lite
Ikke sikker

8) Hvordan vurderer du din egen helse?

Meget god
God
Verken god eller dårlig
Dårlig
Meget dårlig

9) Til slutt har jeg noen spørsmål om din bakgrunn.

Mann: Kvinne:

Kjønn:

10) Hva er din alder?

20-29 30-39 40-49 50-59 60-69

11) Hva er din høyeste utdanning ?

Grunnskole Videregående skole Inntil 4 års utdanning fra høyskole eller universitet Over 4 års utdanning fra høyskole eller universitet

12) Hva er din sivile status ?

Gift,Samboer /Ekteskap Ugift Enke/Enkemann Separert Skilt

13) Har du barn ?

Nei Ja, barn under 18 år Ja, barn over 18 år

14) Hva er ditt forholdet til arbeidslivet?

Fast ansatt
Midlertidlig ansatt
Arbeidssøkende
Annet

15) Hvilken bransje arbeider du i ?

Jordbruk og skogbruk Fiske Industri Bergverksdrift og utvinning Kraft og vannsforsyning Bygge og anleggsvirksomhet Varehandel,reparasjon av motorvogner,husholdningsvarer Hotel og restaurantvirksomhet Transport ,lagring og kommunikasjon Finansiell tjenesteyting og forsikring Eidomsdrift,utleievirksomhet,og forretningsmessig tjenester Offentlig administrasjon,forsvar og trygdeordninger underla Undervisning Helse og sosialtjenester Andre sosialtjenester og personlige tjenester Lønnet arbeid i private husholdninger Internasjonale organer og organisasjoner Annet

16) Er du selvstendig næringsdrivende?

Ja Nei Ikke relevant

17) Har du en lederstilling i virksomheten du arbeider i?

Ja Nei Ikke relevant

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