ปัจจัยที่มีผลต่อการประเมินโครงการการประกันสุขภาพ
โดยความสมัครใจบริเวณสามเหลี่ยมปากแม่น้ำแดง
ประเทศสาธารณรัฐสังคมนิยมเวียดนาม

นายเวือง ควอก อังห์

THE DETERMINANTS AFFECTING THE ENROLLMENT OF VOLUNTARY HEALTH INSURANCE SCHEME IN RED RIVER DELTA REGION IN VIETNAM

Mr. Vuong Quoc Anh

**A Thesis Submitted in Partial Fulfillment of the Requirements
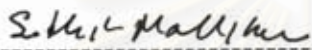for the Degree of Master of Science Program in Health Economics
Faculty of Economics
Chulalongkorn University
Academic Year 2006
Copyright of Chulalongkorn University**
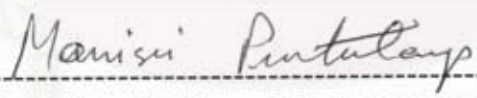
Thesis title   THE DETERMINANTS AFFECTING THE ENROLLMENT
                     OF VOLUNTARY HEALTH INSURANCE SCHEME IN
                     RED RIVER DELTA REGION IN VIETNAM
By   Vuong Quoc Anh
Field of Study   Health Economics
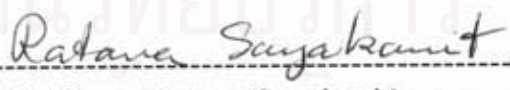Thesis Advisor   Associate Professor Manisri Puntularp.

Accepted by the Faculty of Economics, Chulalongkorn University in Partial
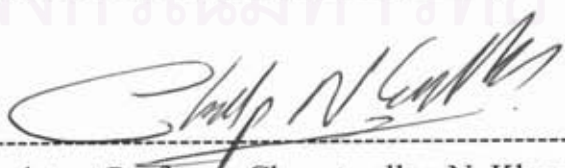Fulfillment of the Requirements of the Master's Degree

---Dean of the Faculty of Economics
(Associate Professor Sothitorn Mallikamas, Ph.D.)

THESIS COMMITEE

-- Chairman
(Associate Professor Pongsa Pornchaiwiseskul, Ph.D.)

-- Thesis Advisor
(Associate Professor Manisri Puntularp)

-- Member
(Associate Professor Ratana Sayakanit)

-- Member
(Assistant Professor Chanetwallop N. Khumthong)

-- Member
(Associate Professor Paitoon Kraipornsak, Ph.D.)

เวือง ควอก อังห์ : ปัจจัยที่มีผลต่อการประเมินโครงการการประกันสุขภาพโดยความสมัครใจ
บริเวณสามเหลี่ยมปากแม่น้ำแดงประเทศสาธารณรัฐสังคมนิยมเวียดนาม. (THE DETER-
MINANTS AFFECTING THE ENROLLMENT OF VOLUNTARY HEALTH
INSURANCE SCHEME IN RED RIVER DELTA REGION IN VIETNAM). อ.ที่ปรึกษา:
รศ. มณิศรี พันธุลาภ, 79 หน้า.

การศึกษานี้มีวัตถุประสงค์ที่จะระบุปัจจัยที่มีผลต่อการประเมินโครงการการประกันสุขภาพ
โดยสมัครใจบริเวณสามเหลี่ยมปากแม่น้ำแดงประเทศสาธารณรัฐสังคมนิยมเวียดนาม ตลอดจนการ
วิเคราะห์ความคลอบคลุมของโครงการการประกันสุขภาพโดยสมัครใจซึ่งเป็นส่วนหนึ่งของการขยาย
สมาชิกของโครงการ

การระบุปัจจัยที่มีผลต่อการประเมินโครงการการประกันสุขภาพโดยสมัครใจบริเวณ
สามเหลี่ยมปากแม่น้ำแดงประเทศสาธารณรัฐสังคมนิยมเวียดนามใช้การวิเคราะห์ตามแบบจำลองการ
ถดถอยโลจิท และการวิเคราะห์ความคลอบคลุมของโครงการการประกันสุขภาพโดยสมัครใจใช้การ
วิเคราะห์สถิติเชิงพรรณนาด้วยการเปรียบเทียบอัตราการใช้บริการสาธารณสุขระหว่างกลุ่มผู้ประกัน
สุขภาพและกลุ่มที่ไม่ประกันสุขภาพ โดยทำการศึกษาข้อมูลด้วยวิธีการเลือกตัวอย่างแบบสุ่ม จำนวน
2,268 ตัวอย่าง จาก 11 จังหวัด เพื่อที่จะระบุปัจจัยที่มีผลต่อการประเมินโครงการการประกันสุขภาพ
โดยสมัครใจในบริเวณดังกล่าว

ผลการศึกษาพบว่าปัจจัยมีผลต่อการประเมินโครงการการประกันสุขภาพโดยสมัครใจบริเวณ
สามเหลี่ยมปากแม่น้ำแดงประเทศสาธารณรัฐสังคมนิยมเวียดนาม ได้แก่ อายุ สถานการณ์สมรส ระดับ
การศึกษา ขนาดของครอบครัว สถานที่ตั้งของที่อยู่อาศัย ระยะเวลาการปรึกษา และรายได้ ตลอดจน
พบว่าไม่มีความแตกต่างอย่างมีนัยสำคัญระหว่างจำนวนการเข้าใช้บริการสาธารณสุขของกลุ่มผู้ประกัน
สุขภาพและกลุ่มที่ไม่ประกันสุขภาพ

สาขาวิชา เศรษฐศาสตร์สาธารณสุข   ลายมือชื่อนิสิต...................

ปีการศึกษา 2549   ลายมือชื่ออาจารย์ที่ปรึกษา...................

498 58145 29 : MAJOR HEALTH ECONOMICS
KEY WORD : VOLUNTARY HEALTH INSURANCE/DETERMINANTS/ VIETNAM

VUONG QUOC ANH: THE DETERMINANTS AFFECTING THE ENROLLMENT OF VOLUNTARY HEALTH INSURANCE SCHEME IN RED RIVER DELTA REGION IN VIETNAM. THESIS ADVISOR: ASSOC. PROF. MANISRI PUNTULARP., 79 pp.

The objectives of this study are to identify the determinants affecting the enrollment of Voluntary Health Insurance Scheme in Red River Delta Region in Vietnam, to analyze the coverage of the Health Insurance Scheme, which expected to be used as one of the means to extend the membership of this program.

Logit regression model was used to identify the determinants affecting the enrollment of Voluntary Health Insurance Scheme. Descriptive statistics were applied to analyze the utilization of health care service between health insured group and health un-insured group. Data (n=2268) collected randomly from 11 provinces were used to identify the determinants affecting the enrollment of Voluntary Health Insurance Scheme in this region.

The results showed that the determinants affecting the enrollment of Voluntary Health Insurance Scheme in Red River Delta Region in Vietnam were age, marital status, educational level, family size, location, consultation times and income. There was not much difference in number of visits to health care facilities between insured and un-insured groups.

Field of Study   Health Economics   Student's signature:.................
Academic Year   2006   Advisor's signature:.................

ACKNOWLEGMENTS

I would like to express my sincere thanks to Associate Professor Manisri Puntularp, my thesis advisor, who gave me specific guidance, warmly and untiringly encouraged me at all time of the study; Associate Professor Pongsa Pornchaiwiseskul, Associate Professor Paitoon Kraipornsak who provide me with the mathematical tools and technical advice and the thesis committee members Associate Professor Chanetwallop N. Khumthong, Associate Professor Ratana Sayakanit, who gave me helpful and necessary comments.

I am grateful to all of the Professors, Doctors and Teachers in Health Economics Program, who kindly taught me new knowledge which could be applied to my study and my work in near future. My special thanks to the Royal Thai Government and the Colombo Plan Secretariat, who arranged and sponsored the fellowship for my one year study at Chulalongkorn University, Thailand.

I would like to say thanks to my friends in Vietnam, who helped me to collect data used for my thesis; my family who gave the love; my colleagues, fellow students of the MS.c in Health Economics Program in Chulalongkorn University who gave me love and encouragement.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

HI	Health Insurance
VHI	Voluntary Health Insurance
CHI	Compulsory Health Insurance
HCF	Health Care Financing
MOH	Ministry of Health
MOF	Ministry of Finance
GSO	General Statistics Office (Vietnam)
WHO	World Health Organization
VSS	Vietnam Social Security Agency
OP	Out-patient
IP	In-patient
US$	US Dollar
VND	Vietnam Dong
UF	User fees

CHAPTER I

INTRODUCTION

1.1 Rationale

Vietnam, since its establishment in 1945, has pursued with socialist models in economic and social development. Basic social services such as health care and education were free till 1986. From 1986, along with the disintegration of the former communist world, the country has embarked upon an economic reform program known as "doi moi" which has transformed the system from a centrally planned one to a market-oriented one. It is a developing country, ranks among the low income group in the world with income per capita of USD 640 in 2005. For many years, health care system was subsidized by the Vietnamese government. However, this has become inappropriate in the current stage of socio-economic development. One of the most challenging issues in the health sector today is finding alternative health financing mechanisms which can meet the growing health needs of the population as the economy grows at a faster pace.

Due to lack of state budget for health care system, Vietnam has had to reduce health care services and the number of beds; health care service quality sharply decreased; disease partner was not improved; and patients were treated unequally. In addition, Vietnam has been cited as one of the least developed countries and has many problems of people's health status in the past as well as in the near future. The main reason for this is that in the past, the Vietnam did not recognize the role of socio-economic development, particularly in Health sector. For a long time, there was a misleading subjective view leading to inappropriate average subsidies. Health care development was carried out outside of socio economic development.

The economic reform has entailed a supply of privately provided health care services. At the same time, there has been a rise in the supply of pharmaceuticals and medical equipments. During the period of economic reform, the proportion of the national budget for current health expenditure per GDP from 1.48% in 1998 to 1.41% in 2003 and has remained around this percentage up to now (NHA, 1998-2003). It is now recognized that in the face of the problems in the health care sector, the government budget is insufficient.

In terms of health care financing issues, like many other countries in the world, Vietnam health system greatly depends on State subsidies. Expenditure for health care system comes from the following sources:
- Government budget
- User's fees
- Health insurance
- And external aids

The government budget allocated for health is limited and insufficient to meet the increasing health care demand. In 1998, health expenditure per capita increased from USD 17 in 1998 to USD 26 in 2003, still very low compared with the average health expenditure per capita in other countries (NHA, 1998-2003).

In the late 1980s, social health insurance was put on the policy table for discussion as a means to mobilize more resources for health care and replace direct user charges. Social health insurance was also considered as a means to promote social solidarity, by pooling the contributions together to share the risks among the members. The policy option was discussed in detail and experimentation with social health insurance first began piloting in a few provinces in Vietnam during the early nineties, initially covering government employees. In 1992, compulsory health insurance was introduced countrywide with the issuance of the first government decree on health insurance (Decree 299) and with the establishment of health insurance offices in all provinces and

with the Central Office in Hanoi. Since then, social health insurance has grown steadily, covering mainly civil servants and employees of the state-owned enterprises, including those who retired and have made meritorious services to their country, and in part private enterprise workers, students and the eligible poor. After almost ten years of implementation, members of national health insurance schemes are largely concentrated within the formal salaried workers and school students. Vietnam is still largely an agricultural country with the majority of population residing in rural areas and not yet covered by health insurance. It is a challenge now for Vietnam to expand the coverage to the rural population.

Currently, the following three social health insurance schemes are operating:

According to Decree No 63/2005/ND-CP of the Government dated May 16,2005 on health insurance regulations and Inter-ministerial circulars providing guidelines for implementation of health insurance regulations, there are 2 types of health insurance: Compulsory and voluntary health insurance.

The Compulsory health insurance: The implementation of compulsory health insurance scheme is guided by the inter-ministerial circular No 21/2005/TTLT-BYT-BTC dated July 27, 2005 issued by Ministry of Health and Ministry of Finance; the premium of this scheme is 3% of enroller's monthly salary in which, 2% from employers (Government or enterprise) and 1% from employee's salary.

The persons subjected to compulsory health insurance are:

- Vietnamese workers (hereinafter laborers) who are working in fixed-term contracts of 3 months and over; and unfixed-term contracts in business of all economic sectors, in administrative, army units and organization.

- Staff, civil servants employed in accordance with the Staff Ordinance.

- Pensioners (retired laborers, receivers of social security subsidy);

- Meritorious members

- Ex participants in the resistant war and their children, who are affected by the orange agent and are given monthly pension.

- In office member of Parliament who are not in permanent staff of the state or other socio-political organizations; in-office members of the People's Committee not in permanent staff or not eligible to monthly social security pension.

- Retired administrative staff members of commune, precinct and town who are being given monthly social security pension; retired commune administrative staff members who are given pension extracted from state budget as per Decision number 130/CP dated 20 June 1975 of the Government and Decision No. 111/HDBT dated 13 October 1981 of the Cabinet.

- Dependents of army officers in service; dependents of police officers in service.

- Others persons subjected to social security subsidy,

- Elderly people over 90 years old and elderly persons as defined in Decree No. 30/2002/ND- CP dated 26 March 2002 of the Government on the regulation and guidance of the implementation of the Ordinance on Elderly people.

- People eligible for health care treatment as stipulated in Article 6 of Decision No.139 /2002/QD-CP of the Government on the provision of health care treatment for the poor.

- Ex-soldiers of the two resistant wars not belonging to the group subjected to compulsory health insurance as cited above.

- Overseas students currently studying in Viet Nam and are given allowances by the Vietnamese Government.

- Laborers working in enterprises, organizations and agencies as defined in Article 3. 1, contracted to work in periods of time less than 3 months and who continue to work after the contracts have expired, or have signed new contracts with the same businesses or organizations, shall be subjected to compulsory health insurance.

The Voluntary health insurance: According to the inter-ministerial circular No 22/2005/TTLT-BYT-BTC dated August 24, 2005 issued by Ministry of Health and Ministry of Finance, voluntary health insurance is applied to all Vietnamese citizens (except who already have compulsory health insurance card and children under 6 – who eligible for free health care services), they are:

- Members of households

- School children, college students enrolling in educational facilities

- Members of social unions, professional associations, religious delegations etc (hereinafter members of unions/associations)

- Relatives of staffs, government's employees, laborers (hereinafter laborers) enrolled in compulsory health insurance scheme; relatives of members of unions/associations enrolled in voluntary health insurance scheme.

- Relatives of laborers and members of unions/associations include: parent of their own and or parent of spouse; blooded and or legally adopted children; blooded siblings of their own and or of spouse.

The voluntary health insurance premiums are regulated according to areas and targeted groups as follows:

Table 1.1: Premiums of voluntary Health Insurance Schemes

Unit: VND/person/year

Groups	Areas	
	Urban	Rural
Member of household	100.000 - 160.000	70.000 - 120.000
Relatives of laborer/member of unions and associations	100.000 - 160.000	70.000 - 120.000
Member of unions and associations	100.000 - 160.000	70.000 - 120.000
School children, college student	40.000 - 70.000	30.000 - 50.000

(Source: Health Insurance Dept, MOH, 2006)

In 1989, a system of user fees for district, provincial and national level hospitals was established in order to increase resources for health care system. It covers around 56% compared with total health care expenditures. The expectation was that the effectiveness of user fees would raise the revenue in health care sector and improve the efficiency and quality of health services. But, public health services were eventually as not being able to handle all their responsibilities.

Cost recovery of state owned hospital care was developed, then in the context of changes from a subsidized national health system to a public private mix health system in Vietnam. The reliability of user charges as a source of financing depended on the consistence of application of the charges and the maintenance of levels of utilization. For people's ability to pay in developing countries is extremely limited and dependent on seasonal factors in agricultural production.

Due to the limitations of a public health budget, and the fact that the majority of the population was poor and health care expenditures were high, which resulted in difficulty of paying hospital fees, the Vietnamese government wanted to set up a health insurance system to contribute as a crucial source for health care financing. A compulsory health insurance scheme (CHI) was officially established in October 1992 to serve government servants and industrial workers. Also, a Voluntary Health insurance program (VHI) has been operating since 1990 in Haiphong, a province located in the north of Vietnam, After 14 years of operation the biggest problems of the VHI program in Vietnam are the persistent gap between the target and the actual number of insured persons of the VHI program in the whole country, and the high premium compared to the low income of the target population which, in turn, is what makes them hesitant to buy a VHI card.

In order to understand the role of social insurance in health care financing in Vietnam, we first take a close look at figure at the end 2005, insurance coverage as followings:

Table 1.2: Number of Health Insurance Enrollee and its coverage by type of Health Insurance over years

Unit: thousand people, %

Year	Total	CHI	VHI	% of pop
2000	9,558	6,469	3,089	13,4
2001	10,068	6,979	3,089	15,8
2002	11,370	6,977	4,393	16,5
2003	12,971	8,124	4,847	20,5
2004	14,567	8,142	6,425	21,1
2005	23,700	14,500	9,200	28,0

Source: Health Insurance Dept, MOH, 2006

Figure 1.1: Number of Health Insurance Enrollee over years
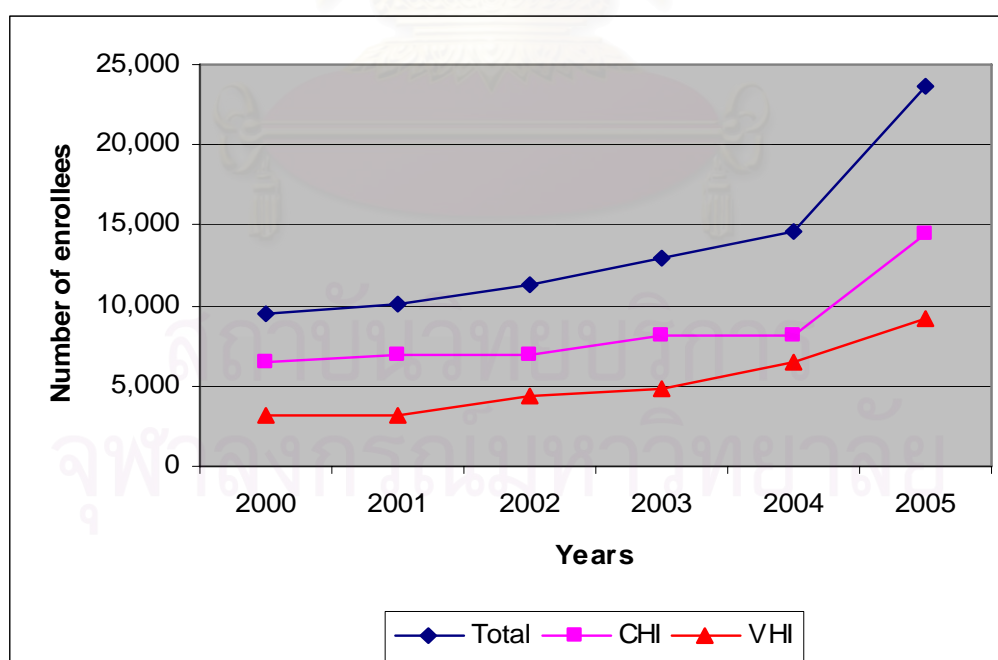
Since the first promulgation of legislation on Health Insurance regulations (Decree No 229/HDBT dated August 15, 1992) the number of

health insurance enrollee has been increasing dramatically from 3,8 mill in 1993 (account for 5,4% total population) to nearly 24 mill account for 28% of total population. Over the last 15 years, with changes in health insurance regulations (Decree 58/1998/ND-CP dated August 13, 1998 and the most recently Decree 63/2005/ND-CP dated May 16, 2005) the targeted groups to be covered by health insurance has been expanded, benefit package provided by HI services has been improved and patients covered by HI are entitled to be reimbursed for high-tech and expensive health care services. However, the increase number of people covered by compulsory HI (for exp the poor) with a pretty low premium of 4USD/peron/year, and the increase number of voluntary HI enrollees associated with the risk of "adverse selection" will lead to the risk of breaking HI funds. (According to recent statistics and projections reimbursement from HI funds for health care services has been double over the last 2 years and this trend is expected to be continued)

Table 1.3: Percentage of Social Health Insurance Scheme in State's budget for health

Unit: mill VND, %

Year	Social HI scheme	State's budget for health	Percent of social HI source/State's budget for health
1998	672.319	4,933,559	13,63
1999	603.532	5,334,534	11,31
2000	722,138	5,448,457	13,25
2001	1,062,978	6,603,239	16,09
2002	1,201,626	6,291,841	19,09
2003	1,524,609	7,715,646	19,76

Source: National Health Account 1998-2003, MOH

Data from National Health Account 1998-2003 shows that although health financing source through HI schemes has been increased in absolute term and the role of social HI become more important over time as its percentage over total State's budget for health is increased (from 14% in 1998 to 20% in 2003) the proportion of health financing sources through HI schemes is remain stable and account for 6-7% of total health expenditure.

One of the significant matters in order to achieve the universal coverage in health insurance is labor structure in Vietnam; we will discuss this matter as following:

Table 1.4: Labor market in Vietnam by 2005

Unit: Person

Structure	Number
Total population	83,119,900
Non- labor force (50% of population)	41,559,950
Labor force Of which: -Free labor -Official labor	41,559,950 30,000,000 11,559,950

Source: GSO, 2005

According to the labor structure in Vietnam by the year 2005 above, in order to increase the coverage of health insurance, we need to develop Voluntary health insurance scheme because with 30 million people working mainly in rural areas as farmers who are not eligible with compulsory health insurance scheme. We assumed that we will cover 100% against official labor sector by compulsory health insurance scheme is till occupied small proportion compared to total population (about 13% total population).

At present, the health insurance coverage was estimated about 27 % of whole population. Although, the government had promulgated by the year 2001 as "The strategy for the National people's health protection and care period 2001-2010 approved by the PM at decision 35/QD-TTg dated March 19, 2001 also stated that "to expand voluntary health insurance schemes, consolidate and strengthen compulsory health insurance scheme, working toward an compulsory universal health insurance system". In the master plan for health

sector development up to 2010 and vision 2020 under financial solutions section, it is said that "Government's subsidies for recurrent expenditures of public health facilities should be gradually switched to health care users through health insurance schemes" but the major challenge of Vietnam lies in the extension of health insurance coverage, especially in voluntary health insurance coverage in order to achieve the target by the year 2010. Development of appropriate voluntary health insurance schemes is now being piloted in different provinces as a first step in the route to achieve universal coverage in health insurance.

Vietnam has eight socio-economics regions, the Red River Delta region will be chosen to present for this study.

Table 1.5: Some indicators in 8 socio-economics regions in Vietnam

	Regions	Population	Health budget	Health budget per capita	Province Hospitals		Consultation times
		1,000 VND	billion VND	1,000 VND	facilities	Beds	1000 times
1	Red river delta region	17,835.9	857.7	48.1	59	12,085	22,635.6
2	North east region	9,245.0	601.5	65.1	41	6,920	15,297.1
3	North west region	2,525.0	157.9	62.6	9	1,340	3,118.1
4	North central coast region	10,504.0	510.2	48.6	20	4,705	11,219.7
5	South central coast region	6,981.8	440.9	63.2	19	3,645	15,134.6
6	Central highlands region	4,674.2	354.7	75.9	8	2,440	6,154.5
7	North east south region	13,190.1	1,287.0	97.6	47	19,270	39,206.6
8	Mekong river delta region	17,076.0	773.8	45.3	45	11,234	37,259.0

Source: Health statistics yearbook, 2004

Table 1.6: Health Insurance coverage by regions in 2002

	Regions	Population 1,000 persons	Health Insurance Coverage Rate %
1	Red river delta region	17,455.8	22.7
2	North east region	9,136.8	18.1
3	North west region	2,350.4	11.0
4	North central coast region	10,299.1	16.7
5	South central coast region	6,785.9	20.7
6	Central highlands region	4,407.2	11.2
7	North east south region	12,578.5	22.4
8	Mekong river delta region	16,713.7	9.9

Source: National Health Survey, 2002

Table 1.7: Health Insurance enrollees by categories in Red River Delta region in 2002

Unit: persons

Regions	Total	CHI	VHI
Red river delta region	3,203,656	2,115,854	1,087,802

Source: Health insurance statistical yearbook 1993-2002

The Red River Delta region has the biggest population and provincial hospitals in whole country. It ranks at the third level in using health care services. Besides, this region has highest health insurance coverage in the nation as the table below, so that it is suitable to present for this study.

Vietnam Map
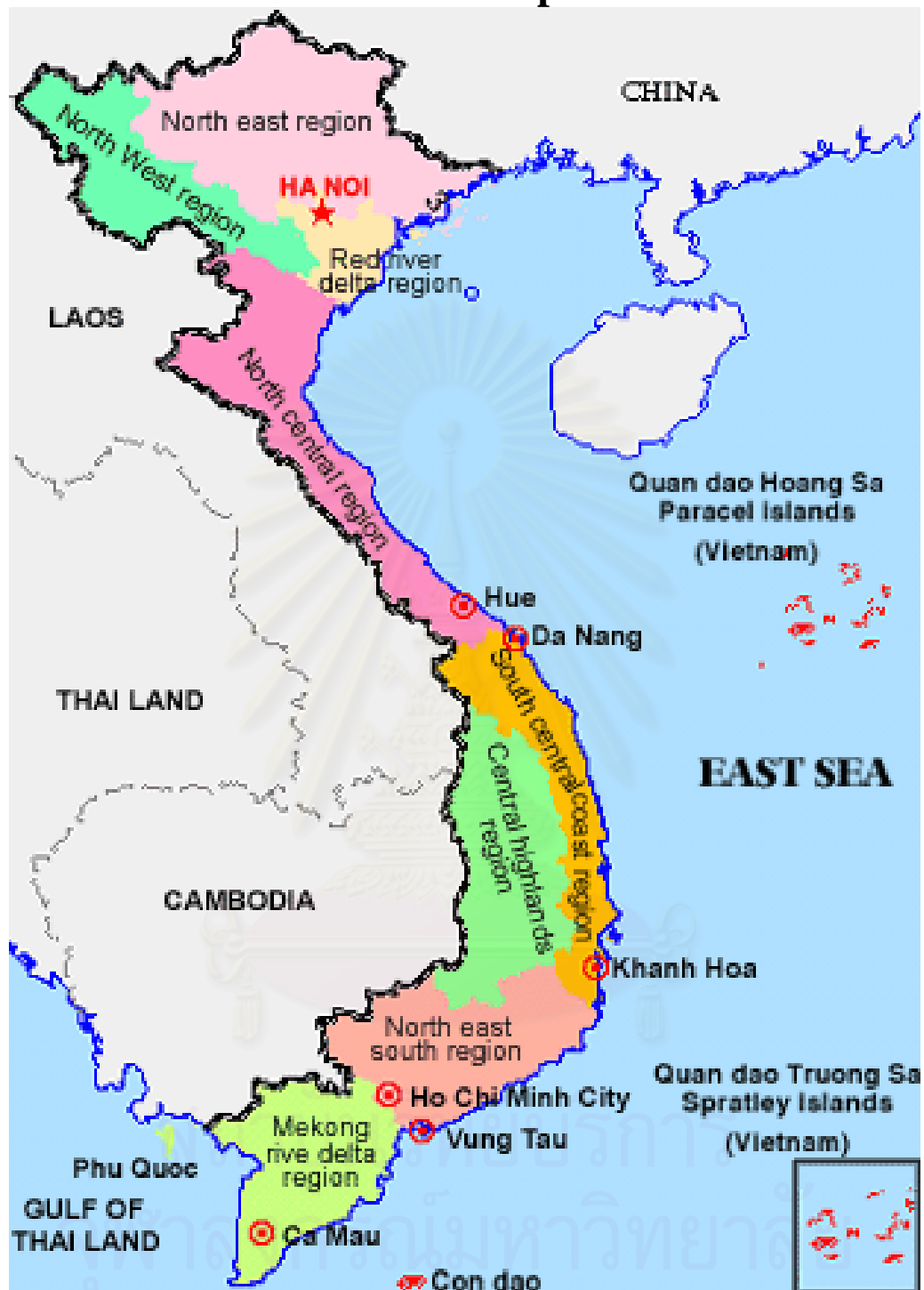
1.2 Research questions

(1) What are the determinants affecting the enrollment of Voluntary Health Insurance scheme in Red River Delta Region in Vietnam?

(2) What are the effects of Health Insurance scheme on health care utilization in Red River Delta Region in Vietnam?

1.3 Objectives of the Study

1.3.1 General objectives

- To identify determinants affecting the enrollment of Voluntary Health Insurance scheme in Red River Delta Region in Vietnam.

- To analyze the coverage of the Health insurance scheme.

1.3.2 Specific objectives

- To identify which determinants have positive or negative effect on the enrollment of Voluntary Health Insurance scheme in Red River Delta Region in Vietnam.

- To analyze the effects of Health Insurance scheme on health care utilization.

1.4 Scope of the Study

This study is conducted in the Red- River Delta region in Vietnam (estimated 18.03 million persons in 11 provinces).

Ha Noi, Hai Phong, Vinh Phuc, Ha Tay, Bac Ninh, Hai Duong, Hung Yen, Ha Nam, Nam Dinh, Thai Binh, Ninh Binh

The secondary data will be collected from 11 provinces selected in National Health Survey (2002) in Vietnam.

1.5 Expected Outcome

This study gives some evidences for policy makers in planning implementation regarding to universal coverage of health insurance scheme.

CHAPTER II

BACKGROUND OF VIETNAM

Health insurance is linked with the health sector and the social-economics in the society. Thus, an overview of the socio-economics situation and the health sector in Vietnam will be presented below.

2.1 The socio economic situation in Vietnam

Vietnam extends approximately 332,000 square km in area. The area of the country running along its international boundaries is 4,639 km. The topography consists of hills and densely forested mountains, with level land covering no more than 20%. Mountains account for 40% of the area, with smaller hills accounting for 40% and tropical forests 42%. The northern part of the country consists mostly of highlands and the Red River Delta. Phan Xi Păng, located in Lào Cai province, is the highest mountain in Vietnam at 3,143 m. The south is divided into coastal lowlands, Annamite Chain peaks, extensive forests, and poor soil. Comprising 5 relatively flat plateaus of basalt soil, the highlands account for 16% of the country's arable land and 22% of its total forested land. The country is divided in to 64 provinces, with 642 districts and 10,876 communes. The population was 83 million in 2005 with around 54 minority ethnic groups, 70 percent of the population resides in rural areas. The 2 biggest cities are Ho Chi Minh City with 5.9 million people in the North east south region, and Hanoi with 3.1 million in the Red River Delta region in the north of the country (Vietnam General Statistics Office). The religion of the population is divided into two main streams: 70 percent are Buddhist, 15 percent are Catholic. The rest of the population is non- religious or follow other religions. In term of culture, education and ethical behavior, the Vietnamese

were influenced by Confucian theory mixed French style. The majority of Vietnamese are hesitant to go to hospital.

In 1954, after the revolution against France, Vietnam was divided into two regions, Democratic Republic of Vietnam in the north that followed the social system and the Republic of Vietnam in the south with the support from America. In April 1975, Saigon was liberated and Vietnam reunified formally. During 1980s and early 1990s, Vietnam was suffered many determinants affecting the social economics development such as the aftermath of the war, the embargo on trade and investment from America, and the socialist system was broken. As a result, Vietnam ranked among low income countries in the world with very low GDP per capita around USD 300 in 1994-1995. Facing that problems, Vietnamese government understood to implement the economic reform policy which known as "doi moi" from 1986.

For 20 years, since 1986, the Vietnamese economy has shifted strongly from a centrally planned economy to a socialist oriented market economy; the collective agricultural economy has been also changed to a household economy; and the restricted individual economy has shifted to a multi-component economy in which the State economy plays a leading role, however private economy is encouraged to develop. Foreign and domestic investment is encouraged and annual economic growth is rather high between 5% and 8%. The inflation rate has been decreased from 500% down to 10% and be stable at two-digit numbers until now.

Table 2.1: Inflation rates in Vietnam

Year	1986	1987	1988	1989	1990	1991	1992	1993
Inflation rate (%)	774.7	533.1	393.8	34.7	67.1	67.5	17.5	5.3

1994	1995	1996	1997	1998	1999	2000	2001	2002
14.4	12.7	4.5	3.6	4.2	0.1	-0.6	1.54	3.72

Source: World Bank, 2004

Figure 2.1: Inflation rate in Vietnam
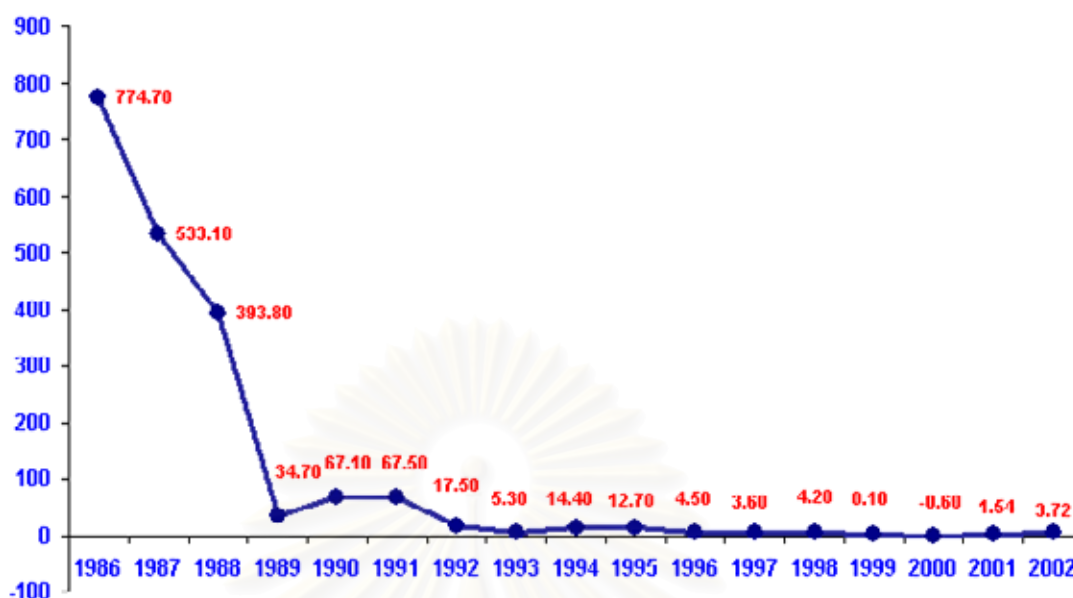
Source: World Bank, 2004

The country's gross domestic product (GDP) was 5.8% in 1998 then reduced to 4.8% in 1999 and then increased gradually until 2004.

Table 2.2: GDP-Annual growth rate in Vietnam

	1998	1999	2000	2001	2002	2003	2004	2005
GDP (%)	5.8	4.8	6.8	6.9	7	7.2	7.5	NA

Source: The World Bank accessed April, 2005

The industry and construction sectors were the largest contributors to GDP growth, followed by the services sector. The combined contribution of the industry and construction, and services sectors to GDP growth increased steadily among 2002-2005. In contrast, the contribution of the agriculture to GDP growth decreased considerably.

Figure 2.2: GDP-Annual growth rate in Vietnam

Figure 2.13 GDP and Sector Growth, Viet Nam, 1998–2005

Sources: General Statistics Office; International Monetary Fund; staff estimates.
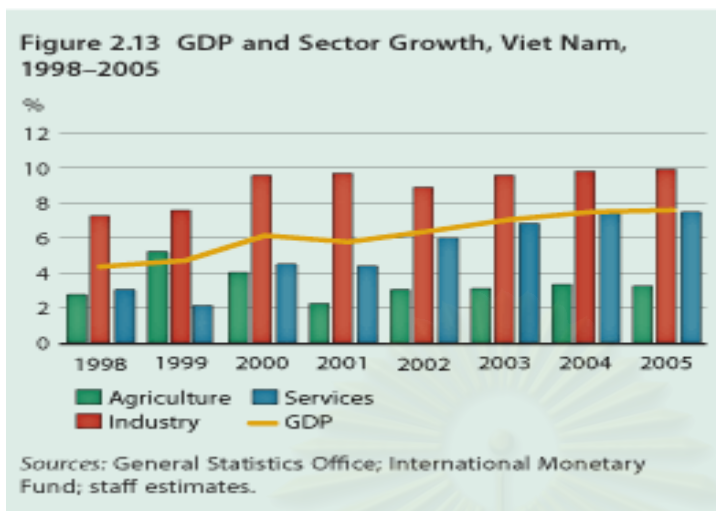
2.2 The health care issues in Vietnam

The structure of the health care system in Vietnam divided into two sectors: public sector and private sector. Until now, public health care system still plays significant role in Vietnam with 4 levels: Central government, provincial, district and commune levels.

There are 30 facilities with 12,680 beds at central level, 357 facilities with 66,048 beds at provincial level, 1,550 facilities with 56937 beds at district level, 10,588 facilities with 42,966 beds at communal level, and 841 facilities with 10,275 beds belonged to other ministries. (Source: Health statistics yearbook-2004)

Table 2.3: Public health care system in Vietnam

Administration Authorities	Health Authorities	Main Health facilities
Central government	Ministry of Health	- Department in the MOH - National medicine/ pharmacy training colleges - Central hospitals - Central research/professional institutions - Central pharmaceutical companies/factories
Provincial people's committee	Provincial health bureau	- Provincial health offices - Provincial hospitals - Provincial preventive health centers - Provincial pharmaceutical companies/factories
District people's committee	District health centre	- District health centre offices - District hospital/policlinics - District preventive health teams - Public pharmacies
Commune people's committee	Commune health centre	- Communal health centers - Drug outlets - Village health workers

Vietnam has been continuing follow by traditionally commitment to health care system. The health system in Vietnam has continuously developed during the reform period with the new socio-economic policies. In recent years, the Government has promulgated many policies to consolidate and develop the health system, to improve health service quality, and to provide equity and effectiveness in health care for the people. It can be said that the health indicators in Vietnam are relatively good, especially taking into account the country's economic situation before and after "doi moi" process. The life expectancy of the population was enhanced from 44.2 in 1960 to 73.1 in 2004; the mortality of children under five had dropped from 232 per 1,000 in 1960 to 28.5 per 1000 in 2004. The national health movements in the areas of hygiene,

nutrition and eradication of vectors of disease accompanied the efforts. The number of physicians and pharmacists increased gradually from 2000 to 2004 as follows:

Year	2000	2001	2002	2003	2004
Medical doctors	41,663	42,327	45,073	47,587	48,215
Pharmacists	5,977	5,991	6,025	6,266	6,360

The number of inhabitants per doctor in the year 2004 was 1,701 and the number of pharmacists per 10,000 inhabitants was 0.78; and number of nurses per 10,000 inhabitants was 6.04. In recent years, the disease patterns in Vietnam have changed. Communicable diseases, especially the diseases of children that can be prevented by vaccination, have rapidly decreased in prevalence. However, the risk for some diseases, such as dengue fever, malaria, pneumonia, and diseases related to water, remains high, because of insufficient improvement in the environment. During the "doi moi" period, with the consequent socio-economic development, some new health problems have become more prominent, such as injuries, cancer, and heart disease, with the especially rapid growth of problems related to drug and tobacco use. The epidemiology of disease is changing rapidly in Vietnam, and this change varies across the regions of the country.

2.3 Background of Red River Delta region

The delta of the Red River (also known as the Sông Hồng), is a flat, triangular region of 3,000 square kilometers, is smaller but more intensely developed and more densely populated than the Mekong River Delta. Once an inlet of the Gulf of Tonkin, it has been filled in by the enormous alluvial

deposits of the rivers over a period of millennia, and it advances one hundred meters into the Gulf annually. The Mekong delta, covering about 40,000 square kilometers, is a low-level plain not more than three meters above sea level at any point and cress-crossed by a maze of canals and rivers. So much sediment is carried by the Mekong's various branches and tributaries that the delta advances sixty to eighty meters into the sea every year. This region included 11 provinces with estimated population about 18 million people. Health of people in this region has been improved through some health indicators as: infant mortality rate decreased from 26.3 per 1,000 in the year 2000 to 10.6 per 1,000 in the year 2004; crude death rate from 6.0 in 2002 to 5.4 per 1,000 in 2004. There were 59 hospitals with 12,085 beds in this region.

2.4 Health care financing currently used in Vietnam

For most of its modern history, Vietnam relied on public system of health service delivery and financing to provide its population with the basic health services required to prevent diseases and treat illnesses. State expenditures have kept an array of state facilities operating to serve anyone who needs care. This system has produced remarkable improvements in overall health status for a country with such a low per capita income as Vietnam. The system, however, is undergoing radical change. At about the same time that the country adopted market oriented economic reforms; it also liberalized the private practice of public health service providers. By the late 1990s, private payments to public providers had become the dominant source of financing the system. As it now stands, public providers still deliverer most of the care in Vietnam. State subsidies keep these providers available to the community. But increasing portion of their operating budgets comes from revenues they earn from fee-for-service payments. To a lesser extent, providers get reimbursed for care provided to patients from a social health insurance fund financed by mandatory contributions from enrolled civil servants and private sector

employees. Fee-for-service rates charged by public providers are regulated. Health insurance coverage is limited in terms of the number of people covered and the level of financing. There are four financial resources for health care, including government subsidies, patient payments, insurance payments and foreign aids. In the year 2004, a government budget allocation, out-of-pocket payments, health insurance and foreign aids accounted for 62.29%, 21.13%, 13.88%, and 2.7% respectively in health care expenditures.

Table 2.4 Health budget by category 2004

Unit: Billion VND

Year	State budget allocation	Hospital fees	Health insurance	Aid & Loans
2004	8,548	2,900	1,905	370
Percentage (100%)	62.29	21.13	13.88	2.7

Source: MOH-2004

Table 2.5 Health budget by years

Unit: Billion VND

Year	State budget allocation	Hospital fees	Health insurance	Aid & Loans
2004	8,548	2,900	1,905	370
2003	9,829	1,161	1,179	370
2002	6,061	950	1,000	275
2001	5,143	840	850	330

Source: MOH-2004

The proportion of the hospital fees and state budget for spending on health care expenditures increased from 16.33% in 2001 to 33.92% in 2004. It can be said that hospital fees increased rapidly, it became the burden on the people who used health care services. While, the proportion of health insurance

compared to state budget increased from 16.52% in 2001 to 22.28% in 2004. It is recognized that, the amount of health care expenditures by user's fees increased faster than the amount from health insurance.

Table 2.6: Some general indicators

Unit: Percentage (%)

Year	1999	2000	2001	2002	2003
Total health care expenditure/GDP	4.88	5.24	5.58	5.13	5.22
Household's expenditure on health care / total health care expenditure	61.15	65.65	58.39	56.62	55.55

Source: NHA-2003

Table 2.7: Total health care expenditure per capita

Unit: USD

Year	1998	1999	2000	2001	2002	2003
Total health care expenditure per capita	17.4	18.2	21.3	23.0	23.0	26.8

Total health care expenditures/GDP compared to other countries in the world stood at the medium rank, it increased slightly around 5% by years. The household's expenditures on health care services has trend to reduce in recent years, but it still stands at high level in total health care expenditures. The growth rate of household's expenditure on health care increased faster than state allocation. In 2003, health care expenditure per capita reached USD 26.8, increased 1.54 times compared to the year 1998.

2.5 Health Insurance system in Vietnam

Since 1992, compulsory health insurance was introduced countrywide with the issuance of the first government decree on health insurance (Decree

299) and with the establishment of health insurance offices in all provinces and with the Central Office in Hanoi. Since then, social health insurance has grown steadily, covering mainly civil servants and employees of the state-owned enterprises, including those who retired and have made meritorious services to their country, and in part private enterprise workers, students and the eligible poor. After almost ten years of implementation, members of national health insurance schemes are largely concentrated within the formal salaried workers and school students. Viet Nam is still largely an agricultural country with the majority of population residing in rural areas and not yet covered by health insurance. It is a challenge now for Viet Nam to expand the coverage to the rural population. Development of appropriate voluntary health insurance schemes is now being piloted in different provinces as a first step in the route to achieve universal coverage in health insurance.

Health insurance schemes

Currently, the following two social health insurance schemes are operating:

- Compulsory Insurance Scheme: covering active and retired salaried workers in the public sector, private sector with over 10 employees and social benefit recipients such as meritorious persons or war invalids; Health Insurance for the Poor: covering low-income earners, residents of communes facing difficult socioeconomic conditions and ethnic minorities living in rural, remote and mountainous areas.

- Voluntary Insurance Scheme: for students, farmers, informal sector and private sector with less than 10 employees.

Administration of health insurance

Social health insurance is administered by the Vietnam Social Security Agency (VSS) and Provincial Management Boards for Health Care Fund for the Poor (HCFP). Vietnam Social Security with its Head Office in Hanoi and with 64

provincial/ regional and more than 500 district offices, provides benefits for about 11.6 million people excluding the poor scheme members or 15.7 million including the poor (Health insurance statistical year book 2003). Provincial HCFP Management Boards administer benefits for a targeted 14.6 million people of which more than four million have been issued free through health insurance cards through VSS. The two administrations combined are aiming to provide benefits to more than 30% of the total Vietnam population within a few years. The administration of social health insurance, which used to be under MoH, was shifted to VSS in January 2003, which administers benefits for long-term pension, disability, occupational health, maternity and labor accidents.

Figure 2.3: Organization structure of Health Insurance System
in Vietnam


```
                    ┌─────────────────────┐
                    │  Ministry of Health │
                    └─────────────────────┘
                               │
                               ▼
                    ┌─────────────────────┐
                    │  Vietnam Health     │
                    │  insurance          │
                    └─────────────────────┘
                               │
            ┌──────────────────┴──────────────────┐
            ▼                                      ▼
┌─────────────────────┐              ┌─────────────────────────┐
│                     │              │ Sectoral Health         │
│ Provincial Health   │              │ Insurance offices:      │
│ insurance offices   │              │ 1. Transportation       │
│                     │              │ 2. Mineral              │
│                     │              │ 3. Gas                  │
│                     │              │ 4. Rubber               │
└─────────────────────┘              └─────────────────────────┘
            │                                      │
            ▼                                      ▼
┌─────────────────────┐              ┌─────────────────────────┐
│ Health insurance    │              │ Health insurance        │
│ Branches            │              │ Branches                │
└─────────────────────┘              └─────────────────────────┘
```
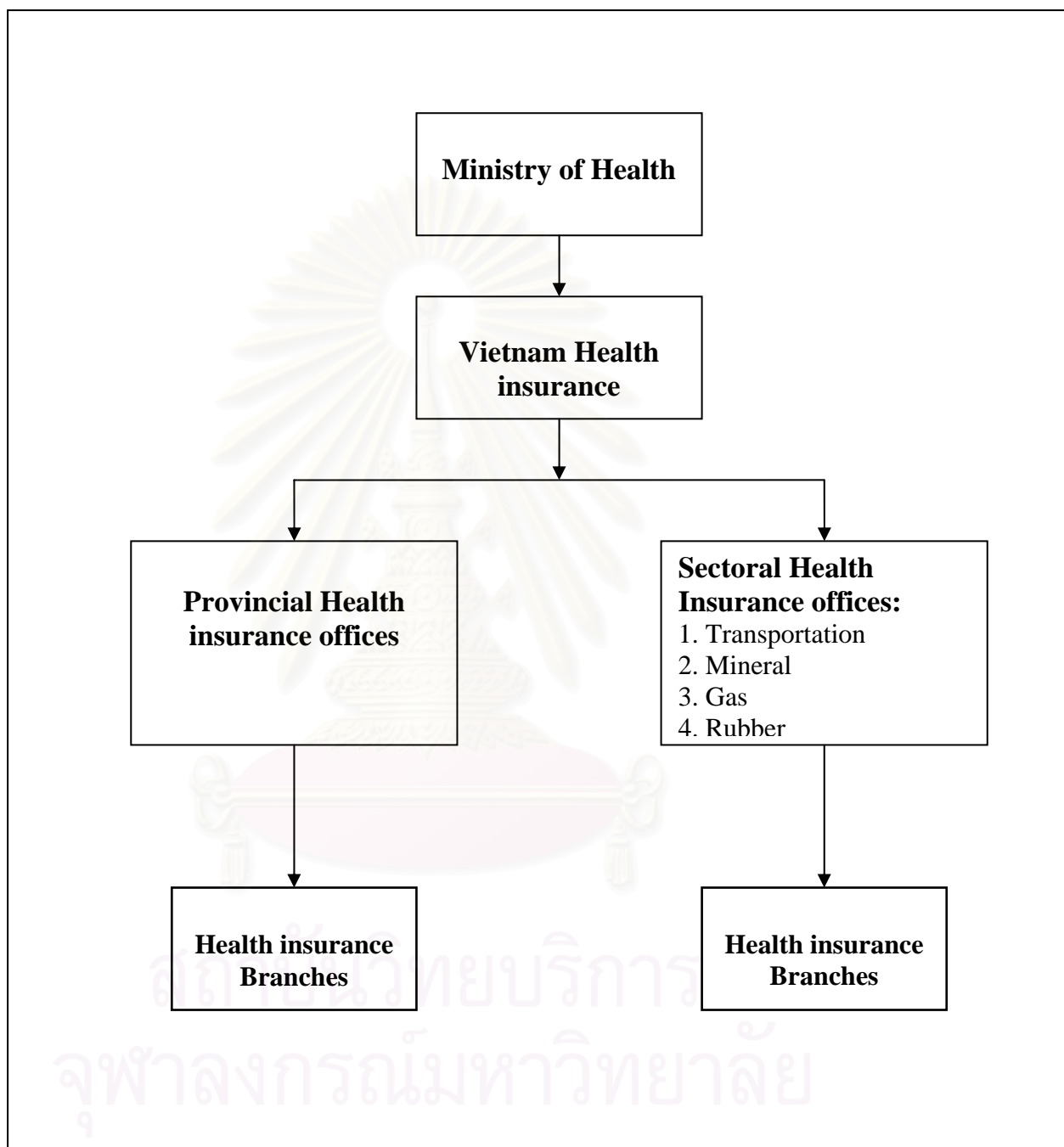
Benefit package of health insurance schemes

Benefit inclusions:

* Primary health care

- Personal hygiene, nutritional, environmental health and prevention activities

- Health check-up

- First aid and emergency care

* Health care provider level

- Insured members can choose health care provider at district-level to register and will be referred to higher level when necessary. -If health care is given in consistence with the regulations at district, provincial and central levels: the health insurance fund will pay 80% of the fees, the other 20% will be paid by the insured person.

- If patient's total out-of-pocket payments for the 20% co-payment amount exceed the amounts set in the current applicable regulations for a given year, VSS will cover the cost difference.

- Members visiting providers where they are not registered for first level of contact or making discretionary choices for medical practitioner or medicines have to pay all the fees. Health insurance agencies will consider and reimburse costs in accordance with the currently applicable regulations on fees.

- In emergency cases, people with health insurance cards will be given health service and treatment at any health care provider and enjoy all health insurance benefits regardless of variations in technical levels or different administrative boundaries.

* Health service given under the doctor's instructions:

- Examination, tests, X-rays, functional investigation for diagnosis and treatment

- Provision of medicines within the list established by the Ministry of Health, blood and fluid transfusion using the common materials, health equipments for health care

- Surgeries and operations

- Use of patient beds

* For maternity: health insurance agencies will pay the fees according to the currently applicable regulations.

- Death allowance per case at applicable rate set out in regulations.

Benefit Exclusions

- Treatment for leprosy, psychiatric treatments (schizophrenia), epilepsy
- Medicines used for tuberculosis, malaria, rabies prevention and treatment
- Family planning services
- Fees for HIV/AIDS tests, gonorrhea and syphilis, diagnosis and treatment.
- Preventive medicine, vaccinations, sanatorium, regular check-up, health examination for recruitment.
- Aesthetic orthopedics and plastic surgery, glasses, hearing aid, false limbs, false teeth, false eyes, artificial joints, crystalline lens and heart valve, prosthetics.
- Rehabilitative treatment out of the list established by the Ministry of Health
- Congenital diseases and birth defects
- Occupational diseases
- Labor accidents
- Road accidents including after effects from road accidents
- War accidents and calamities
- Suicides, intentionally caused injuries, drug addiction, and law violations
- Early pregnancy tests and diagnosis, infertility treatment
- Costs of transporting the patients, meals during treatment period

CHAPTER III

LITERATURE REVIEW

The literature review aims to explain the concepts of health insurance, health insurance coverage, utilization, demand and premium for health insurance. Experience from other countries, previous studies and comments on health insurance and voluntary health insurance scheme which will be relevant applied in to Vietnam.

3.1 Concepts of Health insurance:

Health insurance is a system in which prospective consumers of care make payments to a third party in the form of an insurance scheme, which in the event of future illness, will pay the provider of care for some or all of the expanses incurred. In other words, health insurance is a means of providing members of a defined community with some protection against the cost of health services. Hsiao (1992) described health insurance as a means to pool the risks. When risks are pools across a population, unpredictable losses can be transformed to predictable losses; and with cross-subsidization of resources from the healthy to the sick, from the rich to the poor, from small family to large family with a number of dependants achieved, individual security is improved.

The concept of health insurance benefits is describe as health services provided to insured persons which are delivered, paid or reimbursed in full or in part by the third-party-payment, that is payment for health care services incurred by a defined group of protected persons, made by government and health insurance companies, on their behalf (Ron, Abel-Smith and Tamburi, 1990).

Health insurance is a way of realizing social justice, because it is based on solidarity and co-operation between the well and the ill, the rich and the poor, and employers and employees (Abel-Smith, 1986).

3.2 Insurance Coverage

Categories of insurance coverage related to percentage of each category (Gooding, Sandra Smith, et al., 1996). Some countries choose voluntary membership as a route to wider coverage. Access to the insurance system is offered on a voluntary basis, this removes the problems related to registration of members, since only persons who apply for membership are registered. Offering voluntary membership may entice certain population groups to join, particularly those groups who are not presently covered by an insurance scheme and those who may be dissatisfied with the existing quality of health care services (Charles Normand and Axel Weber, 1994).

3.3 Utilization, Demand and Premium for health insurance

Phelps (1993) mentioned that people seem to dislike risk. The pervasive purchase of insurance of many types offers concrete evidence of this dislike. People willingly pay insurance companies more than the average loss they confront, in order to eliminate the chance of really risky (large) losses. We can describe people who behave this way as being risk averse. Risk aversion arises from a simple additional assumption, that the marginal utility of income, while positive, gets smaller and smaller as a person's income get larger. The difference between the certainty equivalent and average income is called the risk premium. It represents the maximum that a risk-averse person would be willing to pay to avoid this risk. The consumer behavior when confronted with uncertain risky financial events stand at the heart of the economist's way of

thinking about such decisions. Economists presume that people act to maximize expected utility. When they do so, they buy insurance against risky events.

Sharp, Register and Leftwith (1994) explained the price elastic demand for health care services when the sellers in the health care industry decrease prices, and the price elasticity of demand is equal to the percent change in quantity demanded divided by the percent change in price.

Premium is the amount or installment paid for an insurance scheme, under which the total expenditure for benefits and administration of a given period are met out of the income (from contributions and other sources) of the same period (Ron, Abel-Smith and Tamburi, 1990)

3.4 Utilization of Health care services

The utilization of health services can be expressed in terms of the annual number of consultations, the annual number of inpatient admissions as well as the annual number of hospital days/person.

Utilization of health care services by consumers with varying levels and types of insurance coverage means the lower use of health services by the uninsured relative to the insured. There is mixed evidence with regard to the effect of insurance coverage on the appropriate utilization of health services (Gooding, Sandra Smith et al, 1996). The relationship between insurance coverage and appropriate usage of the health care services by consumers is not clear. In particular, the difference in appropriateness of services use by consumers with and without insurance and with different types of health insurance can be analyzed. Health insurance coverage can affect health care services utilization directly by encouraging or discouraging health services use,

and indirectly by encouraging or discouraging use of alternative sources of care.

3.5 Health insurance financing

The health insurance option makes it possible to restore an awareness of connections between participation by individuals and groups in health care financing on the one hand, and services rendered on the other and it is not realistic to expect the rural population to pay the whole cost of its health services insurance contributions; that means, health for all programs will have to be paid for almost entirely by countries' own resources (Abel-Smith, 1986).

Hsiao (1992) argued that private health insurance has not found its way to developing countries because it is unfeasible. But voluntary health insurance could face the difficulty of covering all people in a developing country, and the financing strategy is only a means to achieve these objectives, such as extending as much as possible the membership of that program.

3.6 Experiences from other countries

Donaldson and Gerard (1993) mentioned that a public insurance system could be administered by a monopolistic agent such as a regional government, or national government. One of the best-known systems of public health insurance is that existing in Canada. There, consumers pay a uniform premium for hospital and medical care. Some elements of costs, such as capital expenditure, are financed from tax revenues. The two points from those experiences can be well applied in Vietnam, where VHI is a public system with a uniform premium, and where parts of the costs are subsidized from tax revenue.

In the case of Thailand, from which Vietnam can learn, the VHI scheme has a regulated procedure to seek health care services with the first contact at the public health grass-roots level. The target population was expanded from coverage of the near poor to include the middle income class in rural areas. Also, the school health insurance program can promote accessibility to health services among primary school children. The voluntary health insurance scheme (VHIS) in Thailand, commonly known as the health insurance card scheme, was first introduced in 1993.

Households contributed a minimal membership fee to the health card fund to cover access to care for a year. Beneficiaries have to make the first contact at a public health center at the sub district level with access to higher of care through a referral letter. At the end of the year, the health card fund reimbursed medical expenses to health centers, district and provincial hospitals on an actual basis. The MOPH informally subsidized the heath card project as medical expenses were greater than reimbursement from the health card fund. The target population was expanded from coverage of the near poor to include the middle income class in rural areas.

At present, the price of a health insurance card is 1500 baht per year for one family of not more than five members. As a result of the reform, in 2004, there are three major public health care financing schemes providing health coverage for entire population. These are: The CSMBS, which covers public sector employees and their dependents (parents, spouses and children) approximately 5.7 million beneficiaries; the SSS, a mandatory pre-payment scheme protecting private sector employees approximately 7.2 million beneficiaries against non-work-related illness, and injuries and maternity; the UC scheme covers the rest of population, approximately 47 million.

The beneficiaries, however, can go only to health care provider units under the MOPH. The first contact is the health center or district hospital, and

then patients have to follow a referral line for higher levels of care. School health insurance (SHI) in Thailand, has the objective to promote accessibility to health services among primary school students. Public voluntary prepaid health insurance was successful in providing health insurance coverage to the population in rural areas. It also ensured equitable access to health services when needed and protected households from getting in debt from expensive medical treatment. It is not only the source of health care finance that is important for the extension of health insurance coverage, but also the method according to which health care providers are paid.

Social health insurance in other countries where a fee-for-service reimbursement model is the major mode of payment to health care providers (such as Philippines, The Republic of Korea and Taiwan) is facing difficulties of cost escalation and inefficiency. From the Thai experience, it can be concluded that private commercial health insurance has limitations in extending health insurance coverage, as they only provide this choice to the wealthier population. This is not a policy goal if a country needs to extend coverage to the whole population (Viroj Tangchaoensathien, Phusit Prakongsai, Walaiporn Patcharanarumol, Chitpranee Vasavid, and Kanjana Tisayaticom, 2005).

In the future, the experience of Singapore should be to Vietnam by establishing the family savings fund which can be used to pay for the medical expenses a family member, that is a shared responsibility in looking after the welfare of family members, and to avoid incurring medical expenses. Faced with mounting costs of the medical services, the Ministry of Health of Singapore started to look at various options for changing the health financing system. The problem was to keep the balance between demand and supply capacity. With growing affluence and greater health consciousness, many people want more and better services, so Singapore's family savings scheme (MEDISAVE), established in 1983, attempts to impose savings and to

restructure the system of health care financing. In addition to promoting individual responsibility for maintaining good health, it also aims to build up financial resources so as to provide the means to pay for medical care during illness.

The savings are regularly set aside by the transfer of 6% of earnings in to a personal Medisave account. Funds can be withdrawn from the Medisave account to pay for hospital charges and some out patient procedures. Medisave also can be used to pay for the medical expenses of family members, so there is a shared responsibility in looking after the welfare of family members, and to avoid incurring medical expenses (Donaldson and Gerard, 1993).

3.7 Previous studies and comments on HI and VHI program in Vietnam

Carrin, Murray and Sergent (1993) discussed about Framework for health insurance development in Haiphong, Vietnam, that in Vietnam an endeavor is made to introduce health insurance at a national scale, and province and district levels will have a large say in the development of health insurance. In Haiphong, the VHI scheme established there basically provides for health insurance against cost of hospital services. Haiphong needs further health insurance development planning and study, in order to reach the objective of extending the membership of the VHI program.

In term of management, Vietnam is to be congratulated for having established so quickly an administrative system for the scheme which has succeeded in enrolling so many insured persons and making payments to the providers. Also, health insurance has not led the Ministry of finance consciously to cut the health budget. The introduction of health insurance has improved the drug supply position. Some of the extra drugs bought for health

insurance are being used to supply the poor when stocks have run out. The key to maintain the health insurance in Vietnam is reduced supplied at lower cost, more rational prescribing, and a way of keeping the premium down while still going a long way to meet the most important needs on a family basis for the VHI card is a solution to extend the membership of VHI program in Vietnam and in Haiphong in particular (Abel-Smith, 1993).

Because of that, one of the objectives of VHI in Vietnam is to increase access to health insurance, by defining health insurance premiums that are attractive for the voluntary insured (Ron,1995).

In summary, Carrin, Murray and Sergent (1993) suggested as follows:

1. As other countries, health insurance in Vietnam is a means of pooling risk among the insured population and operates on the principle of redistribution of financial resources. Simultaneously, health insurance helps to finance the health care delivery system in Vietnam.

2. Management of a health insurance scheme must be clear as to which services it will cover and what it will reimburse. It needs to work closely with other parties, particularly hospitals.

3. It is necessary to establish an appropriate premium for the VHI scheme in Haiphong. The premium much be set in anticipation of estimated health expenditures. The total amount of premiums must be based on the expected health care expenditures incurred by the insured. The costs are tied to the costs of operating a hospital. The health insurer must have access to those cost data.

4. The payment by the health insurer must be structured in a way that encourages the hospitals to meet efficient and effective targets. The health insurer should not be required to simply reimburse the hospital for whatever costs it incurs. In this respect, the feasibility of adopting flat payment mechanisms needs to be investigated.

5. The component of the costs of a health insurer are the membership size, the utilization rate of the membership, the costs of hospital services and

the administrative costs related to the management of the health insurance scheme.

6. Accrual accounting, annual budgets, the preparation of annual financial statements and regular (at least quarterly) reporting to management and the government is an essential part of good management.

Guy Carrin (2002) addressed the issue of the feasibility of social health insurance in developing countries. Social health insurance aims at protecting all population groups against financial risks due to illness. There are substantial difficulties in implementation, however, due to lack of debate and consensus about extent of financial solidarity, problems with health service delivery, and insufficient managerial capacity. This study suggested that for countries to improve upon the various facilitating factors all at once, the pace towards universal coverage via SHI would surely be much faster. But realistically speaking, many countries may have to wait for this "golden" basket of mare income growth, adequate administrative capacity, a more formal economy, less inequality, and more voice for population. One of the ways whereby faster enrolment could be achieved is to advocate and apply the "family" approach to health insurance. Indeed, the family contributions would need to reflect the costs of family care. Most of them are already spending an important contribution of their income on health care. It has to be explained to families that health insurance contributions would basically replace the out-of-pocket payments, while enabling better protection against expensive health care costs.

Mr Nguyen Quang An (1996) studied the increase of the number of insured persons in the VHI program in Haiphong and to identified a method for estimating the optimal insurance premium for the VHI program in this city, which will be used as one of the means to increase the membership of this program. This study used the survey data to run the logit model for finding the regression related to probability of population who are willing and able to buy VHI with the lower premium suggested. This study found that income of

household, age, education level, family size which has been relative to the willingness to buy VHI card. It found that the optimal premium for the VHI program in Haiphong should be 12,672 VND at 1995 price, because it satisfies the criteria of the optimal premium for VHI program in Haiphong, when it will contribute to the program's revenue equal to maximum costs predicted, with surplus equal to 0. When the VHI premium will be decreased by 15.5% from 15,000 dong to 12,672 dong with assumption that the supply side is constant, a coefficient of price elasticity of demand $\mu=1.67>1$, and quantity of population that can be covered by VHI program will be increased by 32.7% from 105,000 to 139,326 persons. Compared to the target population of the VHI program, it will increase from 9.9% to 12.1%.

In the long run, the aim of VHI program to cover most of its target population, another empirical study needs to combine the method in this study with other social factors such as the feeling and behavior to use health care services within the VHI target population, the reasons that services did not satisfy the requirement and how do those factors affect the demand and supply sides of VHI program.

David Mark Dror (2006) conducted a study among 3024 households in seven locations in India. This study provides evidence on willingness to pay for health insurance. This study used linear multiple regression model to analyze the data. The results of this study confirmed that age, income of household, household size, educational level and location of the households related to the willingness to pay for health insurance.

CHAPTER IV

RESEARCH METHODOLOGY

The methodology for this study will be presented in this chapter in the following sections: Conceptual Framework, Methodology.

This study is an analytical study for identifying what are the determinants affecting the enrollment of Voluntary Health Insurance scheme in Red River Delta Region in Vietnam and the effects of Health Insurance scheme on health care utilization in this region.

4.1 Conceptual Framework

The objective of this study is to analyze the determinants influencing the enrollment of Voluntary Health Insurance scheme and the effects of Voluntary Health Insurance scheme on health care utilization. Determinants affecting the enrollment of the Voluntary Health Insurance are identified in this study as the characteristics of the insured such as age, gender, marital status, and family size, location of family, education, income of the purchaser and chronic diseases. This study looks at the utilization of health care services under the two types of payment, which are voluntary health insurance scheme and User's fees from the perspective of the consumers. The utilization of health care services of insured group might be more than uninsured group. This study hypothesizes the insured might be used health care facility more than the uninsured because the moral hazard concept in health insurance system. Moral hazard is the form which explains over consumption of health care services by the insured. The people who have voluntary health insurance cards, they do not have to pay their money for health service costs, so they might be use health services more than people do not have VHI cards.

Figure 4.1 Research framework
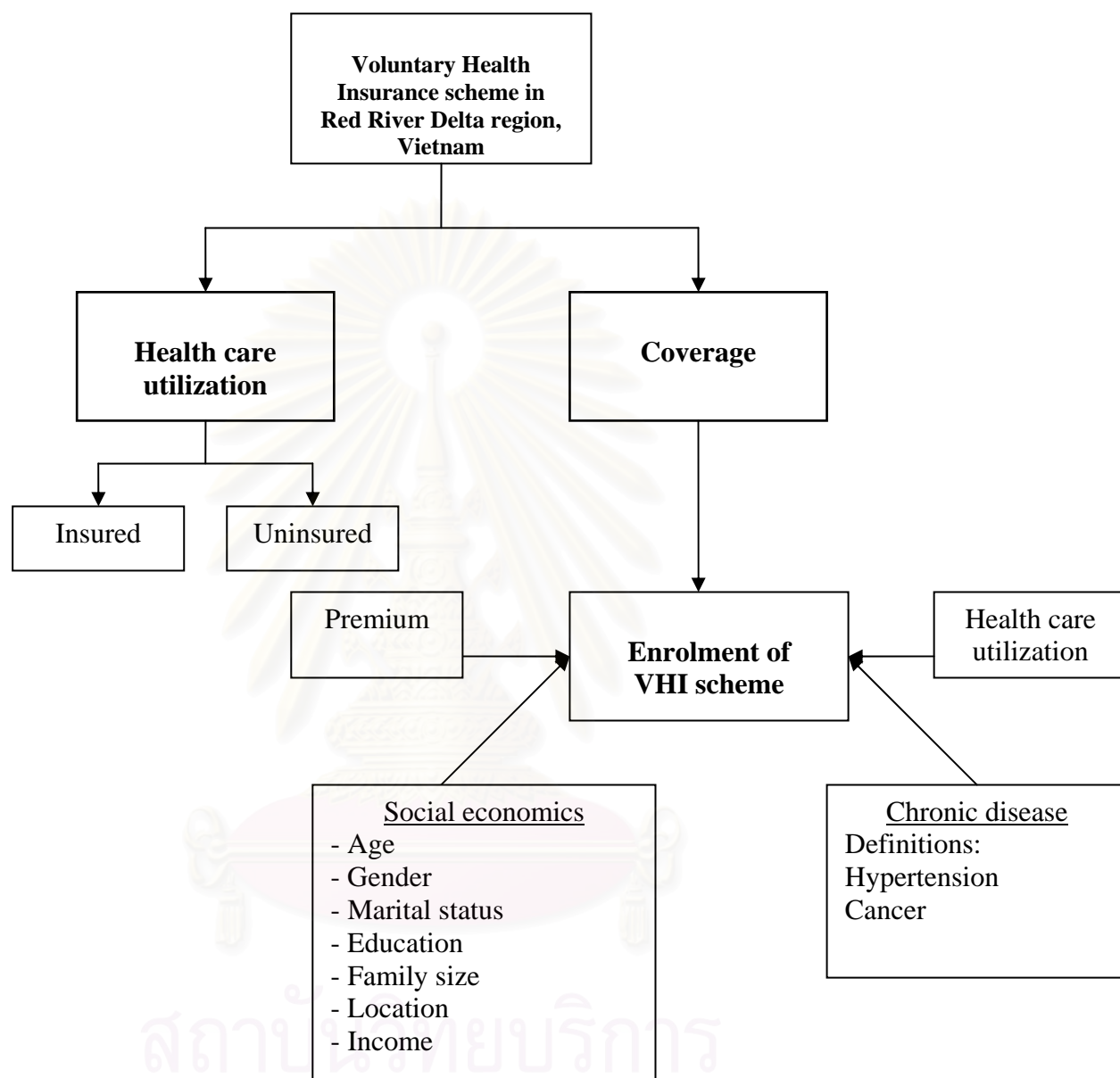
From the Figure 4.1, the right hand-side of this framework, there are determinants affecting the enrollment of VHI scheme. This study will use logistic regression model to analyze the determinants affecting the enrolment of Voluntary Health Insurance Scheme in Red River Delta region in Vietnam.

Dependent variables

Probability (Y=1) if an individual purchased Voluntary health insurance card. Probability(Y=0) if an individual did not purchase Voluntary health insurance card.

Independent variables

- Age of the interviewee
- Gender of the interviewee
- Marital status of the interviewee
- Education of the interviewee
- Number of members in the family including spouse and dependents
- Location of the family
- Chronic diseases: Hypertension, cancer
- Income per head of family
- Number of times using health care service

In the left hand-side of Figure 4.1, this study use descriptive analysis to compare the health care consultation and treatment times per year between the group which has health insurance card and the group which does not.

4.2 Methodology

4.2.1 Research design

There are two parts in this study:

- The first part of this study will use logistic regression model to analyze the determinants affecting the enrolment of Voluntary Health Insurance Scheme in Red River Delta region.

- The second part of this study use descriptive analysis to compare the health care utilization (consultation times per one year) between group which have health insurance card and the other group does not have health insurance card.

4.2.2 Data Analysis

This study employed both qualitative and quantitative methods. The data were entered from the interview questionnaire into coding form and verification of the database carried out using the spreadsheet software. Data processing involved use of the statistical package for Social Science (Eviews software).

The analysis of the data involved the investigation of the determinants influencing enrollment of voluntary health insurance scheme in the Red River Delta region in Vietnam. The non parametric test, i.e., Chi-square statistic and parametric t-test statistic were used initially to identify the various variables in both socio-economic and psychological factors. These significant factors will provide more understanding of demographic and socio-economic pattern between card purchase and non-purchase groups.

The logistic regression model was then used to identify significant predictors of VHI card purchase and VHI non-purchase pattern.

The logit regression model

Logit model, where Pi is the probability of success in the i case, then Pi/(1-Pi) is the corresponding olds so that means the logarithm of the olds. Having observed the value of X in a sequence of cases and whether there was a 'success' or a 'failure' in each such case, the researcher will often estimate the values of the coefficients βi by the method of maximum likelihood. The result can then be used to access the probability of success in a subsequent case in which the value of X is known. Estimation and prediction by this method are called logistic regression model.

Logit analysis presents a unique complement to multiple logit regression in its ability to utilize a binary dependent variable. Logit analysis does not predict just whether an event occurred or not, but instead predicts the probability of an event. In this manner, the dependent variable can be any value between one and zero. This means that, the predicted value must be bound to fall within the range of zero and one.

The interpretation of the logit regression coefficient is not straightforward as in the regression model. The logit model can be rewritten in terms of the odds of an event occurring. The odds of an event occurring are defined as the ratio of the probability that it will occur to the probability that it will not. The value of the coefficient for each variable indicates the changes in the log odds when the value of a particular variable changes by one unit and the values of the other independent variables remain the same.

The logit model is based on the cumulative logistic probability function:

$$Pi=f(Y)=f(\beta_0 + \beta_i *Xi)=\frac{1}{1+e^{-y}} = \frac{1}{1+e^{-(\beta 0+\beta i Xi)}} \qquad (1)$$

Where

Pi presents the probability that an individual will make a certain choice, given knowledge of Xi with i = 1, 2, .n. (of which n stands for number of independent variables)

Probability (Y=1) if an individual purchased Voluntary health insurance card

Probability(Y=0) if an individual did not purchase Voluntary health insurance card

F= a cumulative probability function

Xi= independent variables

β_0 = constant; β_i is coefficient of Xi

e= exponential, e=2.7182

From equation (1), another equation can be written:

$(1+e^{-y})Pi=1$

Then, $\qquad e^{-y} = \dfrac{1-Pi}{Pi}$

And, $\qquad e^{y} = \dfrac{Pi}{1-Pi}$

Taking logarithm of both sides of equation above,

$$Y = \ln\left(\frac{Pi}{1-Pi}\right)$$

Thus, final equation is:

$$\text{Ln}\left(\frac{Pi}{1-Pi}\right) = \beta_0 + \beta_i * Xi$$

Multiple logit regression analysis was applied to identify the determinants that might influence people who purchased voluntary health insurance card. The dependent variable was people who had voluntary health insurance card or not. For example, if the dependent variable is denoted 1, then it means people who purchased VHI cards, and if it is denoted 0, it means people who did not purchase VHI cards.

The explanatory variables were: Age of the interviewee, gender of the interviewee, marital status of the interviewee, number of members in the family including spouse and dependents, location of the family, hypertension, cancer, income per head of family, number of times using health care service.
The logit regression is:

$$\text{Ln}\left(\frac{Pi}{1-Pi}\right) = Y = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gend} + \beta_3 \text{Marit} + \beta_4 \text{Edu} + \beta_5 \text{Fsize} + \beta_6 \text{Loca} +$$

$$\beta_7 \text{Hyper} + \beta_8 \text{Canc} + \beta_9 \text{Ininc} + \beta_{10} \text{Cons} + €_i$$

Where

- β₀ is constant

- Age = Age of the interviewee

- Gend = Gender of the interviewee

- Marit = Marital status of the interviewee

- Edu = Education of the interviewee

- Fsize = Number of members in the family including spouse and dependents

- Loca = Location of the family

- Hyper = Hypertension

- Canc = Cancer

- Ininc = Log of income per head of family

- Cons = Number of times using health care service

The purpose of this equation was to identify the determinants affecting the probability to enroll the voluntary health insurance scheme in Red River Delta in Vietnam. Running the estimated logit model, the computer will compute the logarithm odds ratio Y, which is also the regression of individual's attributes X_i, which give information to interpret the dependent variables in the logit model.

Reasons for including the above factors as independent variables are as follows:

- Age level and gender might affect the probability of purchasing voluntary health insurance. This study hypothesizes that elder and female would be more likely to buy health insurance card. Females tended to purchase health cards more than males because this related to greater maternal and child health care card use and they are willing to check their health status periodically. Meanwhile, males are hesitated to check their health status periodically.

- Marital status may affect the ability to purchase health insurance card. The single may have a higher probability of purchasing health insurance in order to ensure for their health status when they get older. Other reason, they do not need to spend a lot of money to take care of other dependents in the family.

- Education level: Higher levels of education may lead to increased efficiency and higher purchase of health insurance. With the families have higher education level means that they will have higher income and recognize the prospects of the health insurance card when they are illness.

- Family size will affect the probability of purchasing health insurance because if one family has many dependents they might not be able to afford health insurance contribution.

- Location of the household: Families who live in urban areas often has more income than families who live in rural areas. Health care facilities located in urban areas having more modern equipments and high trained staffs than which located in rural areas. Therefore, it will attract people participate in VHI program.

- Income: Families with higher income would be more willing to buy voluntary health insurance card. As the law of demand, the customers with higher income, the demand for voluntary health insurance card will be higher.

- Hypertension and cancer diseases: In case people have these diseases, they could be more willingness to buy health insurance in order to reduce the burden of health care service costs.

- Number of consultations and treatments: People who use more health care services will be more willingness to purchase health insurance cards because if

they have health insurance cards, they can prevent from the burden of health care service costs.

Table 4.1 Type of variables and expected sign of each coefficients

	Variables	Descriptive variables	Unit of measurement	Expected sign
X1	Age	Age of the interviewee	1= above and 41 0= lower than 41	+
X2	Gend	Gender of the interviewee	1= female 0= male	+
X3	Marit	Marital status of the interviewee	1= single 0=otherwise	+
X4	Edu	Education level of the interviewee	1= high school and above 0= secondary school	+
X5	Fsize	Number of members in the family including spouse and dependents	1 = more than 4 0= otherwise	-
X6	Loca	Who lives in urban or rural areas	1= urban 0 = rural	+
X7	Hyper	Disease status of the interviewee	= 1 if have hypertension = 0 : otherwise	+
X8	Canc	Disease status of the interviewee	= 1 if have cancer = 0 : otherwise	+
X9	Inc	Log of income per head	VND	+
X10	cons	Number of times using health care service by the insured and un-insured groups	times	+

Test for significance of each factor

For the model analysis, the hypothesis that a coefficient was different from zero by using Wald test and p value to access the significant of each coefficient. The hypothesis was:

$H_0 : \beta_i = 0$

$H_1 : \beta_i \neq 0$ i= 1, 2, 3

The meaning of this test is if the null hypothesis H_0 is true, the corresponding independent variable is not related with dependent variable, and its value is useless. On the other hand, if alternative H_1 is true, it implies that there is a relationship between that variable and dependent variable.

To determine significance, the following process was used: conduct a test with confident significant 95% and calculate the Wald test.

$$z = \frac{\beta i}{Se(\beta i)} \qquad \text{Se is standard error}$$

Reject H_0 if the computed z value is less than critical z value or $p < 0.05$
Accept H_0 if otherwise

Predict a change of probability of dependent variable when independent variable is changing

Suppose, a logit regression is

$$\text{Ln} \frac{P}{1-P} = \beta_0 + \beta_1 X$$

When X increase to X+a, that means X change is ΔX a change of right equation is:

$$\Delta \text{Ln} \frac{P}{1-P} = \beta_1 \Delta X$$

To simplify, we utilize the fact that for any continuous variable X, $\Delta \log X = \Delta X / X$, and the fact that $\log(x/y) = \log x - \log y$. Then

$$\Delta \text{Ln} \frac{P}{1-P} = (\frac{1}{P} + \frac{1}{1-P})\Delta p = \frac{1}{p(1-p)}\Delta p$$

So we get

$$\frac{1}{p(1-p)}\Delta p = \beta_1 \Delta X$$

and $\Delta p = \beta_9 [p(1-p)]\Delta X$

When X changes, we will calculate a change of p and predict the probability of independent variable. Applying this formula to this research, for example, we predict the probability of purchasing voluntary health insurance card when income increases and the values of the other independent variables remain the same. We get a formula

$\Delta p = \beta_9 \, [p(1-p)] \, \Delta \log$ of income

When income increases 1% Δincome, a change of probability is

$\Delta p = \beta_9 \, [p(1-p)] * \Delta \log$ of income

4.2.3 Data collection

This study used cross-sectional secondary data in Red River Delta Region in Vietnam. The population sample for this study is comprised of members of health insurance scheme for 11 provinces in Red River Delta Region. The number of samples required has to be great enough for statistical comparison. Quantitative secondary data will be collected from the National health survey 2002 (VNHS).

The data collected from the Red River Delta Region in VNHS will be used to analyze for this study comprising 11 provinces: Ha Noi, Hai Phong, Vinh Phuc, Ha Tay, Bac Ninh, Hai Duong, Hung Yen, Ha Nam, Nam Dinh, Thai Binh, Ninh Binh.

CHAPTER V

RESULTS AND DISCUSSIONS

According to the methodology outlined in the previous chapter, this chapter provides the results of the analysis to identify the determinants that affect the enrollment of voluntary health insurance scheme in Red River Delta region in Vietnam.

5.1 The determinants influence the enrollment of Voluntary Health Insurance scheme in Red River Delta region in Vietnam

Data from eleven provinces were analyzed. Data collected from 2268 observations were age of the interviewee, gender of the interviewee, marital status of the interviewee, number of members in the family, location of the family, hypertension, cancer, log of income per head, number of times using health care service.

Because there were no cancer cases in the data file for Eviews software to analyze, therefore, in this chapter we ignored the independent variable (cancer) from the logit model.

$$\text{Ln } (\frac{Pi}{1-Pi}) = Y = \beta_0 + \beta_1 Age + \beta_2 Gend + \beta_3 Marit + \beta_4 Edu + \beta_5 Fsize + \beta_6 Loca + \beta_7 Hyper + \beta_8 Ininc + \beta_9 Cons + \epsilon_i$$

Where

- β_0 is constant
- Age = Age of the interviewee
- Gend = Gender of the interviewee
- Marit = Marital status of the interviewee
- Edu = Education of the interviewee

- Fsize = Number of members in the family including spouse and dependents
- Loca = Location of the family
- Hyper = Hypertension
- Ininc = Log of income per head
- Cons = Number of times using health care service

Used Eviews Software to run data file, we got the results as follows:

Table 5.1: Results of data estimated from Logit Model

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-6.882516	0.840257	-8.190969	0.0000
AGE	-4.018899	0.588071	-6.834036	0.0000
GEND	-0.139443	0.150708	-0.925255	0.3548
MARIT	0.611938	0.151286	4.044920	0.0001
EDU	1.080746	0.258045	4.188206	0.0000
FSIZE	-0.445320	0.153673	-2.897841	0.0038
LOCA	0.683623	0.165187	4.138468	0.0000
HYPER	-1.137125	1.032950	-1.100851	0.2710
LNINC	0.772520	0.153986	5.016812	0.0000
CONS	0.673832	0.130179	5.176213	0.0000

Log likelihood = -613.2490

Y is dependent variable

Test for significance of each variable

For the model analysis, the hypothesis that a coefficient was different from zero by using Wald test and p value to access the significant of each coefficient. The hypothesis was:

$H_0 : \beta_i = 0$

$H_1 : \beta_i \neq 0$ i= 1, 2, 3…9

The meaning of this test is if the null hypothesis H_0 is true, the corresponding independent variable is not related with dependent variable, and its value is useless. On the other hand, if alternative H_1 is true, it implies that there is a relationship between that variable and dependent variable.

The results of logit model computed by Eviews software in the Table 5.1 above shows that:

Among 9 independent coefficients, 7 of them, β_1, β_3, β_4, β_5, β_6, β_8, β_9 corresponding with age, marital status, education, family size, location, income per head, consultation times respectively, which had p value are smaller than 0.05. So for these independent variables, we reject H_0 for these variables and conclude that these variables have statistical meaningful relationship with dependent variable.

In case of coefficient β_2, β_7, which had p value are bigger than 0.05, we conclude that these variables are not statistical meaningful relationship with regression Y.

From those results, we can rewrite the regression equation and interpret as follow:

Y = -6.882516 - 4.018899*AGE + 0.611938*MARIT + 1.080746*EDU - 0.445320*FSIZE + 0.683623*LOCA + 0.772520*LNINC + 0.673832*CONS

Table 5.1 showed that, the statistically significant factors distinguishing purchase groups from non-purchase groups are age, marital status, educational level, family size, location, income per head, consultation times respectively.

David Mark Dror (2006) found that the important factors affecting health insurance card purchase to be age, education level, family size, location, and income. It was confirmed in this study.

The interpretation of the logistic regression coefficient is not straightforward as in the regression model. The logistic model can be rewritten in terms of the odds of an event occurring. The odds of an event occurring are defined as the ratio of the probability that it will occur to the probability that it will not. The value of the coefficient for each variable indicates the changes in the log odds when the value of a particular variable changes by one unit and the values of the other independent variables remain the same.

One of important determinants influencing the probability of purchasing voluntary health insurance card was age of the purchaser. The coefficient was negative sign and significant statistics with dependent variable (P value<0.05). In this study, expected sign of independent variable about age of the interviewee was positive because the elder might be likely to buy voluntary health insurance card more than young people in order to reduce health care costs when they was ill. Actually, after running data file by Eviews software, we got the result about this variable was negative sign. This can be explained that, probability to buy voluntary health insurance card could be affected by group with age lower 41 years old than other group. People with low income, they do not have many options to ensure for their health care cost burden, so that the only way for them to participate this scheme. The other group with age above 41 years old in this study might be had better income, so that they could participated in other health insurance schemes such as compulsory health insurance, life-time insurance in private sector. In this study, it means the log of the odds that a person purchased voluntary health insurance card is 4.0188 lower if that person has age above 41 and 41 years old, holding other independent variables constant.

Other factor in this model, gender variable was negative sign. It means that male tended to purchase voluntary health insurance more than female. A person purchased VHI card is 0.1394 lower if that person is female, holding other independent variables constant. It is vice-versa with the expected sign.

But any way, there was not different between female and male in this model (p value > 0.05) because it was not statistic significance in the model.

The other significant factor was marital status in this study (p value<0.05). It explained that marital status influenced the probability to purchase voluntary health insurance cards between single and other groups. In this study found that a person purchased VHI card is 0.6119 higher if that person is single, holding other independent variables constant .The single group might have greater ability to buy voluntary health insurance cards because they want to ensure for their life when they become older.

The other determinants was level of education, the coefficient of it was positive and significant. It explained that education of people influenced the probability to purchase voluntary health insurance card between groups below secondary school and above high school. Probability of having health insurance cards tended to be the group with education level higher than secondary school. A person purchased VHI card is 1.0807 higher if that a person is at high school level and above, holding other independent variables constant. In this case, those with higher levels of education and thus higher income, so they have more chance to purchase voluntary health insurance card.

The other important factor was family size; its coefficient was negative and significant (with p value < 0.05). It explained that the probability to purchase voluntary health insurance cards is higher in groups with less than 4 persons in the family. A family purchased VHI card is 0.4453 lower if that family has more than four persons, holding other independent variables constant .It improved that if one family has more dependents than the others, they will face more economic difficulties when they burdened living costs and other expenses. So, they will hesitate to purchase VHI card.

The coefficient of location of family was positive and statistic significance (p value < 0.05). It explained that location influenced the probability to purchase voluntary health insurance card between family living in urban and rural areas. Coefficient can interpret that a person purchased VHI card is 0.6836 higher if that person is living in urban areas, holding other independent variables constant .In this study confirmed that the people was living in urban areas, normally they had more chances to participate voluntary health insurance scheme because they can use health care facilities with modern technology and well-trained staffs more than in rural areas.

The previous study of voluntary health insurance card purchase patterns showed the important factors for VHI card purchase to be income, age, education, family size of the household. The location factor of the household was non significant statistics (Nguyen Quang An, 1996). Interesting, in this study found that the coefficient of location of family was positive and significant. It explained that location influenced the probability to purchase voluntary health insurance card between family living in urban and rural areas.

Interestingly, the hypertension variable in this study was negative sign. It meant that people who did not have chronic disease likely to buy more voluntary health insurance cards, it was opposite to the hypothesis in this study. Coefficient of this variable interprets that a person purchased VHI card is 1.1371 lower if that person have hypertension disease, holding other independent variables constant. But, it was not meaning in this model because it was not statistical significance (p value > 0.05).

The coefficient of consultation times was positive and significant. It explained that consultation times influenced the probability to purchase voluntary health insurance card between each time of consultation. The probability to buy health insurance tended to the people who using more health care services than the other. Each consultation time increases, the log of the

odds that a person purchased voluntary health insurance card increases by 0.6738, holding other variables constant.

The strong determinant of purchasing voluntary health insurance card in the scheme was income. The coefficient of income was positive and significant (p value < 0.05). It explained that income influenced the probability to purchase voluntary health insurance card. If income of a person increases the probability of having voluntary health insurance cards will increase as well.

When income changes, we will calculate a change of p and predict the probability of independent variable. We predict the probability of purchasing voluntary health insurance card when income increases and the values of the other independent variables remain the same. We got a formula:

$\Delta p = \beta_8 [p(1-p)] \Delta \log$ of income

Where:

p=0.102 in case people had voluntary health insurance card

(1-p)= 1-0.102= 0.898 in case people did not have voluntary health insurance card.

If income increases 1%, the probability to purchase voluntary health insurance card is:

P= 0.7725*0.102*0.898 = 0.07

5.2 The assessment of Voluntary Health Insurance Coverage in Red River Delta region in Vietnam

By the end of 2002, member of health insurance reached almost 3.2 million, accounting for 18.35% of the population with the 2002's growth rate of 12.43% in comparison with that of 1998. This shows that there are more and more people participating in the health insurance system and getting welfare benefit from the health insurance. It also illustrates the health insurance system in this current phase.

If making general calculation for all schemes of health insurance, the growth rate of 2002 reached 12.43%. However, if broken down into specific schemes of health insurance for assessment, it is observed that the number of members to the Compulsory Health Insurance scheme in recent years has been rather stable with a low growth rate. Meanwhile, the number of members in voluntary health insurance scheme in 2002 reached -8.99% compared with the growth rate of the base year of 1998. This figure shows that the expansion of voluntary health insurance coverage has declined slightly due to the economic growth rate at that time was not stable. In this period, growth rate of GDP in Vietnam was 5.8%, 4.8%, 6.8%, 6.9% respectively. The system is dominated by the relative easy of collecting through compulsory health insurance scheme. This has been helped by improvements in the tax and payroll deduction collection system.

Table 5.2: Number of enrollees in Red River Delta region by years

Unit: persons

Category	1998	1999	2000	2001	2002
Total number of HI members	2,849,521	2,775,483	2,673,354	3,019,535	3,203,656
Population	16,701,500	16,870,600	17,039,200	17,243,300	17,455,800
% of members per population	17.06	16.45	15.69	17.51	18.35
% of growth rate in comparison with 1998	-	-2.60	-6.18	5.97	12.43
Number of compulsory members	1,654,306	1,871,487	1,946,176	2,085,670	2,115,854
% of growth rate in comparison with 1998	-	13.13	17.64	26.08	27.90
Number of Voluntary members	1,195,215	903,996	727,178	933,865	1,087,802
% of growth rate in comparison with 1998	-	-24.37	-39.16	-21.87	-8.99

Source: Health insurance statistical yearbook 2002

Figure 5.1: Members of Health insurance schemes in Red River Delta region
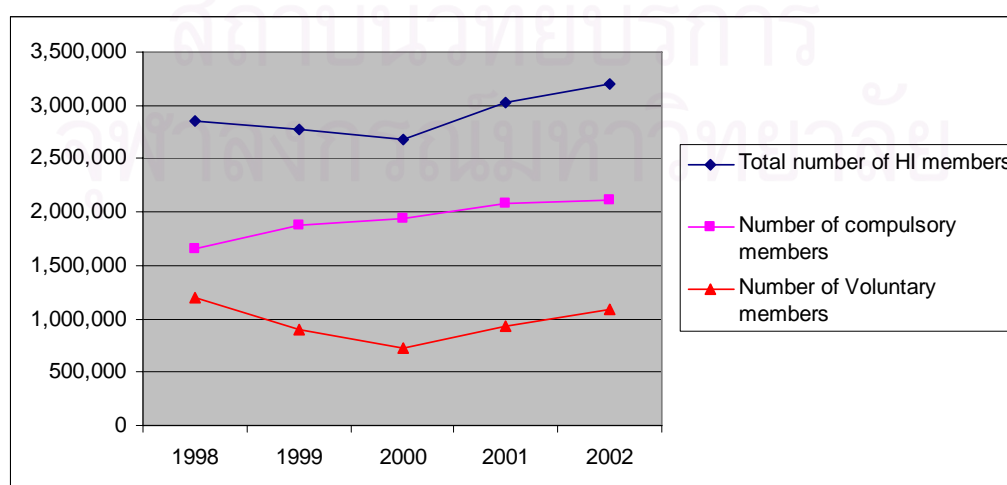
5.3 Health insurance premium and revenue of both schemes in Red River Delta region in Vietnam

Premium of buying health insurance (called as premium) established for the compulsory participants is 3% of their income, salary or stipends in which employees pay 1% and employers pay 2%. People enjoying subsidy from the government, health insurance, labour, war invalids and society branches, have to contribute this 3%.

With regard to voluntary health insurance members, the premium is established according to different categories based on the local social-economic situation and the assurance of ability for health insurance fund balance. A Voluntary health insurance fund is kept separate from compulsory health insurance fund in term of cost accounting.

Table 5.3 shows that the annual average premium by year of both compulsory and voluntary members is not stable. The highest value of compulsory health insurance scheme contributed in the year 2002 is 162,964 VND and the lowest value is 102,900 VND. The average premium of voluntary health insurance scheme increased gradually from 1998 to 2002 with the lowest value at 19.111 VND and the highest at 22.985 VND. Generally, premium of voluntary health insurance scheme is very low compared with compulsory health insurance scheme.

Reasons for the fluctuation in the premium are due to:

- Influence of policy on salary and minimum wages: In 2000 the unit wage has changed from 144,000 VND to 290,000 VND.
- Influence of regulations/identification on salary, incomes that are the basis for premium calculations.
- Changing structure of categories participating in health insurance schemes.

Table 5.3: Average premium by years

Unit: VND

Category	1998	1999	2000	2001	2002
Compulsory health insurance scheme	102,900	108,419	135,570	150,451	162,964
Voluntary health insurance scheme	19,111	19,799	22,014	22,081	22,985

Source: Vietnam Social Security June, 2004

Figure 5.2: Average premiums by years
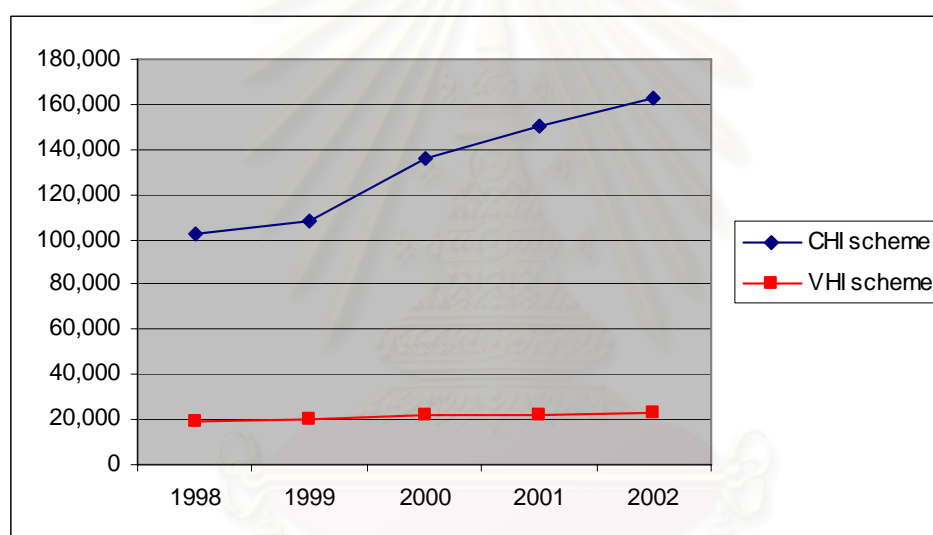
Compelling employers to meet their obligations with regard to their health insurance contributions is vital in order to ensure the stability of health insurance fund, to ensure the gradual growth of health insurance funds in accordance with socio-economic development, and to avoid the influence of inflation. Adjusting the level of the premium over the years will contribute to an active effect when financial conditions for health care and uses of health care service have a tendency to increase.

The management and use of Health insurance funds

Health insurance funds are established with the aim to secure finance for members when they face illness or other problems that need treatment in the health insurance system. Health insurance funds are made available from the following main financing contribution sources:

- Direct payments from health insurance members;
- Counter-part payments from employers;
- Subsidy from the government for people enjoying social privileges through health insurance institutions, labor, war-invalids and society branches;
- Contributions from different levels of authorities (province, city, and sector) for people who don't have the ability to cover health insurance cost such as poor people.
- Contributions from organizations, generous individuals, and NGOs for people who are target of social humanity programs;
- Income generated from safe and development investment activities such as deposits in the bank, government bond, etc.

The main sources for health insurance funds are from contributions by employees and employers. However, in some institutions, mainly non-state business, non-payment of health insurance employees is still frequently happening.

Table 5.4: Total revenue from contribution in Red River Delta region by years

Unit: 1000 VND

Category	1998	1999	2000	2001	2002
Total HI contribution	180,190,794	194,688,902	246,814,366	283,826,631	309,201,674
% of growth rate in comparison with 1998	-	8.05	36.97	57.51	71.60
CHI contribution	160,409,236	179,798,862	227,930,970	267,054,193	284,603,434
% of growth rate in comparison with 1998	-	12.09	42.09	66.48	77.42
VHI contribution	19,781,558	14,890,040	18,883,396	16,772,438	24,598,240
% of growth rate in comparison with 1998	-	-24.73	-4.54	-15.21	24.35

Source: Health insurance statistical yearbook 2002

Figure 5.3 Total revenue
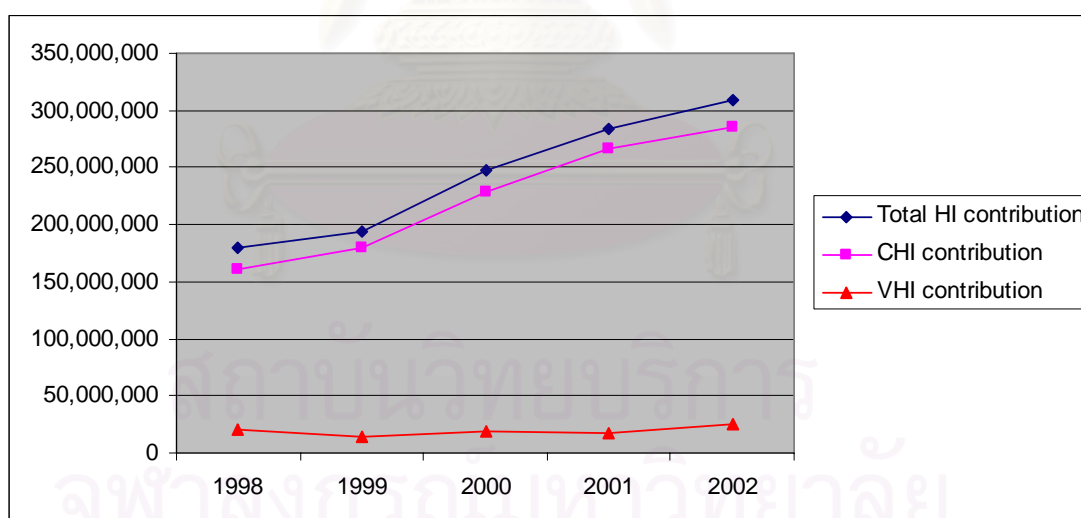
From the Table 5.4 above, the revenue was VND 309 billion, which increased by 71.6% in 2002 compared with 1998. Total revenue of both schemes has increased steadily. Meanwhile, the revenue of voluntary health insurance scheme was not stable from 1998 to 2002. With revenue coming from providing health care services for health insurance members, the health

sector has generated a considerable financial source every year to directly health care activities. Health insurance revenues have contributed a considerable part in improving the quality of health care services and upgrading health care establishments, particularly those at the grass-root level.

Revenue from the health insurance was divided into the following funds: a fund for health care and treatment, a fund for health insurance management and a reserve fund for health care and treatment. Types of revenue were divided depending on the particular form of the health insurance. For example, for the school health insurance scheme 35% of revenue was used for carrying out primary health care in the schools, 60% for inpatient care, 4% for the local management fund and 1% for the central management fund. The use of funds follows the following regulations:

- The fund for health care and treatment is used to cover health care expenditures for health insurers.
- The fund for management is used for running the Vietnamese health insurance system.
- The reserve fund for health care and treatment is used to cover any shortage in health care expenditures.

In addition to differences in types of revenue, there are also notable differences in types of expenditure in each scheme. On average, members of the voluntary system use facilities far less than members of the compulsory scheme. This ensures that, despite low revenues, both schemes appear to be more of less balance.

5.4 Health care utilization in Red River Delta region in Vietnam

Data in Table 5.5 shows that the utilization rates of compulsory health insurance members had increased year by year. However, voluntary health

insurance utilization had decreased from 1998 to 2000 and increased from 2000 to 2002.

Table 5.5: Number of admission and visit in Red River Delta region by years

Unit: Admission, visit

Year	CHI scheme		VHI scheme	
	IP	OP	IP	OP
1998	286,498	3,013,379	74,758	593,603
1999	279,992	2,921,827	49,878	145,393
2000	296,669	2,962,616	31,415	63,807
2001	349,889	3,363,950	43,650	202,846
2002	344,062	4,062,422	49,435	349,642

Source: Health insurance statistical yearbook 2002

Figure 5.4 Number of admission and visit
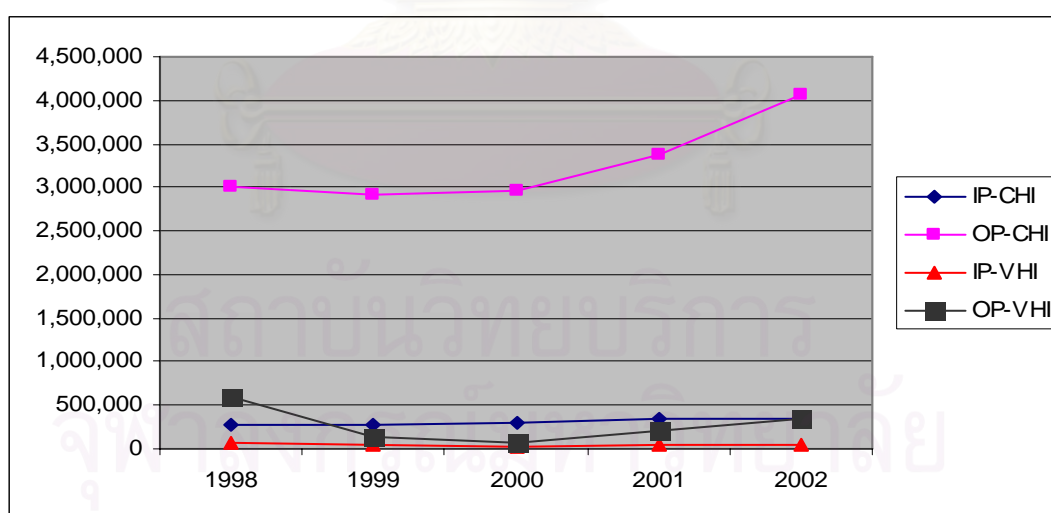
5.5 Descriptive of the Data

From Table 5.6, most of subjects were less than 41 years old. There were more males than females. The proportion of single and others marital

status was similar. This sample showed that there were more people with education below secondary school levels. More than half of subjects reported living in a family with 4 or less than 4 persons. The distribution of people living in rural and urban areas was not much different.

Concerning with household income, this study classified income in to income per head of family with the lowest and highest income, 32,000 VND and 1,279,000 VND, respectively. The mean income was 142,410 VND.

Table 5.6: Socio-demographics

Variables	Un-insured group		Insured group	
	n	%	n	%
Age				
<41	1425	70.00	228	98.28
>=41	611	30.00	4	1.72
Gender				
Male	949	46.60	123	53.02
Female	1087	53.40	109	46.98
Marital status				
otherwise	1394	68.50	114	49.14
Single	642	31.50	118	50.86
Education				
High school and above	280	13.80	22	9.48
Below secondary school	1756	86.20	210	90.52
Family size				
No. persons =<4	1089	53.50	146	62.93
No. persons >4	947	46.50	86	37.07
Location				
Rural	1546	75.90	128	55.17
Urban	490	24.10	104	44.83

Income per head	Mean	Std. Deviation
	142,410	96.51

The majority of voluntary health insurance members were in: Hanoi, Haiphong cities, Hatay, Thaibinh provinces. It can be explained that these provinces had better economic status than others. VHI members concentrated in big cities with higher economic conditions (see Table 5.7).

Table 5.7: VHI category by Province

Province	Un-insured group		Insured group	
	n	%	n	%
Hanoi	190	9.33	67	28.88
Haiphong	204	10.02	36	15.52
Vinhphuc	225	11.05	7	3.02
Hatay	252	12.38	29	12.5
Bacninh	167	8.20	22	9.48
Haiduong	247	12.13	2	0.86
Hungyen	189	9.28	8	3.45
Hanam	148	2.27	7	3.02
Namdinh	242	11.89	16	6.9
Thaibinh	172	8.45	37	15.95
Ninhbinh	0	0	1	0.43
Total	**2036**	**100**	**232**	**100**

From the data source, only few persons who had voluntary health insurance cards related to chronic diseases: hypertension and cancer. It meant that, there was not much difference related to chronic diseases between insured and uninsured people (Table 5.8).

Table 5.8: Chronic diseases summary

		VHI		Total
		0	1	
Non-hypertension	Count	1941	231	2172
	% within VHI	95.33	99.57	95.77
Hypertension	Count	95	1	96
	% within VHI	4.67	0.43	4.23
Total	Count	2036	232	2268
	% within VHI	100	100	100
		VHI		Total
		0	1	
Non-cancer	Count	2034	232	2266
	% within VHI	99.90	100.00	99.91
Cancer	Count	2	0	2
	% within VHI	0.10	0.00	0.09
Total	Count	2036	232	2268
	% within VHI	100	100	100

Table 5.9 shows that, the insured used health care facilities more than un-insured people at the first, second times. It is very interesting that when the number of consultation is greater than 3, the un-insured group used more than the insured group. This imposed that health care services was used by the people who had voluntary health insurance cards and people who did not purchase voluntary health insurance cards were not much different.

Table 5.9: Consultation times

Number of consultations		Un-insured group	Insured group	Total
0	Count	1879	184	2063
	% within VHI	92.29	79.31	90.96
1	Count	16	32	48
	% within VHI	0.79	13.79	2.12
2	Count	11	11	22
	% within VHI	0.54	4.74	0.97
3	Count	122	3	125
	% within VHI	5.99	1.29	5.51
4	Count	5	1	6
	% within VHI	0.25	0.43	0.26
5	Count	1	1	2
	% within VHI	0.05	0.43	0.09
6	Count	2	0	2
	% within VHI	0.10	0.00	0.09
Total	Count	2036	232	2268
	% within VHI	100	100	100

Table 5.10: Consultation times by gender

Number of consultations		Male	Female	Total
0	Count	997	1,066	2,063
	% within gender	93	89.13	90.96
1	Count	28	20	48
	% within gender	2.61	1.67	2.12
2	Count	7	15	22
	% within gender	0.65	1.25	0.97
3	Count	39	86	125
	% within gender	3.64	7.19	5.51
4	Count	0	6	6
	% within gender	0	0.5	0.26
5	Count	1	1	2
	% within gender	0.09	0.08	0.09
6	Count	0	2	2
	% within gender	0	0.17	0.09
Total		1,072	1,196	2,268
		100	100	100

Table 5.10 shows that, males used health care facilities more than females at the first times. When the number of consultation is greater than 2 female used health care services more than male because female might be related to greater maternal and child health care card use.

Table 5.11: Consultation times by location

Number of consultations		Rural	Urban	Total
0	Count	1,538	525	2,063
	% within location	91.88	88.38	90.96
1	Count	30	18	48
	% within location	1.79	3.03	2.12
2	Count	10	12	22
	% within location	0.6	2.02	0.97
3	Count	93	32	125
	% within location	5.56	5.39	5.51
4	Count	1	5	6
	% within location	0.06	0.84	0.26
5	Count	1	1	2
	% within location	0.06	0.17	0.09
6	Count	1	1	2
	% within location	0.06	0.17	0.09
Total		1,674	594	2,268
		100	100	100

Table 5.11 shows that people used health care facilities in rural areas more than urban areas at the first time and the third time. Vice versus, people used health services in rural location less than urban location at the second time and fourth time. The data do not indicate that urban or rural location is a major determinant of using health care facilities.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

In the late 1980s, social health insurance was put on the policy table for discussion as a means to mobilize more resources for health care and replace direct user charges. Social health insurance was also considered as a means to promote social solidarity, by pooling the contributions together to share the risks among the members. In 1992, compulsory health insurance was introduced nationwide with the issuance of the first government decree on health insurance (Decree 299) and with the establishment of health insurance offices in all provinces and with the Central Office in Hanoi. Since then, social health insurance has grown steadily, covering mainly civil servants and employees of the state-owned enterprises, including those who retired and have made meritorious services to their country, and in part private enterprise workers, students and the eligible poor.

After almost ten years of implementation, members of national health insurance schemes are largely concentrated within the formal salaried workers and school students. Meanwhile, the coverage of voluntary health insurance scheme is still very low in the proportion of social health insurance system. There are significant differences in revenues and health care utilizations from both schemes. Vietnam is still largely an agricultural country with the majority of population residing in rural areas and not yet covered by health insurance. It is a challenge now for Viet Nam to expand the coverage to the rural population.

Vietnam economic structure is changing towards more industrialization with multiple impacts on the society. The sifting of economic poses difficult questions to planners and affects many key issues in the health care sector. The country faces many problems such as how to increase the economic growth, income distribution between the urban areas and remote, mountainous, rural

areas. Likewise, in the health care sector, access to essential health care services is greatly influenced by the financial strategies.

This thesis is a descriptive and modeling study focused on describing the trends of voluntary health insurance and an analysis to identify the determinants that influence the enrollment of the voluntary health insurance scheme in Red River Delta region in Vietnam. The secondary data from the National health survey 2002 are used to demonstrate the method of this study. Logit analysis by running logit model in order to identified the determinants affecting the enrollment of voluntary health insurance scheme as one of the solutions to extend the coverage of health insurance in Vietnam.

The results of the study will provide more understanding of how the voluntary health insurance scheme performs and how to sustain it more efficiently, as well a suggesting alternative ways to improve it. The research results show that the statistically significant determinants related to enrollment of voluntary health insurance scheme by the following: age, marital status, educational level, family size, location, income per head, consultation times with the coefficients of these factor are: (-4.0188), (0.6119), (1.0807), (-0.4453), (0.6836), (0.7725), (0.6738), respectively. There was not much difference in number of visits to health care facilities between insured and un-insured groups.

6.2 Policy recommendations

The health sector reform process has been implemented in Vietnam since the early 90's. Health insurance is a major component of that process. The evaluation the effect of health reforms on health care delivery is a crucial issue. The assessment of quality of care under health insurance is, therefore,

very important, not only for health insurance agency and the insured but also for the health policy makers.

An increasing trend of medical costs in health care sector is the burden of patients. The uninsured people have to pay out of pocket for medical services either public or private facilities when they get sick are unaffordable to many patients. Vietnam should choose a proper voluntary health insurance is a choice for low-income people who are not protected to financial difficulties with the high cost of health care services. Protection to the health financial burden for the population becomes an essential issue in the renovation process. One of the ways to resolve this issue is expanding the voluntary health insurance scheme in order to reach universal health insurance coverage.

At present, the findings reported in this study for improvements to the existing voluntary health insurance scheme as follows:

- To provide households with necessary information of health insurance principles by various means of media communication.

- Innovative measures in cooperation with other agencies to register the target population and to collect regular contributions without developing an excessive VHI infrastructure at local level.

- Development and use of promotional material through various media and community leaders and training for all these functions.

It is also likely that greater equity in access and the provision of benefits would be gained by simplification. Insured members need to value the benefits they get from health insurance. "Quality of health care" is one dimension and "quality of health insurance services" is another.

- To renovate, improve the payment methods, to expand the benefits of the health insured patients, especially to the list of health insurance medicines.

- To set up a proper mechanism between the health insurance system and the medical system in consulting and treatment facilities to enhance the medical service quality in all technical routes.

- The public health facilities need to have measures to improve the medical service quality by increasing the material investment, high technology equipment and well-trained medical staffs. Especially, need to improve in rural areas.

6.3 Limitations of the study

Due to many reasons, this study can not avoid certain shortcomings. The data used this study was secondary data from National Health Survey 2001-2002 because of time and budget constraints. The other weakness of this study, there could be more determinants affecting the enrollment of voluntary health insurance scheme as follows: Premium of voluntary health insurance, quality of health care services…This study was not concerned, but it should be considered in any further study. It is expected that more detailed provincial, regional and country data profile will become available in the future.

REFERENCES

Abel-Smith B. (1993). The health insurance system in Vietnam- Assignment report for SIDA.

Abel-Smith B. et al. (1990). Health insurance in developing countries: The social security approach. International labour office, Geneva.

Carrin G., Murray M., Sergent F. (1993). Towards a framework for Health Insurance development in Haiphong, Vietnam, Macroeconomics, Health and Development Series Number 12. Vietnam Technical Paper. Office of International Cooperation, WHO, Geneva, Switzerland. December 1993.

David Mark Dror. et al. (2006). Willingness to pay for health insurance among rural and poor persons. Health Policy, doi: 10.1016.

Donaldson C. and Gerard K.(1993). Economics of Health Care Financing- The Visible Hand. London, United of Kingdom, The Macmillan Press.

Ensor T, Thompson R. (1998). Health insurance as a catalyst to change in former communist countries? *Health Policy* 43: 203-218.

Ensor, T. (1995). Introducing health insurance in Vietnam. *Health Policy and Planning* 10(2): 154-163.

Ensor, T, San P. (1996). Access and payment for health by the poor in Northern Vietnam, *International Journal of Health Planning and Management* 11(1): 69-84.

Gellert G. et al (1995). The Influence of Market Economics on Primary Health Care in Vietnam. *Journal of American Medical Association* 273(19): 1498-1502.

Kaewsonthi S. and Harding A. G. (1992). Starting, Managing and Reporting research. Chulalongkorn University press.

Ministry of Health. (2004). Health Statistics Yearbook, Health Statistics and Informatic Division, MoH, Hanoi.

Ministry of Health (2006): Vietnam National Account in the period 1998-2003.

Nguyen Quang An. (1996). An Economic Analysis of Voluntary Health Insurance Premium in Vietnam: A case study of Hai Phong, Master's thesis, Chulalongkorn University.

Paul J. Feldstein. Health Care Economics (2005). Thomson Delmar Learning Publishers.

Phelps C.E (1992). Health economics. Harper Collins Publishers.

Ron A. (1998). Mission report: Vietnam 13-21 August 1998, WHO, Geneva.

Ron A., Abel-Smith B. and Tamburi G. (1990). Health insurance in developing coutries. International labor office, Geneva, Switzerland.

Ron, A. Carrin, G. and Tien, T. (1996). *The Development of National Health Insurance in Vietnam*. WHO Technical Paper. Macroeconomics, Health and Development Series, 23.

Siripen Supakankunti. (2001). Determinants of Demand for Health Card in Thai Land. HNP Discussion Paper.

Solon, O & Tien, T. (1997). *The Challenges of the Vietnam Health Insurance Programme* VHIA.

System in Vietnam. (1998). *The International Journal of Health Planning and Management* 11(2).

The Vietnam National Health Survey 2001-2002 (VNHS).

Thompson, R. (1995). Social Health Insurance in Vietnam MSc dissertation, University of York.

Thompson, R. (1998). Informal Payments for Health Care in Transitional Economies. *CHE News, No. 6*; Centre for Health Economics, University of York.

VHIA (1998). *Annual Report of Implementing Activities in 1997 and Planning for 1998*. Voluntary Health Insurance Agency, Ministry of Health.

Vietnam Health Insurance. (2002). Health insurance statistical yearbook 1993-2002, Statistics Press.

Witter, S. (1996). Doi Moi and Health: The Effect of Economic reforms on the Health

WHO. Library Cataloguing in Publication Data: Social health insurance: selected country case studies from Asia and the Pacific. SEARO Regional Publication No.42. World Health Organization 2005
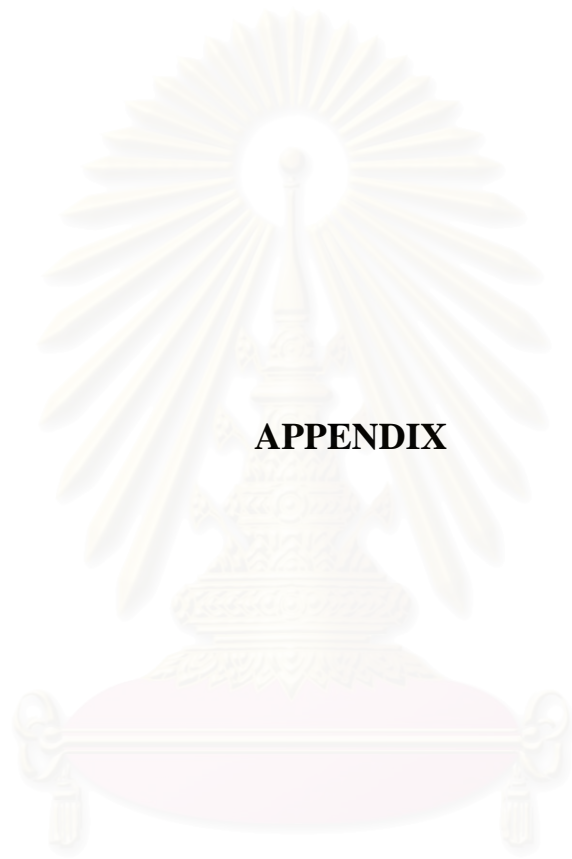
APPENDIX

BIOGRAPHY

NAME	Vuong Quoc Anh
NATIONALITY	Vietnamese
DATE OF BIRTH	March, 23 1977
EDUCATION	Hanoi University of Finance and Account Bachelor Degree of Finance and Account
WORKING EXPERIENCE From 1999 – Present	Vietnam Ministry of Health Department of Planning and Finance
PERMANENT ADDRESS	No: 138A Giangvo, Badinh, Hanoi, Vietnam Tel: +84 4 8464051