

FACTORS AND BARRIERS THAT AFFECT THE PARTICIPATION IN VOLUNTARY HEALTH  
INSURANCE OF PEOPLE IN INFORMAL SECTOR IN BAVI DISTRICT, HANOI 2012



Miss Lan Le My

จุฬาลงกรณ์มหาวิทยาลัย

CHULALONGKORN UNIVERSITY

A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Science Program in Health Economics and Health Care  
Management

Faculty of Economics

Chulalongkorn University

Academic Year 2013

Copyright of Chulalongkorn University

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)

เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)  
are the thesis authors' files submitted through the University Graduate School.

ปัจจัยและอุปสรรคที่มีผลกระทบต่อการเข้าร่วมระบบประกันสุขภาพแบบสมัครใจสำหรับผู้ที่อยู่  
นอกระบบในเขตบาวี ฮานอย ในปี พ.ศ. 2555



นางสาวลาน เล มี

จุฬาลงกรณ์มหาวิทยาลัย

CHULALONGKORN UNIVERSITY

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาเศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ

คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2556

ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title	FACTORS AND BARRIERS THAT AFFECT THE PARTICIPATION IN VOLUNTARY HEALTH INSURANCE OF PEOPLE IN INFORMAL SECTOR IN BAVI DISTRICT, HANOI 2012
By	Miss Lan Le My
Field of Study	Health Economics and Health Care Management
Thesis Advisor	Kannika Damrongplisit, Ph.D.

---

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

.....Dean of the Faculty of Economics  
(Associate Professor Chayodom Sabhasri, Ph.D.)

THESIS COMMITTEE

.....Chairman  
(Associate Professor Sothitorn Mallikamas, Ph.D.)

.....Thesis Advisor  
(Kannika Damrongplisit, Ph.D.)

.....Examiner  
(Kanittha Tambunlertchai, Ph.D.)

.....External Examiner  
(Associate Professor Wattana Suwansang Janjaroen, Ph.D.)

ลาน เล มี : ปัจจัยและอุปสรรคที่มีผลกระทบต่อการเข้าร่วมระบบประกันสุขภาพแบบสมัครใจสำหรับผู้ที่ยอยู่นอกระบบในเขตบาวี ฮานอย ในปี พ.ศ. 2555. (FACTORS AND BARRIERS THAT AFFECT THE PARTICIPATION IN VOLUNTARY HEALTH INSURANCE OF PEOPLE IN INFORMAL SECTOR IN BAVI DISTRICT, HANOI 2012) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: อ. กรรณิการ์ ดำรงค์พลสิทธิ์, 109 หน้า.

การศึกษาค้นคว้าครั้งนี้เป็นการศึกษาโดยใช้ข้อมูลภาคตัดขวางเกี่ยวกับการลงทะเบียนในระบบประกันสุขภาพและปัจจัยทางเศรษฐกิจและสังคมของกลุ่มคนในเขตบาวี วัตถุประสงค์ของการศึกษาค้นคว้านี้ เพื่อที่จะวิเคราะห์ ปัจจัยและอุปสรรคที่ส่งผลต่อการเข้าร่วมแบบอาสาสมัครในระบบประกันสาธารณสุขของกลุ่มคนที่มีความแตกต่างกันทางเศรษฐกิจและสังคมในภาคเศรษฐกิจนอกระบบในเขตบาวี รัฐฮานอย ประเทศเวียดนาม ในปีพ.ศ. 2555 การศึกษาค้นคว้านี้วิเคราะห์ข้อมูลทุติยภูมิจำนวน 22,728 ตัวอย่าง การวิเคราะห์เชิงพรรณนาและการวิเคราะห์สมการถดถอยด้วยวิธี binary logistic ใช้เพื่ออธิบายแนวโน้มและปัจจัยที่ส่งผลต่อการตัดสินใจในการซื้อประกันสุขภาพโดยสมัครใจของประชาชนและเหตุผลที่ไม่เข้าร่วมหรือเหตุผลที่ไม่ต่อระบบประกันในกลุ่มคนที่ไม่ได้ลงทะเบียน

ผลการศึกษาพบว่า ปัจจัยเพศ อายุ ระดับการศึกษา สถานะทางเศรษฐกิจ สถานะทางสุขภาพ และอาชีพ ส่งผลต่อการลงทะเบียนในระบบประกันสุขภาพแบบสมัครใจ นอกจากนี้ในส่วนของประชากรที่ไม่ได้ลงทะเบียนในระบบประกันสุขภาพ ปัจจัยที่ส่งผลต่อการตัดสินใจที่จะไม่ซื้อประกันหรือต่ออายุประกัน ได้แก่ อายุ เพศ สถานะสมรส ระดับการศึกษา สถานะทางเศรษฐกิจ สถานะทางสุขภาพ และอาชีพ อุปสรรคที่สำคัญสำหรับการไม่เข้าร่วมในระบบประกัน คือ การที่ไม่มีเงินที่จะซื้อประกัน และระบบที่มีความซับซ้อน และเหตุผลของการไม่เจ็บป่วย เป็นสาเหตุอันดับที่สองและสามตามลำดับ ในแง่ของขนาดของอุปสรรคที่ส่งผลต่อการตัดสินใจ ปัญหาทางการเงินคืออุปสรรคขนาดใหญ่สุด ตามมาด้วยทัศนคติที่ไม่ดีต่อเจ้าหน้าที่ทางสาธารณสุข ตลอดจน ความไม่พอเพียงของผลประโยชน์จากระบบประกันเป็นเหตุผลในลำดับต่อมา

อาชีพชวานาเป็นอาชีพที่พบว่ามีการลงทะเบียนในระบบประกันที่ค่อนข้างต่ำและการมีปัญหาด้านการเงินมีผลอย่างมากต่อการตัดสินใจเข้าร่วมโครงการประกันสุขภาพ นอกจากนี้ผู้ที่พึ่งพาทางการเงินกับผู้อื่นนั้นมีแนวโน้มที่จะลงทะเบียนในระบบประกันสุขภาพมากกว่าในขณะที่ผู้ที่มีงานทำมีแนวโน้มต่ำที่จะสนใจเข้าร่วมโครงการประกันสุขภาพ ทั้งในส่วนของผู้ที่ต้องพึ่งพาทางการเงินกับผู้อื่นและผู้ที่ทำมาแล้วพวกเขาเหล่านั้นล้วนประสบอุปสรรคเดียวกันที่ทำให้ตัดสินใจไม่เข้าร่วมโครงการประกัน นั่นก็คืออุปสรรคอันเนื่องมาจากการเปลี่ยนสถานภาพของชนิดของประกัน

สาขาวิชา เศรษฐศาสตร์สาธารณสุขและการ  
จัดการบริการสุขภาพ

ลายมือชื่อนิติต .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ปีการศึกษา 2556

# # 5685639029 : MAJOR HEALTH ECONOMICS AND HEALTH CARE MANAGEMENT  
 KEYWORDS: VOLUNTARY HEALTH INSURANCE / ENROLLMENT / FARMER /  
 INFORMAL SECTOR / BARRIERS

LAN LE MY: FACTORS AND BARRIERS THAT AFFECT THE PARTICIPATION IN  
 VOLUNTARY HEALTH INSURANCE OF PEOPLE IN INFORMAL SECTOR IN  
 BAVI DISTRICT, HANOI 2012. ADVISOR: KANNIKA DAMRONGPLASIT, Ph.D.,  
 109 pp.

This study is a cross-sectional one that collects data about the enrollment in health insurance and the socio-economic factors of people in Bavi district. The purposes of this study were to analyze the factors and barriers affecting the participation in voluntary health insurance among people of different socio-economic groups in informal sector in Bavi district in Hanoi, Vietnam in 2012. This study analyzed the secondary data of 22,728 individuals. Descriptive analysis and binary logistic regression were used to describe the trend and discover the determinants of the decision on purchasing voluntary health insurance of people and the reasons for never enrolling or renewing health insurance of people with non-enrollment status.

The results reveal that gender and age, educational level, economic status, health status and occupation have significantly impact on the enrollment in voluntary scheme. Regarding to the non-enrollment population, age, gender, marital status, educational level, economic status, health status and occupation are found to have impact on the decision of not buying or not renewing health insurance of people. The most common barrier is “no money to buy”, following by “Complex procedures and “no sickness” as the second and the third common barriers. In terms of impacts of barriers, financial difficulty ranks first among the barriers, then “poor attitude of health staff” and “inadequate insurance benefit” come next.

Farmers are found to be less likely to enroll and financial difficulty plays critical role when considering enrollment in health insurance. Dependents have tendency of enroll in health insurance while employed people seems less interested in having health insurance. Both dependents and employed people share the same barrier of “switching type of health insurance” as the most impact reason for their non-enrollment status.

Field of Study: Health Economics and      Student's Signature .....

Health Care Management      Advisor's Signature .....

Academic Year: 2013

## ACKNOWLEDGEMENTS

I would like to take this opportunity to send my deepest gratitude to all those who supported me to complete my thesis. Without them, this thesis would not have been possible.

I would like to send my sincere thanks to my advisor, Kannika Damrongplasit, PhD for all her caring, support, valuable comments, greatly contributing to the completion of my thesis. My great attitudes now comes to my committee members, Kanittha Tambunlertchai, PhD, Associate Professor Sothitorn Mallikamas, PhD Associate Professor Wattana Suwansang Janjaroen, PhD for their valuable comments to better off my thesis.

I would like to send my sincere thanks to all lecturers and staff of Centre for Health Economics, especially Associate Professor Siripen Supakankunti, PhD her kindness and warm guidance and support during one year of my stay in Bangkok. I would like to express my thank to my classmates who shared with me all happy memories during our study in Chulalongkorn University.

I am very grateful to Ms. Pornarin Thiammaka and her staffs of ASEAN scholarships office for giving me the opportunity and supporting me during my study in Bangkok.

I would like to send my great deep gratitude to Associate Professor Nguyen Thi Kim Chuc, Pharm., PhD., for encouraging and supporting me to study in this program, for all the knowledge that she brought to me, for all the sharing in work and in life, and above all, for all what she has done for me which I could not express in words. My sincere thanks should also be sent to all my colleagues at Health System Research Project in Vietnam, Ms. Nghiem Nguyen Minh Trang, Mr. Nguyen Ngoc Linh, Dr. Tran Khanh Toan, for their advice and instructions.

From the bottom of my heart, I want to say that my thesis is dedicated to my family. To my parents, grandparents, my brothers and sister-in-law for their support and their endless love which raised me up all the hardships during my foreign study.

## CONTENTS

	Page
THAI ABSTRACT .....	iv
ENGLISH ABSTRACT .....	v
ACKNOWLEDGEMENTS .....	vi
CONTENTS .....	vii
LIST OF TABLES .....	x
LIST OF FIGURES .....	xiii
LIST OF ABBREVIATION.....	xiv
CHAPTER 1 INTRODUCTION .....	1
1.1 Problem and significance .....	1
1.2 Research questions.....	4
1.2.1 Primary question.....	4
1.2.2 Secondary questions.....	4
1.3 Objectives.....	5
1.3.1 General objective.....	5
1.3.2 Specific objectives .....	5
1.4 Scope.....	5
1.5 Possible benefits .....	5
CHAPTER 2 BACKGROUND.....	6
2.1 Background of Vietnam .....	6
2.2 Vietnam Health Profile .....	10
2.3 Health Care Delivery System.....	11
2.4 Health Financing .....	15
2.5 Health Insurance Schemes in Vietnam .....	18
2.5.1 Establishment and development of National Health Insurance Schemes .....	18
2.5.2 Current coverage of Health Insurance.....	21
2.6 Bavi District.....	22

	Page
CHAPTER 3 LITERATURE REVIEW.....	25
3.1 Concept of Health Insurance .....	25
3.2 Universal Health Coverage.....	25
3.3 Health Insurance Enrollment & Demographic factors.....	26
3.3.1 Enrollment & Gender .....	26
3.3.2 Enrollment & Age.....	27
3.3.3 Enrollment & Educational Level.....	27
3.3.4 Enrollment & Marital Status .....	27
3.3.5 Enrollment & Occupation .....	28
3.3.6 Enrollment & Health Status.....	28
3.4 Health Insurance Enrollment & Economic factor.....	29
3.5 Health Insurance Enrollment & Barriers .....	30
3.6 Research studies on Health Insurance and Voluntary Health Insurance in Vietnam .....	31
CHAPTER 4 METHODOLOGY .....	33
4.1 Conceptual framework.....	33
4.2 Source of data.....	35
4.2.1 Study setting.....	35
4.2.2 Data used for analysis and main definition.....	37
4.2.3 Data description and analysis.....	40
CHAPTER 5 RESULTS & DISCUSSION .....	45
5.1 Descriptive analysis.....	45
5.1.1 Descriptive analysis of selected variables .....	45
5.1.2 Health insurance enrolling status and selected variables .....	51
5.1.3 Health insurance non-enrolling status and selected variables & barriers .....	55
5.2 Regression analysis .....	63
5.2.1 Factors affecting the enrollment.....	63
5.2.2 Barriers affecting the non-enrollment.....	72



	Page
5.3 Discussion .....	84
5.3.1 Enrollment & Demographic & socio-economic factors .....	84
5.3.2 Non-enrollment and Demographic & socio-economic factors.....	88
5.3.3 Non-enrollment and Barriers.....	90
5.3.4 Limitations.....	96
CHAPTER 6 CONCLUSION & RECOMMENDATIONS.....	98
6.1 Conclusion.....	98
6.2 Recommendations.....	101
REFERENCES .....	103
VITA.....	109

## LIST OF TABLES

Table 1: Structure of employed population as of annual 1 July 2012 by geographic areas and gender .....	9
Table 2: Structure of self-employed and family-employed workers by geographic areas and gender in 2012.....	9
Table 3: Vietnam Health Indicators .....	10
Table 4: The insured people by years (in millions).....	22
Table 5: Population groups with low enrollment in health insurance in 2010 (in millions).....	22
Table 6: Factsheet of urban and rural areas of Vietnam and Ha Tay Province, 2007 .	23
Table 7: Description of selected variables and expected sign .....	41
Table 8: Descriptive analysis for selected variables.....	45
Table 9: Enrollment and gender.....	51
Table 10: Enrollment and educational level.....	51
Table 11: Enrollment and marital status.....	52
Table 12: Enrollment and occupation .....	52
Table 13: Enrollment and age .....	53
Table 14: Enrollment and quintile groups .....	53
Table 15: Enrollment and health status.....	54
Table 16: Not – enrollment & gender.....	55
Table 17: Non – enrollment & Educational Level.....	56
Table 18: Non– enrollment & marital status.....	56
Table 19: Non enrollment & Occupation.....	57
Table 20: Non-enrollment & age.....	57
Table 21: Non enrollment & quintile groups.....	58
Table 22: Non-enrollment & health status .....	58

Table 23: Non-enrollment & “no money to buy” barrier .....	59
Table 24: Non-enrollment & No sickness Barrier .....	59
Table 25: Non-enrollment & Complex Procedure Barrier .....	60
Table 26: Non-enrollment & Poor Quality Barrier .....	60
Table 27: Non-enrollment & Inadequate health insurance benefit Barrier.....	61
Table 28: Non-enrollment & No health insurance information Barrier .....	61
Table 29: Non-enrollment & Poor Attitude of Health Staffs Barrier .....	62
Table 30: Non-enrollment & No desire for Health Insurance Barrier.....	62
Table 31: Non-enrollment & Switch type of Insurance Barrier .....	63
Table 32: Estimated coefficients and marginal effects from binary logistic regression for enrollment of people in Bavi district for the entire sample (Dependent variable: Enrollment status).....	63
Table 33: Estimated coefficients and marginal effects from binary logistic regression for enrollment of farmer (the sample of farmer) (Dependent variable: Farmers who are enrolling).....	67
Table 34: Estimated coefficients and marginal effects from binary logistic regression for enrollment of employed and self-employed people (Dependent variable: Employed & Self-employed people who are enrolling) .....	69
Table 35: Estimated coefficients and marginal effects from binary logistic regression for enrollment of dependents (Dependent variable: Dependents who are enrolling).....	71
Table 36: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of people in Bavi district for the entire non-enrollment sample (Dependent variable: People who never enroll) .....	73
Table 37: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of Farmer (Dependent variable: Farmer who never enrolls).....	78

Table 38: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of employed & self-employed people (Dependent variable: Employed people who never enroll).....	80
Table 39: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of Dependents (Dependent variable: Dependents who never enrolls).....	82
Table 40: Marginal effects of economic variables from binary logistic regression for enrollment of each occupation .....	87
Table 41: Marginal effects of barriers from binary logistic regression for enrollment of each occupation .....	95

## LIST OF FIGURES

Figure 1: Inflation rate of Vietnam during “reform” period.....	6
Figure 2: GDP growth rate of Vietnam over 20 years .....	7
Figure 3: GDP structure at current prices by economic sectors.....	8
Figure 4: Trends in morbidity by diseases category in Vietnam 1976 - 2008.....	11
Figure 5: Vietnam Health Care System.....	13
Figure 6: The number of public hospital during the period 1995 – 2010 .....	14
Figure 7: The number of commune health centres during the period 1995 – 2010... ..	14
Figure 8: Number of doctors and nurses per 10,000 people .....	15
Figure 9: Total health expenditure in GDP from 1995 -2011.....	16
Figure 10: Health expenditure per capita at constant 2005 USD from 1995 to 2010..	16
Figure 11: Out-of-pocket payment in total health expenditure from 1995 to 2011....	17
Figure 12: Health Financing Composition in 2009.....	18
Figure 13: Road map towards Universal Coverage of Health Insurance .....	19
Figure 14: Conceptual Framework of the study.....	33
Figure 15: Method of identifying the study’s sample .....	38
Figure 16: Distribution of occupation according to quintile groups .....	47
Figure 17: Composition of dependents group.....	47
Figure 18: Distribution of educational level according to quintile groups.....	48
Figure 19: Distribution of health status according to quintile groups.....	49
Figure 20: Distribution of marital status according to quintile groups.....	49
Figure 21: Distribution of occupation according to educational level .....	50

## LIST OF ABBREVIATION

UC	Universal coverage
UHC	Universal health coverage
VHI	Voluntary health insurance
CHI	Compulsory health insurance
GSO	General Statistics Office
Stand. Dev	Standard Deviation
Stand.Err	Standard Error
WB	World Bank
WHO	World Health Organization
WTO	World Trade Organization
GDP	Gross Domestic Products
OOP	Out of pocket
MOH	Ministry of Health

## CHAPTER 1

### INTRODUCTION

#### 1.1 Problem and significance

Nowadays, Vietnam is a developing country in South East Asia with about 90 million people in 2012 and was classified into low middle income country group in 2011. In order to fulfil this achievement, Vietnam has been overcoming many challenges and hardships. After succeeding in unifying in 1975, Vietnam implemented several policies under the system of budget subsidies of communist government but stayed poverty and isolated. During the late 1980s and the early 1990s, the communist group disintegrated. Along with this trend that was taking place in the world, Vietnam performed the economic reform that is known as “Doi moi” in 1986 in which the economy restructured from centrally planned one to socialist-oriented market one. The transformation is acknowledged as the reason for the development of the economy during “reform” period: GDP increased from 131,968 billion VND in 1990 to 551,609 billion VND in 2010 at 1994 constant prices along with GDP per capita rose from \$98 in 1990 to \$1,170 in 2010 (GSO, 2005, 2012b). After that, Vietnam made a determined effort to integrate with the rest of the world: Vietnam became a member of Association of South East Asia Nations (ASEAN) in 1995 and World Trade Organization (WTO) in 2007.

Besides economic reform, Vietnam government also made changes in health sector in which health care services had been provided free of charge until 1986. These two major policies were the introduction of user fee for patients who seek care at both public and private health providers and the national health insurance schemes in 1992. Thanks to the economic development and the implementation of these new health policies, health expenditure per capita has been increased from 217,938 VND (\$15) in 2002 to 512,000 VND (\$28) in 2010 at 1994 constant prices (MOH, 2011). Even though the total health expenditures have been increased year by year which could be considered as the indicator of development, it is fact the out-of-pocket (OOP) payments still accounts for high proportion of total health expenditure. In 2009, OOP payments made up more than 50% when Social health

insurance and Public health spending only accounted for 18% and 22% respectively (Minh, 2012). This situation is found in many developing countries and a lot of studies prove that direct payments for health care have negative consequences for the population, particularly the poor and vulnerable (Russel, 2002; Russell, 2005; Xu et al., 2003). Vietnam has been facing the challenge of reducing OOP payments 'proportion in total health expenditures for years.

Realizing the situation, Vietnam policy makers decided to follow the step of other countries in implementing universal health insurance coverage in order to offering affordable health care to the whole population with the purpose of reducing catastrophic costs and impoverishment due to direct payments. Vietnam government put a deep effort on this issue and pursue a policy path of universal health care coverage through taxation and pre-payment arrangements. Health care fund for the poor was established in 2005 according to Decree 63 in order to subsidize fully premium health insurance. Law of Health Insurance which was passed in 2008 and started to be enforced from 1<sup>st</sup> Jan 2009 is the highest legal regulation about the implementation of health care financing policy through health insurance. And according to this law, children under 6 also joined in the fully subsidized group since 2009. Within the last decades (from 1992 – 2012), Vietnam has been succeeded in providing financial protection to over 50% of their population: from 17.4% in 2002 to approximately 60% in 2010 ("Vietnam Health System on the threshold of 5 year plan 2011- 2015," 2010). However, the road to its goal – universal health insurance coverage is still very long and it requires government has to attach special importance on this issue in order to expand further coverage, especially population in informal sector and subject of voluntary health insurance; because the majority of insured people in 2010 was majority people of compulsory health insurance and other subsidized schemes which accounted for 98%. Only 8% of insured people in 2010 were voluntary health insurance holder. According to Health Insurance Division, Ministry of Health, in 2010, only about 30% of farmers and 0% of dependents of employee had voluntary health insurance. There is only 692,000 near-poor people participating in health insurance, account for 11.5% of this population group in the same year. From experiences of other countries, it is extremely difficult to increase



the coverage of health insurance within each target group rather than increasing the coverage from one group to another group; especially among groups that have to pay 100% premium or get partial subsidies from government such as near-poor, farmers and dependents of employee. Thus, in order to fulfil the target of achieving above 75% of population having health insurance in 2014, Ministry of Health needs to work hard with national and international experts in order to find way to attain this goal in time.

In Vietnam, there are some quantitative studies about the differences between patients with and without health insurance when visiting hospitals or health facilities; qualitative studies about seeking behaviour for specific health care under health insurance schemes; research on the financial protection of health insurance for specific diseases (Davies & Carrin, 2001; Russell, 2005; Xu et al., 2003). But a few numbers of quantitative studies were conducted in Vietnam about the differences in enrollment in health insurance of different population groups with dataset of both household and individual, especially after some changes in health insurance law year by year from 2008. The latest change in the Law of Health Insurance is that in the roadmap towards universal coverage, farmers become the group who are compulsory to have health insurance from 2012. With the target of achieving 75% and 90% universal coverage in 2014 and 2020, dependents of employee and other remained groups will be the next target groups being enforced to have health insurance since 2014. Farmers and dependent of employees are the population groups that have the lowest enrollment rate (Table 5). These groups are in informal sector and don't receive any financial support from government budget to buy insurance. Therefore, in order to fulfil the mission, information from the two target groups in terms of factors affecting the enrollment is emerging needed.

Being aware of the necessity of updated information about factors and barriers affecting their participation in voluntary health insurance in community level, this study is a cross-sectional one that collects data about the enrollment in health insurance as well as the socio-economic factors of people in Bavi district, Hanoi in 2012 to analyze the determinants of enrollment and barriers with the purposes of

providing information for policy makers to improve the current policy, to develop the benefit package and to offer better quality of health care to the population.

This study will use the data on health insurance holding in 2012 of 22,728 people in Bavi District and focus on the occupation groups, especially farmers and dependents of employee which are the vital target of Law of Health Insurance in order to expanding the coverage of health insurance.

## **1.2 Research questions**

### **1.2.1 Primary question**

What are the factors and barriers affecting the participation in voluntary health insurance of people in informal sector in rural Vietnam?

### **1.2.2 Secondary questions**

- What are the factors that affect the enrollment of voluntary health insurance among people in different socio-economic groups in informal sector?
- What are the factors that affect the enrollment of voluntary health insurance among farmers?
- What are the factors that affect the enrollment of voluntary health insurance among dependents of employees?
- What are the factors that affect the enrollment of voluntary health insurance among employed and self-employed people?
- What are the barriers that prevent people of different socio-economic groups from enrolling in voluntary health insurance, especially occupation groups (farmer, employed people and dependents)?
- What are the different impacts of each barrier on the non-enrollment status (never or used to enroll) of people of different socio-economic groups, especially occupation groups (farmer, employed people and dependents)?

## 1.3 Objectives

### 1.3.1 General objective

To analyze the factors and barriers those affect the participation in voluntary Health Insurance among people with different socio-economic status in informal sector in Bavi District, Hanoi in 2012

### 1.3.2 Specific objectives

- To analyze the factors affecting the participation in voluntary health Insurance among people of different socio-economic groups, especially occupation groups in informal sector in Bavi district, Hanoi, Vietnam in 2012.
- To identify the barriers those prevent people of different socio-economic groups, especially occupation groups from enrolling in voluntary health Insurance in Bavi district, Hanoi, Vietnam in 2012.
- To identify the different impacts of each barrier on the non-enrollment status (never or used to enroll) of people of different socio-economic groups, especially occupation groups.

## 1.4 Scope

This study is carried out under the framework of the project Indepth Universal Health Insurance which implemented in Bavi District, Hanoi, Vietnam in 2012. Bavi is a district in the North of Vietnam which is 60 km west from the center of Hanoi with the total population of about 240,000 people. The sample size under this study is 22,728 individuals, with different demographic and socio-economic characteristics.

## 1.5 Possible benefits

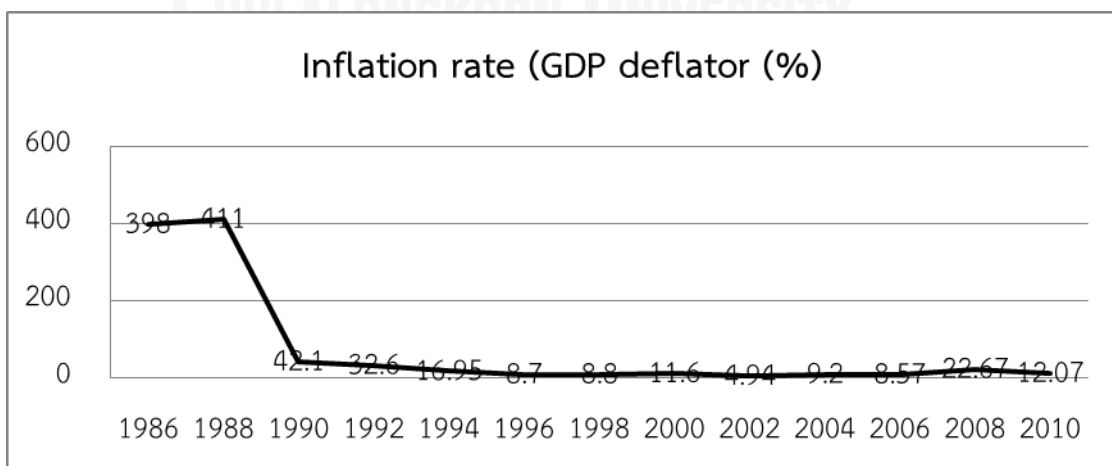
The study is expected to provide updated information about the determinants and barriers affecting the enrollment in Voluntary Health Insurance of people from different socio-economic groups, especially farmers and dependents of employees which may be evidences for policy makers in improving and innovating health care benefit package for health insurance clients as well as adjusting policies to achieve the target of 75% & 90% universal coverage in 2014 and 2020.

## CHAPTER 2 BACKGROUND

### 2.1 Background of Vietnam

Nowadays, Vietnam is a developing country in South East Asia with about 90 million people in 2012 and was classified into low middle income country group in 2011. In order to fulfil this achievement, Vietnam has been overcoming many challenges and hardships. Vietnam has a long history of struggle for independence and unity. After Japanese were supplanted out of Vietnam in 1945, Vietnam declared independent with the name “Democratic Republic of Vietnam” and then eventually swept away the French in 1954. Thereafter, Vietnam was divided into two rival states: the North was governed by communist party while the South was run by a government sponsored by America. After 21 years of separation, Vietnam succeeded in unifying the two states thanks to the liberalisation of the South in April 1975, completely ended the war and named the country “Socialist Republic of Vietnam”. Following the victory, Vietnam focused on recovery and reconstruction the country but encountered many obstacles such as aftermath of the war, embargo on trade and investment from America. During that time, Vietnam implemented several policies, for instance collectivization of farms and factories, under the system of budget subsidies of communist government but remained poverty and isolated. The economic recovery progressed slowly with the three-digit inflation and low GDP per capita less than 300 USD at 2005 constant prices during the late of 1980s.

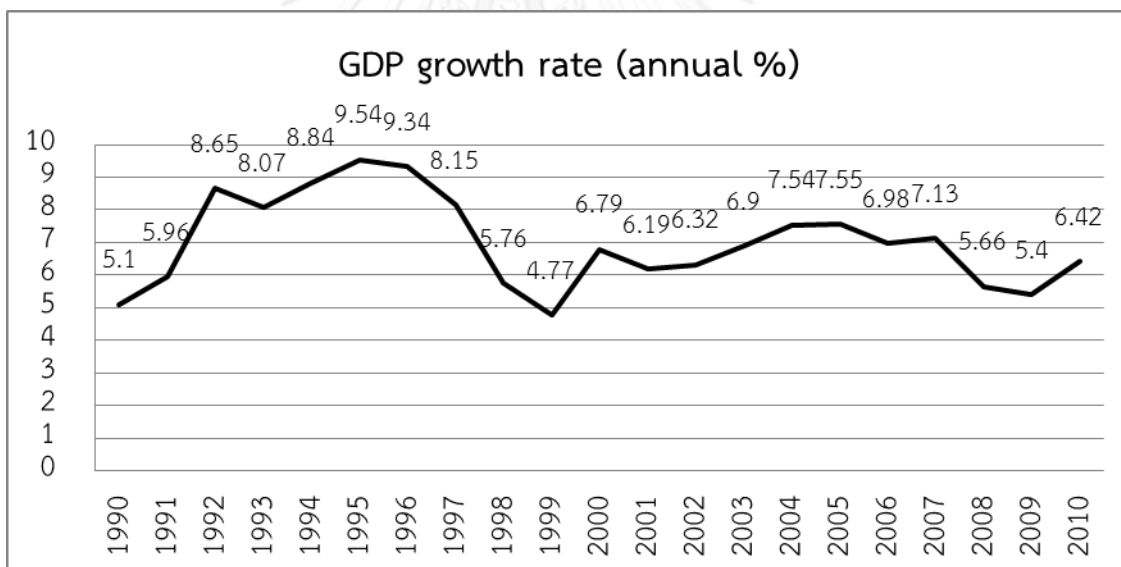
Figure 1: Inflation rate of Vietnam during “reform” period



Source: The World Bank accessed on 9 March 2014

During the late 1980s and the early 1990s, the communist group disintegrated. Along with this trend that was taking place in the world, Vietnam performed the economic reform that is known as “Doi moi” in 1986 in which the economy restructured from centrally planned one to socialist-oriented market one. The transformation is acknowledged as the reason for the development of the economy during “reform” period: GDP increased from 131,968 billion VND in 1990 to 551,609 billion VND in 2010 at 1994 constant prices along with GDP per capita rose from \$98 in 1990 to \$1,170 in 2010 (GSO, 2005, 2012b). After that, Vietnam made a determined effort to integrate with the rest of the world: Vietnam became a member of Association of South East Asia Nations (ASEAN) in 1995 and World Trade Organization (WTO) in 2007. (Asgary, Willis, Taghvaei, & Rafeian, 2004)

Figure 2: GDP growth rate of Vietnam over 20 years

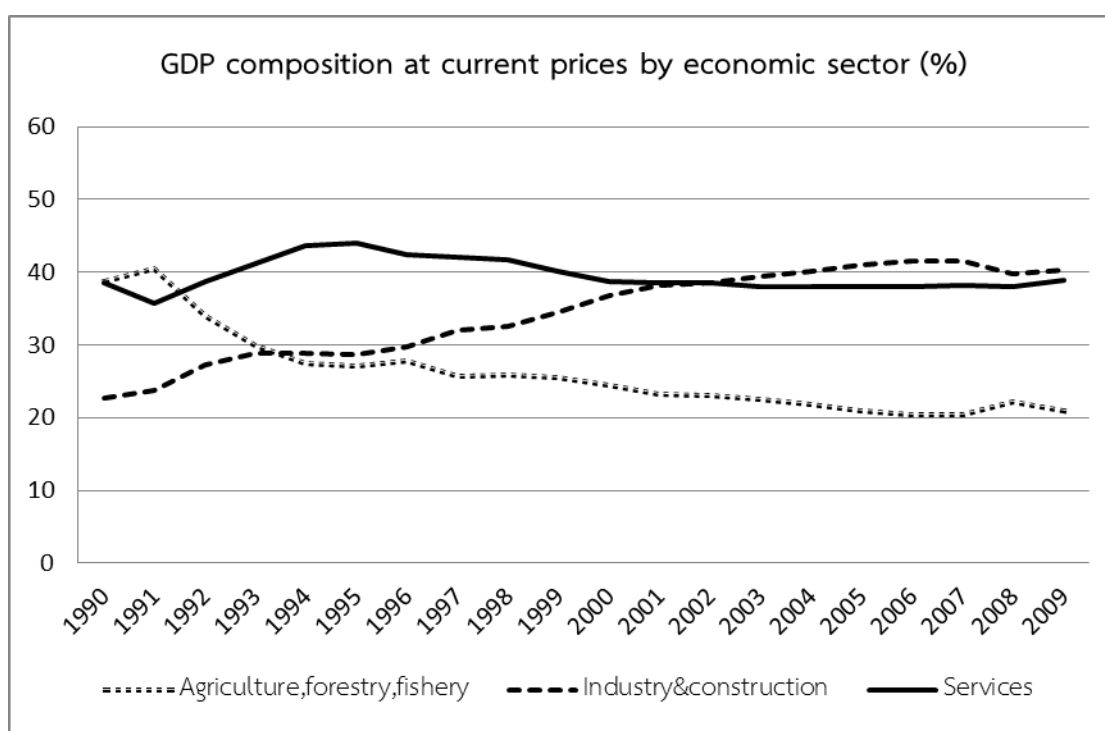


Source: The World Bank accessed on 8 March 2013

Vietnam has been a predominantly agricultural civilization for years. In 1996, there was about 70% of population working in this field. Together with the economic reform, there was a restructure in economic composition in which government attached special importance on developing industry and construction sector as well as services sector. Hence, the contribution of these two sectors, especially industry and construction sector to GDP has increased gradually along with the remarkable decline in that of agriculture, forestry and fishery sector. According to statistics in

Statistics Yearbook 2005 & Statistics Yearbook 2010, during the period of 19 years from 1990 to 2009, GDP composition of agriculture, forestry and fishery sector decreased by about 20% from 38.74% to 20.91% while that of industry and construction sector rose from 22.67% to 40.24%. Services industry recognized a slight rise about 0.5% in structure of GDP contribution during the same period.

Figure 3: GDP structure at current prices by economic sectors



Source:(GSO, 2005, 2010)

The changes in economic structure eventually led to changes in occupational structure. According to statistics collected by General Statistics Office, the proportion of total population working the agriculture, forestry and fishery sector to the total employed population has been declined steadily from 70% in 1996 to 47.7% in 2012 but still being ranked the major occupation in the structure. One of the reasons for this fact is that the working people in the rural has dominant proportion in structure of labour force by geographic. According to National Labour Report in 2012 of General Statistics Office, up to 1<sup>st</sup> July 2012, the labour force of the economy is 52.3 million people including 51.4 million people employed and 925.6 thousands of people unemployed. Despite the recent increase in the labour force in urban areas, there are 67.9% of people working in rural areas.

According to table 1 and table 2, in whole economy, self-employed and family-employed workers occupy two third of Vietnam labour force while only one third of the working population is salary-employed workers. These two former labour groups are vulnerable and unstable who are not beneficial for any kinds of social insurance. Noticeable, proportion of female as self-employed and family-employed workers is higher than that of male 12.8%; four five of these groups is doing economic activity in rural areas while only one five of them is in urban areas.

**Table 1: Structure of employed population as of annual 1 July 2012 by geographic areas and gender**

Geographic areas	Labour force (thousands)	Total (%)	Male (%)	Female (%)
Whole country	52,348	100	51.4	48.6
Urban	15,885.7	30.3	51.5	48.5
Rural	36,462.3	69.7	51.4	48.6

Source: (GSO, 2012a)

**Table 2: Structure of self-employed and family-employed workers by geographic areas and gender in 2012**

Geographic areas	Total number of Self-employed & Family-employed workers (thousands)	% of self-employed & Family-employed workers by areas	% of self-employed & Family-employed workers in total employed workers	% of MALE self-employed & Family-employed workers in total employed workers	% of FEMALE self-employed & Family-employed workers in total employed workers
Whole country	32,130	100	62.6	56.3	69.1
Urban	6,585	20.5	42.7	37	48.8
Rural	25,544	79.5	70.9	64.5	77.7

Source: (GSO, 2012a)

## 2.2 Vietnam Health Profile

In line with national socio-economic development, living standards of Vietnamese have been changing dramatically which result in remarkable improvement in health status of the whole population reflecting in some indicators: life expectancy, infant mortality, maternal mortality, malnutrition, etc. Life expectancy at birth increased from 70.51 years in 1990 (75.1 years in female and 66.1 years in male) to 75.31 years in 2010 (80.17 years in female and 70.68 years in male). Birth rate, crude (per 1000 people) fell from 28.752 in 1990 to 16.428 in 2010. Death rate, crude (per 1000 people) declined from 6.307 in 1990 to 5.61 in 2010. Infant mortality rate (per 1000 live births) recognized a sharp fall from 35.1 to 18.7 during the same period. For maternal mortality, statistics showed that MMR of 170/100,000 live births dropped to 69/100,000 live birth in 2009.

**Table 3: Vietnam Health Indicators**

Indicators	1990	1995	2000	2005	2009	2010
Life expectancy	70.51	72.14	73.63	74.63	75.17	75.31
Birth rate, crude (per 1000 people)	28.752	22.636	17.306	16.967	16.646	16.428
Death rate, crude (per 1000 people)	6.307	5.736	5.398	5.442	5.576	5.61
Infant mortality rate (per 1000 live births)	36.4	30	24.6	20.8	18.9	18.7
Maternal mortality rate (per 100,000 live births)	233	—	170	—	69	—
Under 5 mortality rate (per 1000 live births)	50.5	39.7	31.5	26.1	23.6	23.4
Malnutrition prevalence Weight for age (% of children under 5)	—	—	26.7	22.7	—	12
Malnutrition	—	—	43.4	33.2	—	23.3



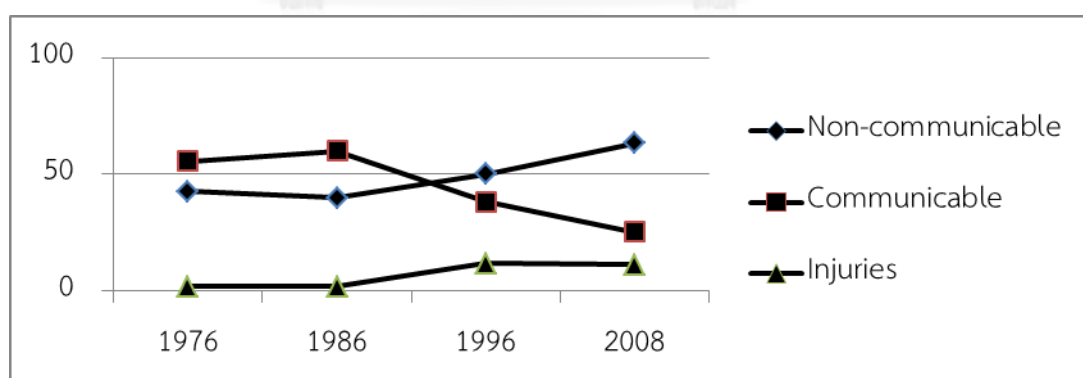
prevalence Height for age (% of children under 5)						
Population growth(%)	1.9	1.64	1.34	1.17	1.054	1.049
Population, total (number)	66,016,7 00	71,995,5 00	77,663,9 00	82,393,5 00	86,025,0 00	86,932,5 00

Source: World Bank

The current disease pattern in Vietnam is a mixture of both communicable and non-communicable diseases. Figure 4 show the trends in morbidity by types of diseases over the past three decades in Vietnam.

According to Health Statistics Yearbook 2008, communicable diseases have a declining tendency over the period of 30 years; dropped from 55.5% of total diseases in 1976 to 25.2% in 2008. In contrary, this period recognized a rising trend by 20% in non-communicable diseases from 42.65% of total diseases in 1976 to 63.14% in 2008. The proportion of morbidity by injuries also increased over these years but divided into two phases. From 1976 to 1986 it remained around 1.5% of total diseases, and then started to grow rapidly by 10% within the next decade. From 1996 to 2008, the share of morbidity by injuries stayed steadily around 10%.

Figure 4: Trends in morbidity by diseases category in Vietnam 1976 - 2008



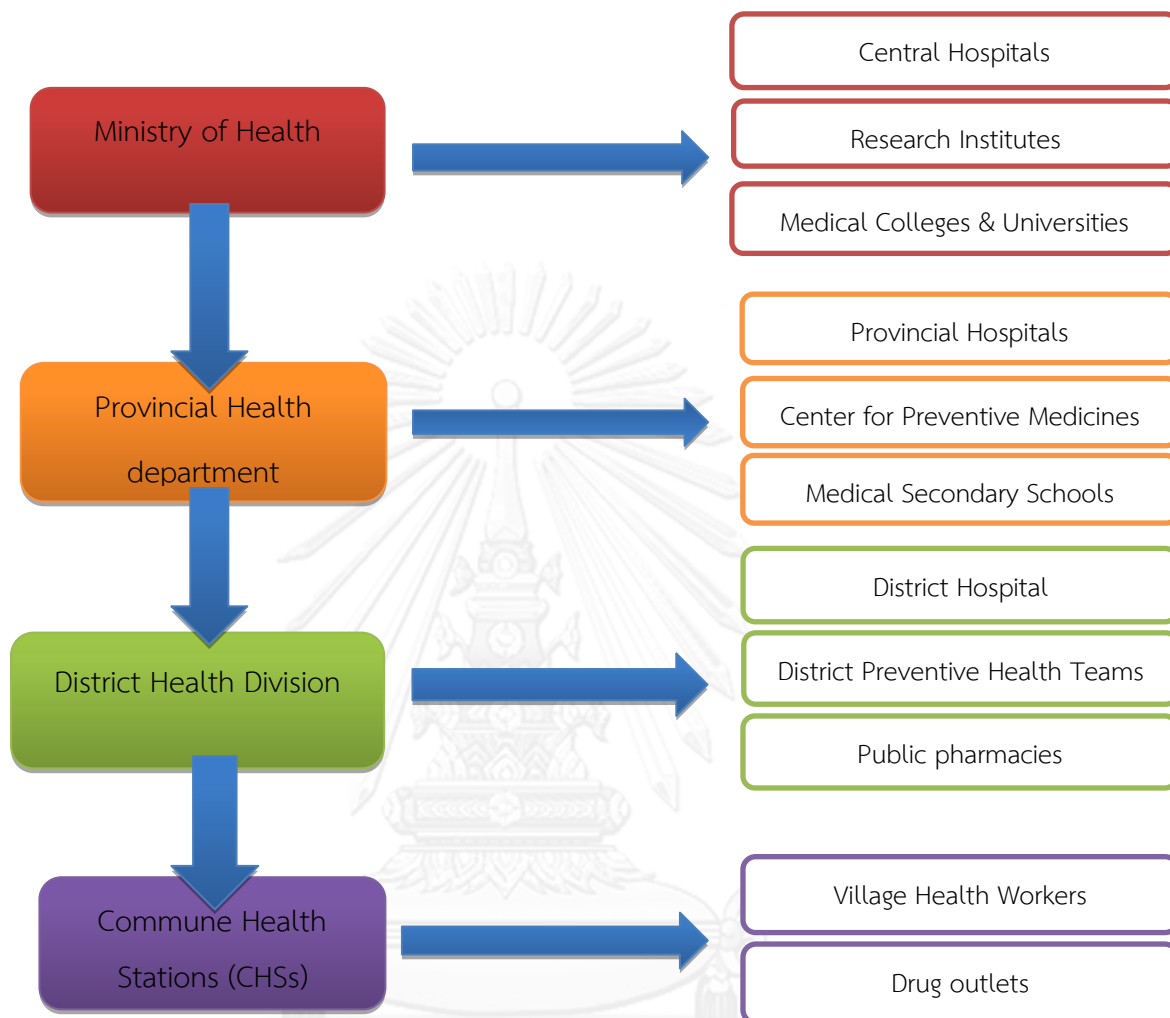
Source: (GSO, 2008)

### 2.3 Health Care Delivery System

Vietnam health care system is structured into three levels: tertiary, secondary and primary. The tertiary level is Ministry of Health, the highest authority in health

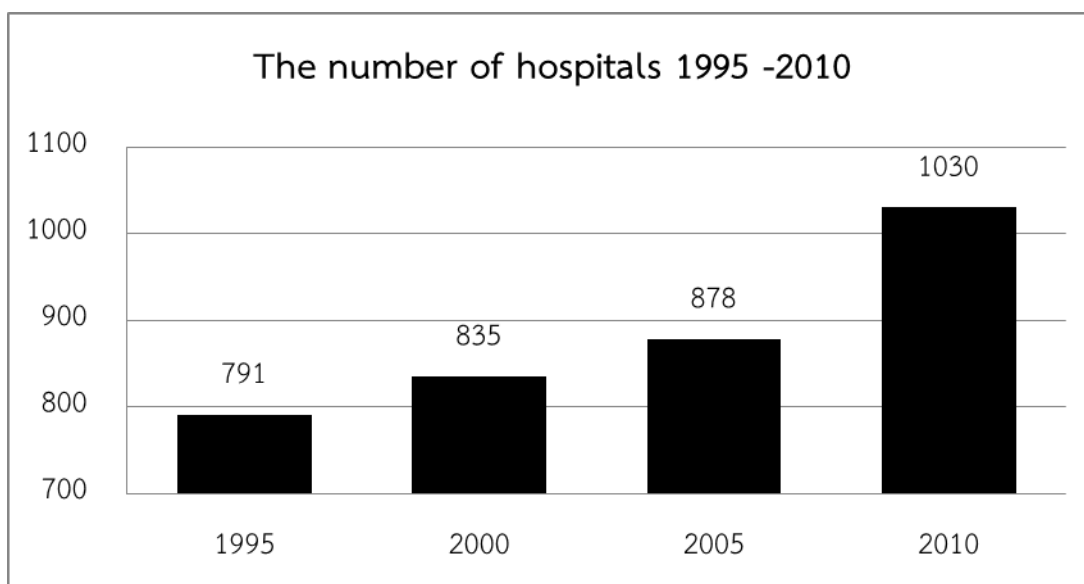
sector which formulates and supervises the health policies enforcement and health programmes implementation. At central level, there are 10 national and regional research institutes, 30 general and specific central hospitals, pharmaceutical and health equipment companies and education institutions. The secondary level consists of 64 provincial health bureaus which are under the authority of Provincial People's Committees and also follow the guidance of Ministry of Health in monitoring the performance of provincial hospitals, centres for preventive medicines, medical secondary schools. The primary level that being in charge by District Health Division provides basis health care services through district health centres/hospitals, commune health stations, village health workers. Besides, there are some specific teams such as Hygiene and Epidemiological, Mother and Children Protection, Family Planning (Huong, 2006; Thuy; Tien, 2011).

Figure 5: Vietnam Health Care System



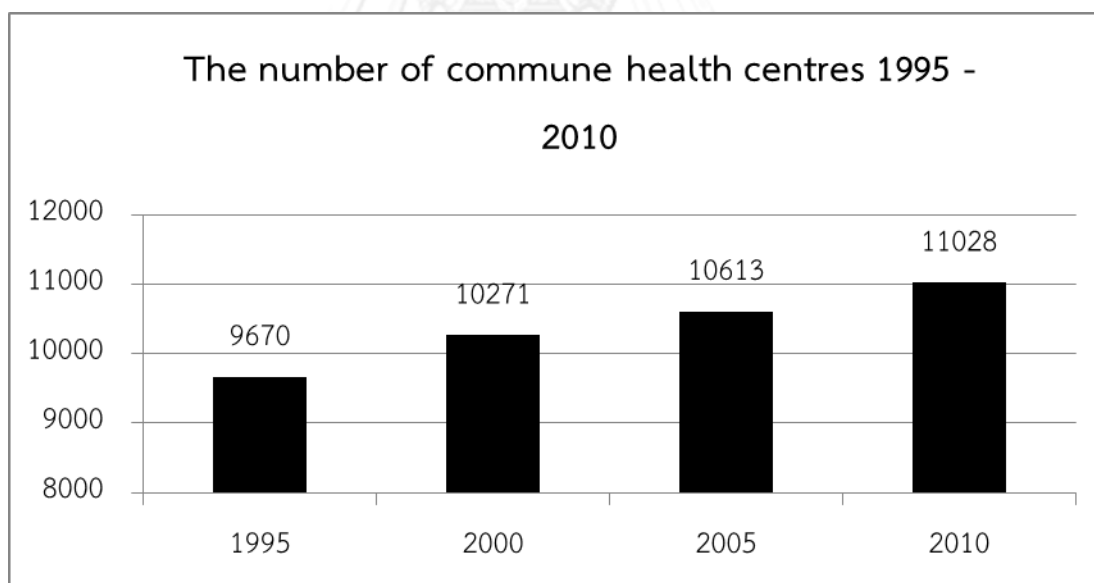
In recent years, the government has attached special importance on expanding health-care network coverage at primary level in order to increase the accessibility to health care of the population as well as mitigate the pressure on the higher levels. The period from 1995 to 2010 recognized a considerable increase in number of health centre establishments: 152 new public hospitals and 415 new commune health stations. The number of doctors and nurses per 10,000 inhabitants also increased remarkably during the same period: from 5 doctors/10,000 people to 6.6 doctors/10,000 people; from 5.9 nurses/10,000 people to 7.6 nurses/10,000 people.

Figure 6: The number of public hospital during the period 1995 – 2010



Source: (GSO, 2012b)

Figure 7: The number of commune health centres during the period 1995 – 2010

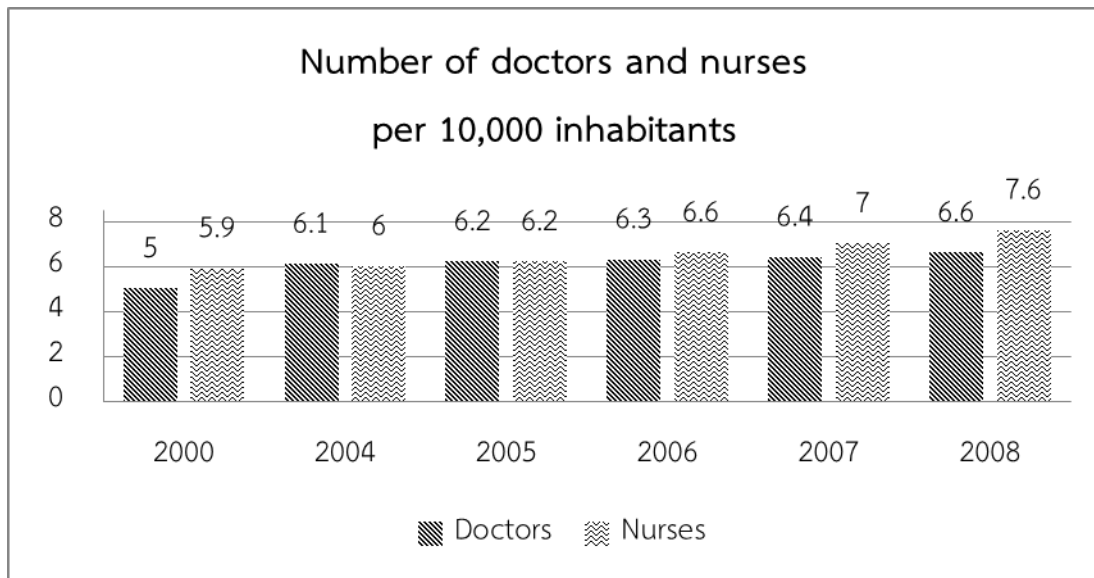


Source: (GSO, 2012b)

Along with the trends of opening the economy since the early 1990s, government allowed private medical and pharmaceutical practice to participate in health sector, paved the way for the development of private health sector in Vietnam towards to medical socialization. Thanks to this change, the private health sector in Vietnam has been developing rapidly and plays an increasingly important

role in providing health care services. In 2002, throughout the country, there were 56,070 private health facilities in which private medical facilities accounted for 48.87%; private pharmaceuticals accounted for 31.63% (Long, 2011)

Figure 8: Number of doctors and nurses per 10,000 people

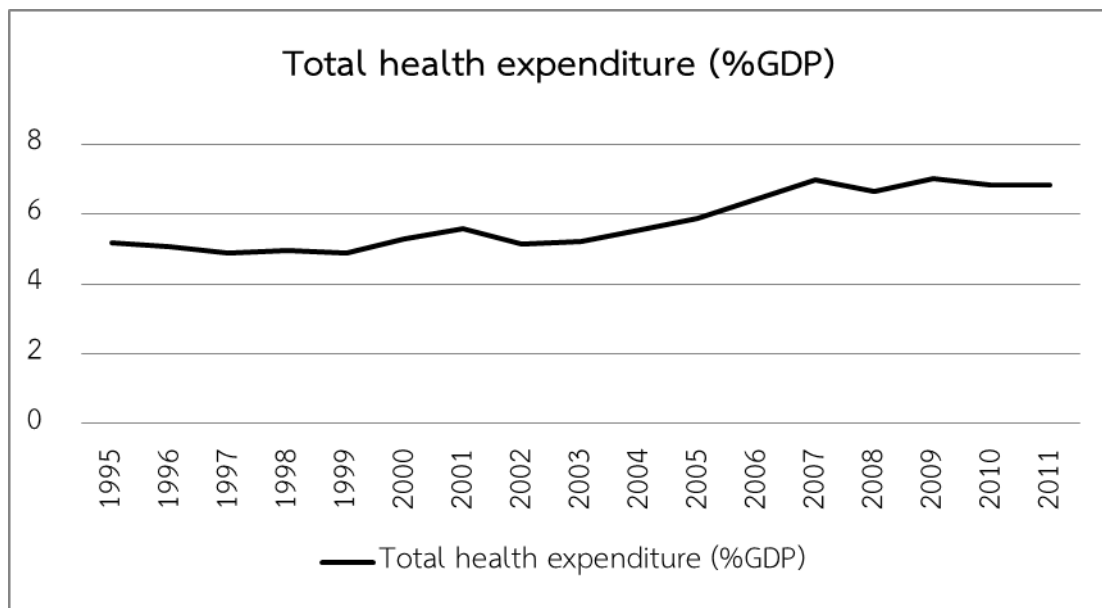


Source: (GSO, 2008)

## 2.4 Health Financing

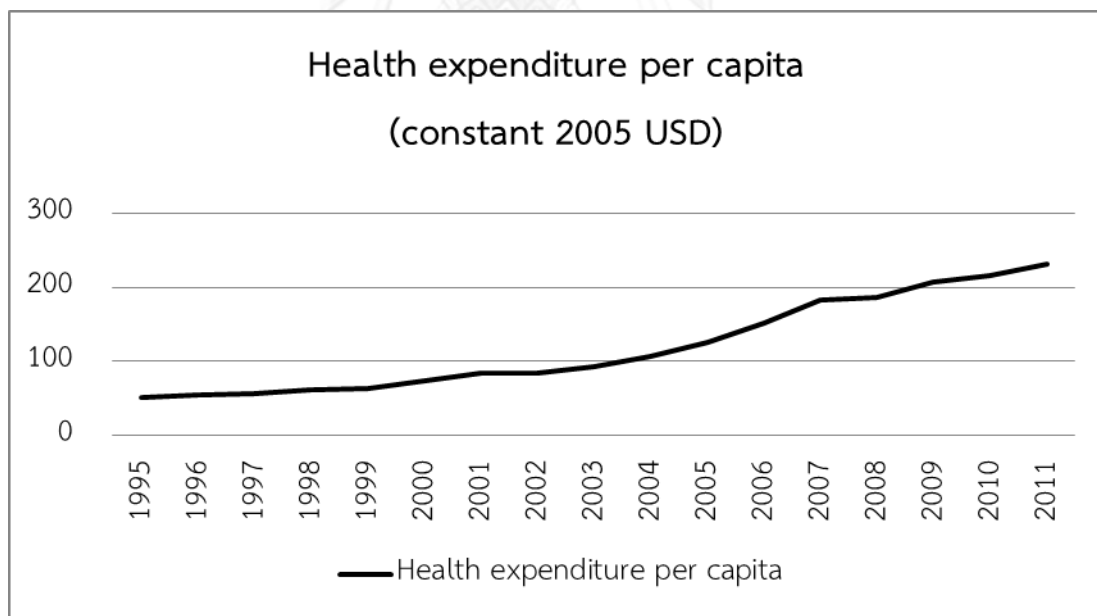
Besides economic reform, Vietnam government also made changes in health sector in which health care services had been provided free of charge until 1986. These four major policies were the introduction of user fee for patients who seek care at both public and private health providers, the initiation of national health insurance schemes in 1992, the permission for private practice in health sector and the opening of pharmaceutical market. Thanks to the economic development and the implementation of these new health policies, total health expenditure in GDP has grown steadily from 5.18% in GDP in 1995 to 6.81% in GDP in 2011, which led to the increase in health expenditure per capita from 50.53 USD in 2000 to 215.77 USD in 2010 at 2005 constant international \$ ("World Bank," 2014).

Figure 9: Total health expenditure in GDP from 1995 -2011



Source: (GSO, 2012b)

Figure 10: Health expenditure per capita at constant 2005 USD from 1995 to 2010

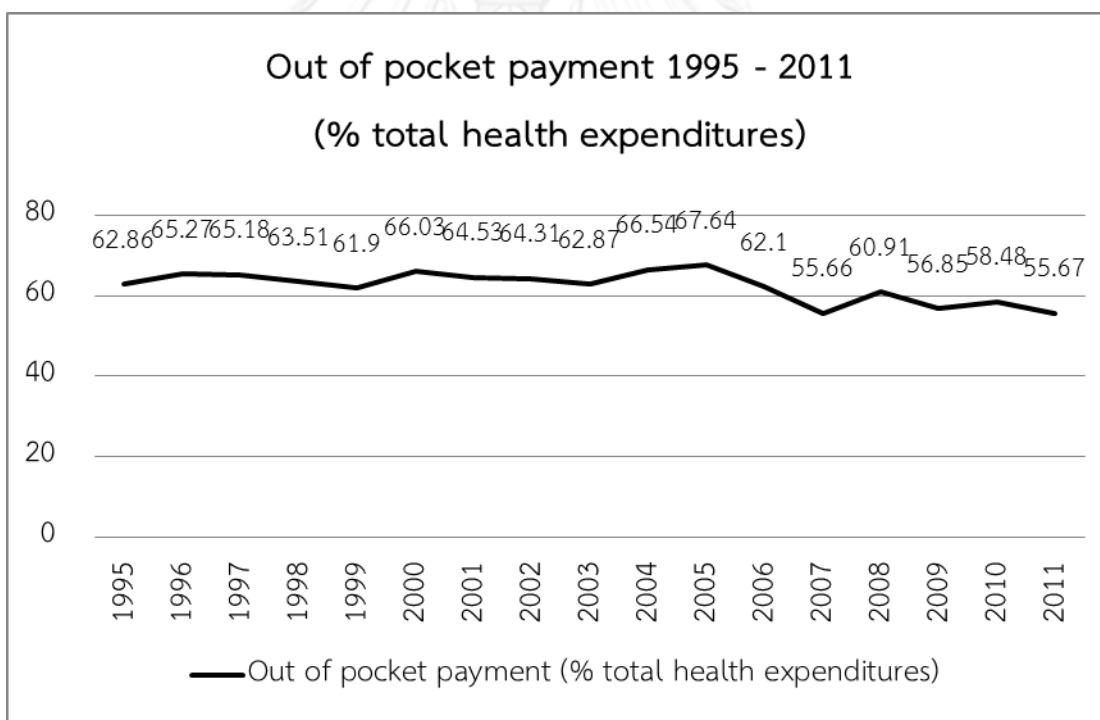


Source:(GSO, 2012b)

Even though the total health expenditures have been increased year by year which could be considered as one of the indicators of development, it is fact the out-of-pocket (OOP) payments accounts for high proportion of total health expenditure. From figure 11, it can be easily seen that direct payments have a

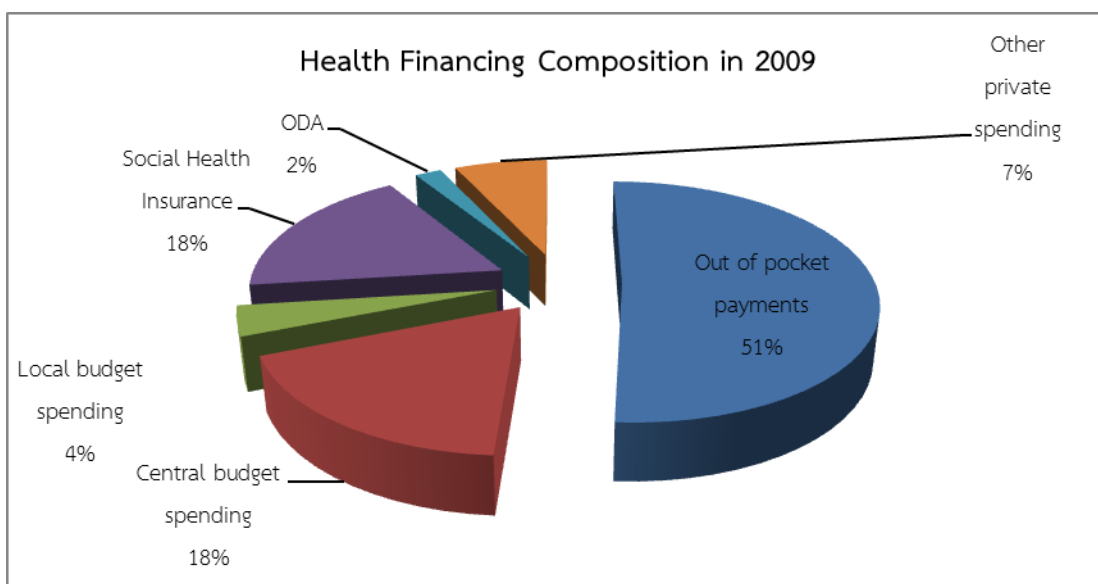
slightly declining trend over the period from 1995 to 2011 but still have the largest proportion in total health expenditures. In 2009, OOP payments made up more than 50% when Social health insurance and Public health spending only accounted for 18% and 22% respectively in health financing composition (Minh, 2012). This situation is found in many developing countries and a lot of studies prove that direct payments for health care have negative consequences for the population, particularly the poor and vulnerable (Russel, 2002; Russell, 2005; Xu et al., 2003). Realizing this situation, Vietnam has been made many efforts in reducing the proportion of direct payments in total health expenditures. Recently, Ministry of Health announced a five-year plan in health sector in which Vietnam is committed to cover health insurance up to 90% of the whole population in 2020.

Figure 11: Out-of-pocket payment in total health expenditure from 1995 to 2011



Source:(GSO, 2012b)

Figure 12: Health Financing Composition in 2009



Source:(Minh, 2012)

## 2.5 Health Insurance Schemes in Vietnam

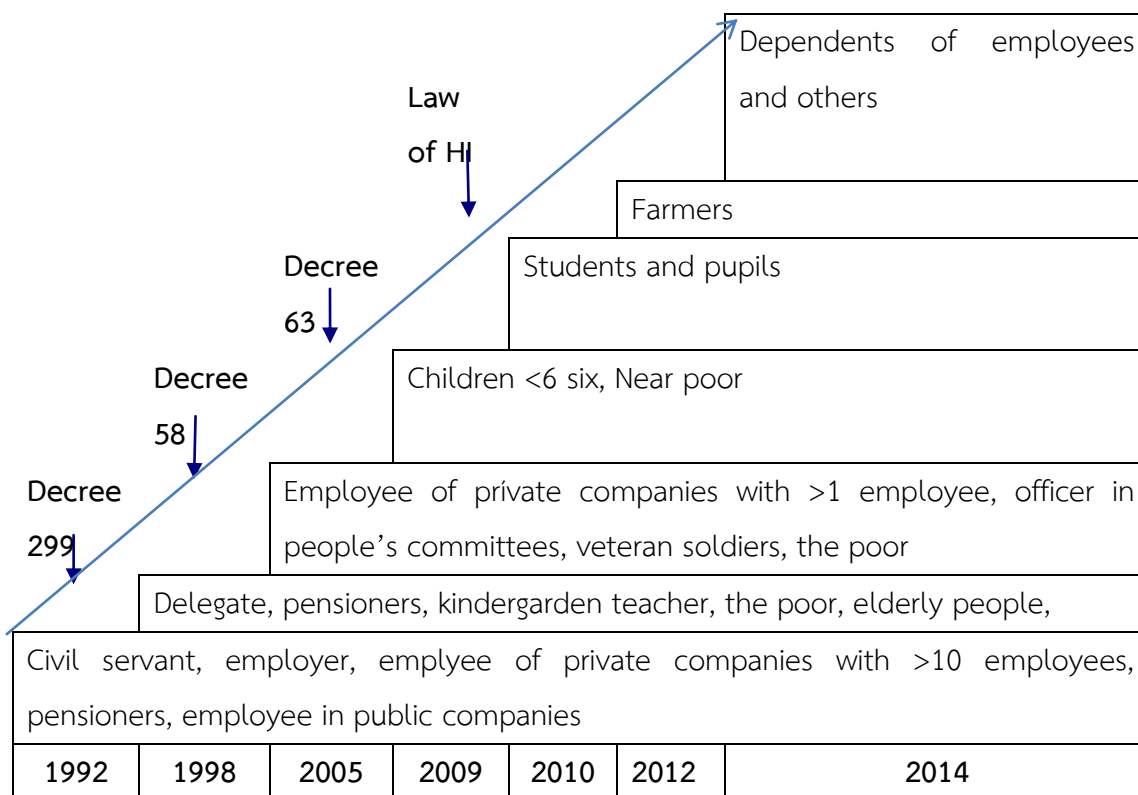
### 2.5.1 Establishment and development of National Health Insurance Schemes

In 1992, the National Social Health Insurance scheme with two types of insurance (compulsory and voluntary) was enforced with the purposes of acquiring more resources for the public health sectors; contributing to alleviating the poverty as well as providing financial protection from catastrophic costs. During 17 years of implementation, National Health Insurance in Vietnam has been adjusted many times accompanied with the substantial efforts of the government and Ministry of Health in: ensuring access to healthcare services; gradually increasing quality of health care; expanding health insurance coverage; increasing state budget spending on health (Matsushima, 2013; MOH, 2010)

Figure 13 demonstrates the development of National Health Insurance Schemes in 17 years of implementation into 7 steps with new policies, adjustment and supplement of policy on subjects to compulsory health insurance



Figure 13: Road map towards Universal Coverage of Health Insurance



Source:(MOH, 2010)

From 1992 – 1998: When the NHI scheme first went into enforcement in 1992 under the Decree 299, the subjects to compulsory health insurance were civil servants, employers and employees in state-owned companies and non-state-owned companies with more than 10 employees, pensioners, social allowance recipients, staff of international organization in Vietnam. Voluntary insurance was applied for the remained population. At that time, the Decree not only stated general principles about benefits of health insurance which were free of charge on medical expenses such as drug, examination, tests, bloods and others but also demonstrated specific services which were under out-of-pocket payment scheme. In 1993, only 5.4% of the whole population already enrolled in this scheme even though more than 90% of them were registered to comply with the compulsory insurance. The number of insured people increased to 9.74 million people, accounted for 12.5% of the whole population in 1998.

From 1998- 2005: Ministry of Health issued the Decree 58 adding more population groups in subject groups to compulsory health insurance: members of Congress and People's Council from local to central level, veteran soldiers whose children were affected by dioxin, elder people above 90 years old, elder people without somebody to lean on, kinder garden teachers, dependents of army officers and soldiers, foreign students (H. D. Anh, 2011). In article 7 of the Decree, the Ministry of Health made a change in reimbursement schemes which was that patients had to co-pay 20% of the medical expenses (the total medical expenses not exceed the total amount of minimum salary for 6 months) instead of full-subsidized for health care services for all type of subjects excepting for veteran soldiers and pensioners. In 2002, Health Care Fund for The poor (HCFP) was set up and offered benefits to social protection groups – the poor with free health care which turned national health insurance schemes into three types: compulsory, voluntary and health care for the poor. (MOH, 2010; Wagstaff.A, 2007)

From 2005 – 30<sup>th</sup> June 2009: Other amendments were made with the issuance of Decree 63. The subjects to compulsory health insurance were continued to expand: employees in non-state-owned enterprises with less than 10 employees, employees of private companies of all kinds, the poor. Under the operation of HCFP, the poor were provided free health insurance cards for the whole household instead of full-subsidized the medical expenses. In 2005, Ministry of Health also issued new policy on free health care for children under 6 years old. During this period, Health Care Fund for the Poor merged into the compulsory health insurance which made national health insurance scheme into three types: compulsory, voluntary and free health care for children under 6. According to Circular 06/Inter-ministry circular-MOH-MOF 2007 about guideline on voluntary health insurance implementation, students and households were under the voluntary scheme with the target of at least 10% of the total number of students or households in schools or communes enrolled (H. D. Anh, 2011; MOH, 2010)

From 1<sup>st</sup> July 2009 – present: In 2008, Law of Social Health Insurance was issued with the goal towards more than 90% universal coverage in 2020. According to the law, all children under 6 and near poor people were merged into compulsory

health insurance which turned national health insurance scheme into two types of insurance: compulsory and voluntary. In order to pave the way to fulfill the target, Ministry of Health built a roadmap to increase the subjects to compulsory health insurance chronologically. From 1<sup>st</sup> Jan 2010, students and pupils transit from voluntary group to compulsory group. From 1<sup>st</sup> Jan 2012, compulsory group added one more population group – farmers. And from 1<sup>st</sup> Jan 2014, Vietnamese people who are living in Vietnam have the responsibility to enroll in social health insurance (MOH, 2010).

### **2.5.2 Current coverage of Health Insurance**

Under current regulation, there are two main types of health insurance in Vietnam, namely compulsory health insurance and voluntary health insurance. Thanks to the determined efforts of Ministry of Health for years, the coverage of health insurance has been increasing year by year. Over 17 years of implementation, the number of insured people increased steadily from 5.4% of the total population in 1993 to 28.4% in 2005 and up to 58.2% in 2009. Table 5 demonstrates the current challenges of Vietnam in achieving universal coverage of health insurance in informal sector in 2010: 11% of near poor, 33% of farmers and 0% of dependent of employees. These statistics illustrate the Ministry of Health in particular and the government in general needs to attach more importance on these target groups so that Vietnam can fulfill the goal of above 90% universal coverage of health insurance in 2020.

From the table 4, the coverage of health insurance has increased year after year. However, it can be easily to see that the majority of insured people are from compulsory group which accounted for more than 70% from 2006 to 2009. Voluntary health insurance coverage also witnessed a growth but only accounted for above 30% of the insured people. According to Report on universal coverage on 2010, even by implementing the transition from voluntary group to compulsory group, it is still very difficult to expand the coverage of people in informal sector who used to be eligible for voluntary health insurance for years. Therefore, in order to fulfill the goal of reaching above 75% coverage in 2014, voluntary scheme is needed to be focused.

Table 4: The insured people by years (in millions)

Year	Number of insured	% of population	Type of health insurance	
			Compulsory	Voluntary
1993	3.79	5.4	3.47	0.32
1998	9.74	12.5	6.06	3.68
2003	16	20	11.16	4.84
2004	19	23.1	13.61	6.39
2005	23.5	28.4	14.02	9.28
2006	34.5	41	25	9.5
2007	36.58	43	25.58	11
2008	39.92	46	29.27	10.65
2009	50.08	58.2	34.66	15.4

Source:(MOH, 2010)

Table 5: Population groups with low enrollment in health insurance in 2010 (in millions)

No	Population group	Total Number	No of insured	% of insured	No of uninsured
1	Employees in private enterprises	11,911	6,361	53.40	5,550
2	Near poor	6,081	692	11.38	5,389
3	Students and pupils	13,798	9,807	71.08	3,991
4	Dependents of employees	6,820	0	0.00	6,820
5	Farmers with middle economic status	11,732	3,917	33.39	7,815
	<b>Total</b>	<b>50,342</b>	<b>20,777</b>	<b>58.73</b>	<b>29,565</b>

Source:(MOH, 2010)

## 2.6 Bavi District

BaVi is a rural district locating 60km in the northwest Ha Noi capital. BaVi has natural area of 424.0 km<sup>2</sup> with the total population of approximately 265,000 inhabitants including five ethnic groups Kinh (accounts for 91% of the whole

population), Muong (8%) and other ethnic minorities Dao, Tay, Hoa and Khme. Bavi was established in 1968 and experienced many changes in merging and splitting in order to adjusting administrative boundary between provinces. Before August 2008, Bavi was a district in Ha Tay province which had 1 town and 31 communes. In July 10, 2008, Tan Duc commune, a former one belonged to Bavi District was merged into Viet Tri City, Phu Tho Province. From 1st August 2008, Bavi with 1 town and 30 communes was merged into Hanoi and became a rural district of the city. Table 6 describes some figures of Ha Tay Province using as representative of Bavi district in comparison with those of urban and rural areas of Vietnam in 2007 with the purposes of illustrating some trends in economic and social development. Monthly income per capita of Ha Tay province which was 873,400 VND was higher than that of overall monthly income of rural areas in Vietnam (762,000). Birth rate, crude of Ha Tay province in 2007 was similar to that of the whole country and lower than the rate of rural areas by 0.5‰. The number of death per 1000 live births in 2007 was higher than that of Vietnam and rural areas. Ha Tay Province has a lower infant mortality rate in comparison with the rate of total rural areas in Vietnam by about 6/1000 live births. About 55% of the total population of Ha Tay province in 2008 was in labour force, which was higher than that of Vietnam by 1.4%. Poverty rate of Ha Tay province in 2007 was 11.8 % and had a similarly declining trend to the trend of the whole country as well as rural and urban areas.

**Table 6: Factsheet of urban and rural areas of Vietnam and Ha Tay Province, 2007**

Indicators	Vietnam	Urban	Rural	Ha Tay Province
Monthly income per capita* (thousand VND)	995	1,605	762	873.4
Birth rate, crude (‰)	16.9	15.9	17.4	16.9
Death rate, crude (‰)	5.3	4.8	5.5	5.9
Population growth (%)	1.09	-	-	1.14
Infant mortality rate (‰)	16	9.8	18.8	13
Labour structure over total Population (upper 15 years old, %)	53.7	-	-	55.1

Poverty rate (%)	13.4	6.7	16.1	11.8
------------------	------	-----	------	------

\*Statistics in 2008

Source: General Statistics Office accessed on 13 Mar 2014

Currently, Bavi has 1 town and 30 communes that distribute over various geographic areas: lowland, highland, riverside and mountainous. Like other rural areas in the whole country, farming is the major occupation in Bavi district. There is only one district hospital in the whole area of Bavi district and 32 commune health stations which provide health care services to the inhabitants. Besides, there are 3 regional polyclinics with 200 private health facilities consisting of private clinics, pharmacies, drug store and traditional practitioners (Thoa, 2011). Similarly to other rural districts, the only one district hospital in Bavi with approximately 100,000 registered insured people has been experiencing overload situation due to the referral system from the commune health stations as well as the far distance from the district to provincial/central hospitals. Thus, on daily basis, the district hospital has around 400 – 500 visits which is over the capacity of it. Commune health stations implements primary health programs including expanded immunization, family planning, antenatal care; provide basis health care services and perform referral responsibility (Thoa, 2011; Trang, 2012).

Bavi was selected as areas for field laboratory because it reflects almost all the geographic characteristics and represents typical socio-economic and health status of the country.

## CHAPTER 3

### LITERATURE REVIEW

#### 3.1 Concept of Health Insurance

Health insurance, like other type of insurance, is a form of risk management which provides financial protection against medical expenses by risk pooling with certain premium under the contract with third-party, usually the insurer. In the event of future illness, insured people's health care costs will be fully or partially covered by the insurer which mitigate the catastrophic costs and prevent them from impoverishment (Abel-Smith, 1992).

#### 3.2 Universal Health Coverage

In recent years, the topic of “universal health coverage” has been raised for discussion by many governments, health policy makers as well as experts and stakeholders in health care financing extensively in several international forums and is increasingly considered as critical to providing better health care services for the population and as a goal consistent with health system development.

According to World Health Organization, “Universal health coverage (UHC), or universal coverage (UC), is defined as ensuring that all people can obtain health care services they need without suffering financial hardships when paying for them”. With this concept of UC, there are three related objectives:

- Equity in access to health services which means everybody who has the needs for the services should get them, regardless of their financial status;
- The quality of health care services is good enough to improve the health of those receiving services; and
- Financial-risk protection which means that UC ensures the cost of health care services does not result in catastrophic risk and impoverishment

In summary, Universal Coverage lends a hand to the society in order to bring the opportunity of getting better health and financial protection to everybody, especially those in the most vulnerable situations.

### 3.3 Health Insurance Enrollment & Demographic factors

Health insurance, especially universal health coverage is an emerging issue that appeals many attentions of government and policy makers as well as become hot topic for researchers in the world. There are many papers focusing on health insurance in several aspects such as analyzing the impact of health insurance on disparities reduction (Liu et al., 2012; Ramirez et al., 2013; Veugelers & Yip, 2003) ; assessing the affection of health insurance on health care utilization (Kempe et al., 2005; Moreno-Serra & Smith, 2012; Shone, Dick, Klein, Zwanziger, & Szilagyi, 2005); evaluating the benefits of health insurance on financial protection (Carrin, Waelkens, & Criel, 2005; Minh, 2012; Sparrow, Suryahadi, & Widyanti, 2013; Tien, 2011; Wagstaff, A., 2007) and defining demand for health insurance, factors and barriers affecting enrollment (V. Q. Anh, 2006; R. K. Basaza, O'Connell, & Chapcakova, 2013; De Allegri, Sanon, & Sauerborn, 2006; Holmer, 1984; Krueger & Kuziemko, 2013; Marquis, Buntin, Escarce, Kapur, & Yegian, 2004; Mathauer, Schmidt, & Wenya, 2008; Monheit & Vistnes, 2005; Odeyemi & Nixon, 2013; Panda, Chakraborty, Dror, & Bedi, 2013; Parente, Evans, Schoenman, & Finch, 2005).

In papers focusing on identifying determinants of health insurance enrollment and barriers, many different models were applied and most of them included demographic factors like age, gender, educational level, marital status, occupation, health status with the purposes of discover the association between them and the decision of participating in health insurance (Alkenbrack, Jacobs, & Lindelow, 2013; Asenso-Okyere, Osei-Akoto, Anum, & Appiah, 1997; Asgary et al., 2004; Barnighausen, Liu, Zhang, & Sauerborn, 2007; Dror, Radermacher, & Koren, 2007; Lofgren, Thanh, Chuc, Emmelin, & Lindholm, 2008; Nguyen & Knowles, 2010; Panda et al., 2013; Shafie & Hassali, 2013).

#### 3.3.1 Enrollment & Gender

A study on demand for school children health insurance using data from Vietnam National Health Survey 2001 - 2002 found out that gender was a significant variable in which households with female head were likely to buy health insurance for school children (Nguyen & Knowles, 2010).



Till Bärnighausen et al., conducted a study in 2007 in Wuhan China to calculate willingness to pay for social health insurance of people in informal sector and found out that male workers had lower willingness to pay for health insurance than others groups.

### **3.3.2 Enrollment & Age**

In a study on determinants of enrollment in Voluntary Health Insurance in Red River Delta in Vietnam 2006, Vuong Quoc Anh performed logistic regression to discover the association between to decision of participating in Voluntary health insurance scheme and age of clients. He found out that age is a significant factor and people under 41 years old had higher enrollment rate than that of people above 41 years old.

A study on willingness to pay for health insurance in rural Iran applying contingent valuation method demonstrated that age of head of household had a positive impact on the willingness to pay for insurance (Asgary et al., 2004).

### **3.3.3 Enrollment & Educational Level**

A cohort study with educational intervention on occupational solidarity and health insurance for informal workers in urban Bangladesh in 2013 also discovered the positive association between education and willingness to pay health insurance (Khan & Ahmed, 2013).

Ha Nguyen and James Knowles in a study about demand for school children health insurance under the voluntary health insurance in Vietnam using data in 2001 – 2002 discovered that households with higher educational level were more likely to buy health insurance for their children than households with lower educational level.

### **3.3.4 Enrollment & Marital Status**

Vuong Quoc Anh, the author of a study in Red River Delta in Vietnam in 2006 about factors affecting the enrollment in Voluntary Health insurance using logistic regression, found out that marital status had influence the probability of purchasing

voluntary health insurance: single group had higher probability of buying health insurance than other group.

### **3.3.5 Enrollment & Occupation**

The association between enrollment and occupation was identified in several papers with different results.

In one study on determinants on participation in national health insurance in informal sector in Northern Sudan in 2012, the author applied binary choice model and found out that employment had a significant but negative impact on the decision of enrolling in the scheme. He explained that people with higher income occupation had financial ability to pay out of pocket payments which made them having lower enrollment rate in the scheme (Mohamed, 2012).

A study conducting in Wuhan, China in 2007 on calculating willingness to pay for social health insurance among informal sector workers using contingent valuation method discovered that people without permanent jobs had lower willingness to pay for health insurance (Barnighausen et al., 2007).

These two above studies gave the opposite relationship between enrollment and occupation because of the difference in the study setting as well as the time and the situation of each country.

### **3.3.6 Enrollment & Health Status**

Ha Nguyen and James Knowles in a study on demand for voluntary health insurance for Vietnam school children in 2010 found out that health status had no significant impact on the decision of buying health insurance for children.

A study about desire to enroll in National health insurance in Northern State of Sudan in 2012 found out that the health of the head family and health of male dependents were positively significant related to the desire to enroll in health insurance scheme.

### 3.4 Health Insurance Enrollment & Economic factor

Economic factor is always considered a critical factor in every model, especially in the studies which use regression to analyze the impact or relationship between main variables. In terms of economic factors, there are many different approaches have been considered like income, expenditure or assets but the popular one is to classify the population into different quintile groups basing on economic information. Regarding to the method of categorizing quintile groups, researchers have different methods according to the information on income, expenditure or properties of the households. In the Demographic Household Survey comparative report, Shea Oscar Kiersten pointed out the pros and cons of each method (Rutstein, 2004).

Household income has been used commonly as an indicator to assess the economic status of households. However, income does not bring accuracy to the results for a variety of reasons. Firstly, household members do not report accurate income because they may not remember their income. Some people do not want the others to know about their income, or people often under-report their income level. The income levels of some households, especially in the rural areas, differ seasonally, monthly, weekly or even daily (Rutstein, 2004). In the case of the study, the study setting is in the rural area with farmer as dominant population. The income of farmer is seasonally depending on the crop harvest. Due to the limited resources, the data was collected one time a year during May to July, thus it is inaccurate to use income of a month to calculate the income of the whole year. As a matter of fact, it is very difficult to get accurate information on the income of households. Therefore, different method should be considered.

Another approach to assess the economic status of one household is based on the consumption expenditure of the household. Although, it is considered a proxy for the household income, there are still some problems with this approach. The household's expenditure is decided by different people, thus it is quite difficult to collect accurate information on expenditure of the whole household. Expenditure composes many sources like food, education, health,

transportation, etc. There is a wide range of the number of members at different ages in different households, thus their expenditure may be different (Rutstein, 2004). Moreover, in this study, the majority population is farmer with the main job of cultivating and breeding. It is popular of them to use their own product as food which is often omitted from reported expenditure because it is not valued in currency. Therefore, using household's expenditure may not provide an accurate picture of economic status of the whole population.

Wealth index calculation to classify quintile groups has some advantages over other remaining approaches and it can correct some problems caused by income and expenditure based quintile. It is easier to collect information on properties of households by interviewing household members and by observing both the properties and the housing conditions. Thus, the information will bring more accurate results. Moreover, the properties do not change frequently as income or expenditure (Rutstein, 2004). Therefore, quintile division with wealth index calculation has been used more commonly, especially in the national program or in longitudinal studies.

### **3.5 Health Insurance Enrollment & Barriers**

A qualitative study with 32 in-depth individual interviews with the heads of households on demand for health insurance in rural West Africa investigated the reason for enrolling or not enrolling and discovered that finance was a concrete barrier affecting the decision of participating in the insurance scheme. The second barrier was quality of health care in three aspects: long waiting time, excessive prescriptions and unequally treatment (De Allegri et al., 2006).

A contingent valuation study which was conducted in four cities in two provinces in China found out that demand for health insurance was sensitive to premium and the features of insurance plan (Ying et al., 2007).

One study in Uganda on analyzing the reason of low enrollment of community health insurance by applying focus group discussions and in-depth interviews found out that lack of information, ability to pay premium, poor quality of

care, rigid enrollment procedures and lack of trust were barriers preventing people to join this scheme (R. Basaza, Criel, & Van der Stuyft, 2008).

There is a cross-sectional study in Ghana in 2012 explored the barriers of decision on enrolling and renewing voluntary insurance membership of households in schemes of National Health Insurance. The authors discovered that 67% of previous insured clients blamed for unaffordable premium; 8% of them did not seek for care last years; 6% of them did not satisfied with the quality or care and 5% of them found inconvenient timing on premium payment. The uninsured groups shared the same barrier “expensive premium” as the most common one for not enrolling in the scheme, following with “being healthy” and “no confidence in the scheme” as the second and the third popular barriers.

### **3.6 Research studies on Health Insurance and Voluntary Health Insurance in Vietnam**

In Vietnam, there are some quantitative studies and qualitative studies at that conducted to analyze the factors affecting the enrollment in health insurance.

Lofgren et al., conducted a study on willingness to pay health insurance in rural Vietnam in 2008 using interval regression and found out the determinants to the willingness to pay including income, health care need, age and educational level (Lofgren et al., 2008).

A qualitative study conducted in Tay Ninh and Hanoi in 2010 found out some barriers that prevented near poor people from participating in health insurance. Interviewees who were household representatives from both in-depth interview and group discussion of 2 provinces stated the same barriers which were: “the premium is unaffordable for them while the benefits are identical with other groups”, “don’t have the right to choose registered health facilities”, “quality of health is not good enough” and “differences in staff manner to insured and uninsured people”(MOH, 2010).<sup>1</sup>

Several studies on the impacts of Health Care Fund for the Poor showed that Health Care Fund for the Poor had initially helped to increase the utilization of services, reducing catastrophic payment for health care (Wagstaff.A, 2007).

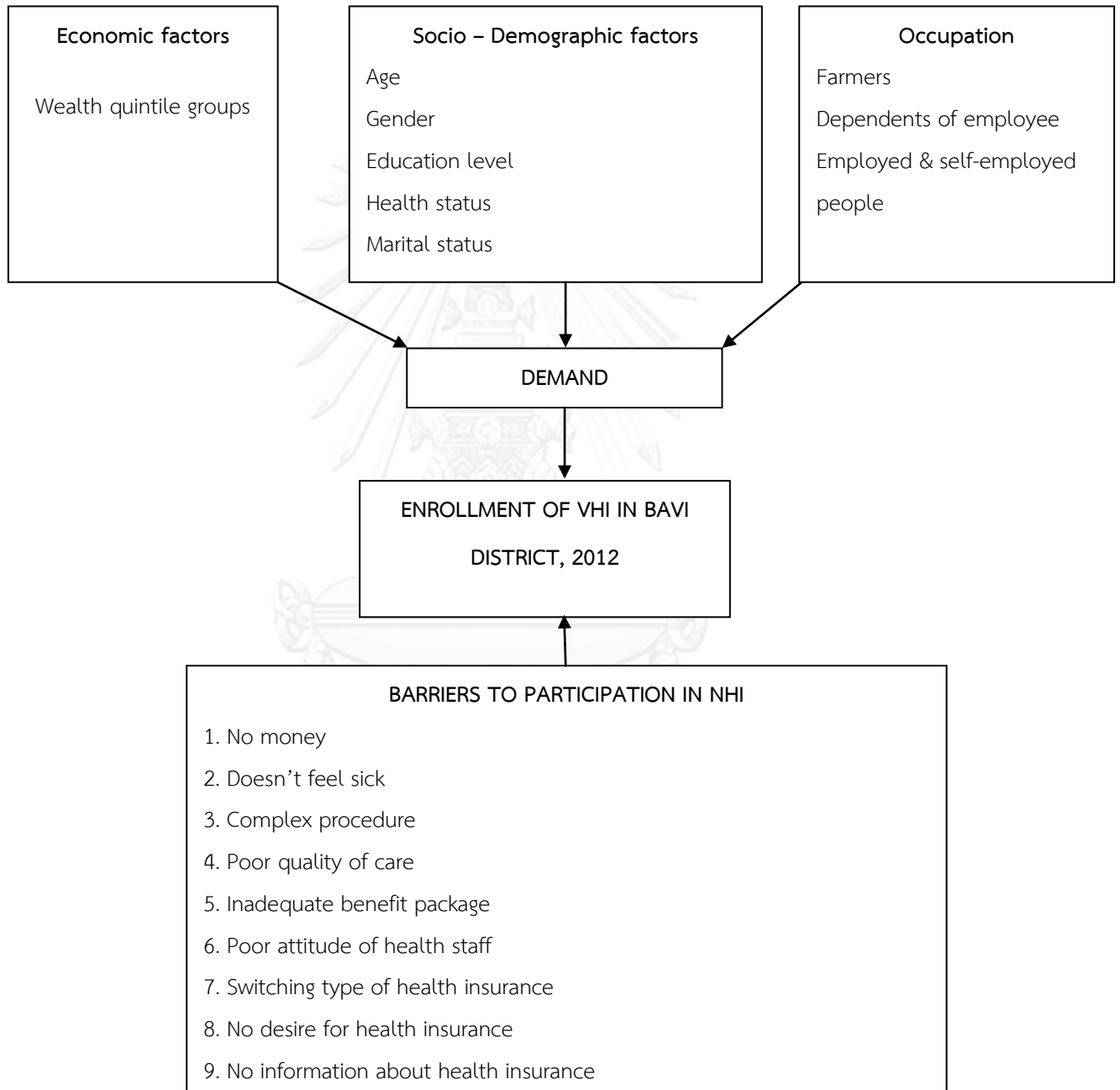
In report on universal coverage of health insurance in 2010 of Division of Social Health Insurance, Ministry of Health, when asking 120 interviewees, the most likely reason for them not buying health insurance was “the premium is expensive/unaffordable” which accounted for 45.3%. The other reasons: “the quality is not good enough” and “complicated process to getting health care” accounted for 12.8% and 14.5% respectively. When asking them for desire to buy health insurance next year, 94% of interviewees agree to buy next year but the result is relative biased because of the influence of the direct interview.

Oanh.T.T.M indicates that the most popular reason of not seeking for treatment of the people is that “the disease is not too serious”; the other reason is “far distance”. A research at Lam Dong Province in 2009 demonstrates the main reasons of not using health insurance are the disease is mild and patients have to wait long. The main reasons for using health insurance are that “the disease is serious”, “short travel distance to health facilities” and trust in professional services of health staffs. More than 93% of the patients have positive opinion in participating and renewing health insurance <sup>[10]</sup>. There are also concerns about quality of health care in the health facilities due to increased use following efforts towards universal health coverage and Vietnam. Poor quality generally makes the poor turn away from even subsidized services at public health facilities to patronize private services or not to seek care at all(Oanh, 2010).

CHAPTER 4  
METHODOLOGY

4.1 Conceptual framework

Figure 14: Conceptual Framework of the study



In this study, 2 main binary logistic regressions will be conducted to identify the determinants of enrollment and the barriers affecting the enrollment. Some minor regression will be done to analyze the differences in these factors on enrollment of people in voluntary health insurance and the differences impacts of barriers on different demographic and socio-economic groups, especially occupation groups.

The first regression focuses on two groups: Enrolling and Not-enroll with economic and socio-demographic factors such as wealth quintile groups, age, gender, occupation, educational level, marital status, health status, which are expected to have certain impacts on the decision of participating in voluntary health insurance of people in Bavi District, Hanoi:

***ENROLL = f(quintiles, age, gender, educational level, occupation, marital status, health status)***

It is expected that people with better economic status are more likely to enroll in voluntary health insurance. In terms of age, elderly people may use more health care services which results in large proportion of insured people. Educational level may have a positive impact while health statuses have negative impact on the enrollment of voluntary health insurance. (Health status is self-reported by interviewees with 3 levels from “Bad” to “Good” and people with good health are expected to less enroll). People who are married may pay more attention to their health which leads to have voluntary health insurance than those are unmarried. Three minor regressions with the sample of each occupation (farmer, employed & self-employed people, dependents) will be carried out to analyze the differences in factors and in influence of them on the enrollment status of people in each occupation group.

The second regression focuses only on the Not enroll group divided into “Never enroll” and “Used to enroll but drop out” with the same economic and socio-demographic factors and seven barriers: no money to buy, no sickness, complex procedure, poor quality of care, inadequate insurance benefit, poor attitude of health staffs, switching type of health insurance, no desire for health insurance, no information about health insurance.



*NEVER = f(quintiles, age, gender, educational level, occupation, marital status, health status, no money to buy, no sickness, complex procedure, poor quality, inadequate insurance benefit, poor attitude of health staffs, switching type of health insurance, no desire for health insurance, no information about health insurance)*

Never = 1 if “never enroll”

= 0 if “used to enroll but drop out”

This regression will be done first to capture the overall factors and barriers that prevent people of two groups from enrolling. For people who never enroll before, they are expected to be in the two lowest quintile groups and have three barriers “no money to buy”; “no desire for health insurance”; “no information about health insurance” and “no sickness”. For people who “used to enroll before but drop out”, they are expected to be in the average and rich quintile group and have barriers related to quality and services for insured people like “poor quality”; “complex procedure”; “inadequate benefit”; “poor attitude of health staff”. Financial difficulty also might be one of the reasons for the “used to enroll” group. Three minor regressions will be conducted with the same explanatory variable but focus on the sample of occupation groups to analyze the impacts of each barrier on different groups.

The study is a cross-sectional one, which is conducted in Ba Vi District, Hanoi, Vietnam in 2012.

## **4.2 Source of data**

### **4.2.1 Study setting**

The study was conducted in Bavi district which is located in 60 km west of Hanoi. The total area of Bavi is 410 km<sup>2</sup> with the population of approximately 260,000 inhabitants (in 2010). Most of Bavi inhabitants are Kinh ethnic group (91%), the major ethnic group of the whole country, Muong ethnic minority (8%) and the remaining belongs to other ethnic minorities of Dao, Tay, Hoa and Khme (Thoa, 2011). The district consists of 32 communes located in dental area, riverside, midland and mountainous area, reflecting almost all of the geographical characteristics of the country. Therefore, Bavi district was selected to set up the field laboratory.

*\*The Field Laboratory of Bavi (FilaBavi):*

Being aware of the shortage of systematic information about health status, demographic features as well as other socio-economic factors from community that could have a positive impact for policy maker in decision making, in 1998, The field Laboratory of Bavi (FilaBavi DSS) is established under the collaboration among Health Strategy and Policy Institute, Hanoi, Vietnam and IHCAR, Karolinska Institute, Stockholm, Sweden, Hanoi Medical University, Hanoi, and the Department of Epidemiology & Public Health, Umeå University, Umeå, Sweden. FilaBavi had conducted surveillance in order to collect information about household's socio-economic status and health status of each member of household from 1999 to 2011 (Thoa, 2011).

*\* Indepth Universal Health coverage (IUHC project):*

In 2008, the Law of Health Insurance is issued with the objective of paving the way for achieving 75% Universal Coverage in 2014. With the integration among Ministry of Health, Social Insurance Division and other department, division, local units in implementing the law, 2010 recognized the increase in people with NHI of 12,65 millions in comparison with that of 2008 to 60% population coverage. 2011 and 2012 saw the same trend with the total universal coverage of 64.9% and 67,3% respectively. Along the pathway toward universal coverage in 2015, in the Law of Health Insurance, Ministry of Health states that from 2008 to 2015, the proportion of compulsory population for NHI increases year after year. From Jan 2010, students are subject for compulsory insurance and from Jan 2012 farmers also join into the compulsory population of the NHI. In 2010, according to Division of Social Insurance, 33.39% of farmers enrolled into NHI that was quite small proportion. In order to giving information about the impact of this transition in NHI, the Universal National Insurance Coverage Project was planned to conduct in Bavi District under the field laboratory FilaBavi in 2012.

*\*Surveillance design and routine activities:*

The whole district of Bavi was classified into 352 clusters (normally one cluster is one commune). The probability proportional to population size in each unit was applied to select 69 clusters to involve in the demographic surveillance of FilaBavi. Initially, the total surveyed population was 51,024 inhabitants of 11,089 households in 1999. In 2011, the population covered by FilaBavi increased to more than 52,000 residents in 14,592 households (Chuc & Diwan, 2003). The FilaBavi stop the surveillance in 2011 and IUHC project was brought in to continue the demographic surveillance that had been carried out for 12 years as well as to collect information about national health insurance participation and usage in Bavi District (Chuc & Diwan, 2003).<sup>1</sup>

The surveyors visit households to implement the face-to-face interviews with designed questionnaires. Re-census survey concentrates on the household information and follow-up surveys focus on individual information. Five percent of the questionnaires will be checked by the supervisors and researchers of FilaBavi and IUHC (Chuc & Diwan, 2003).

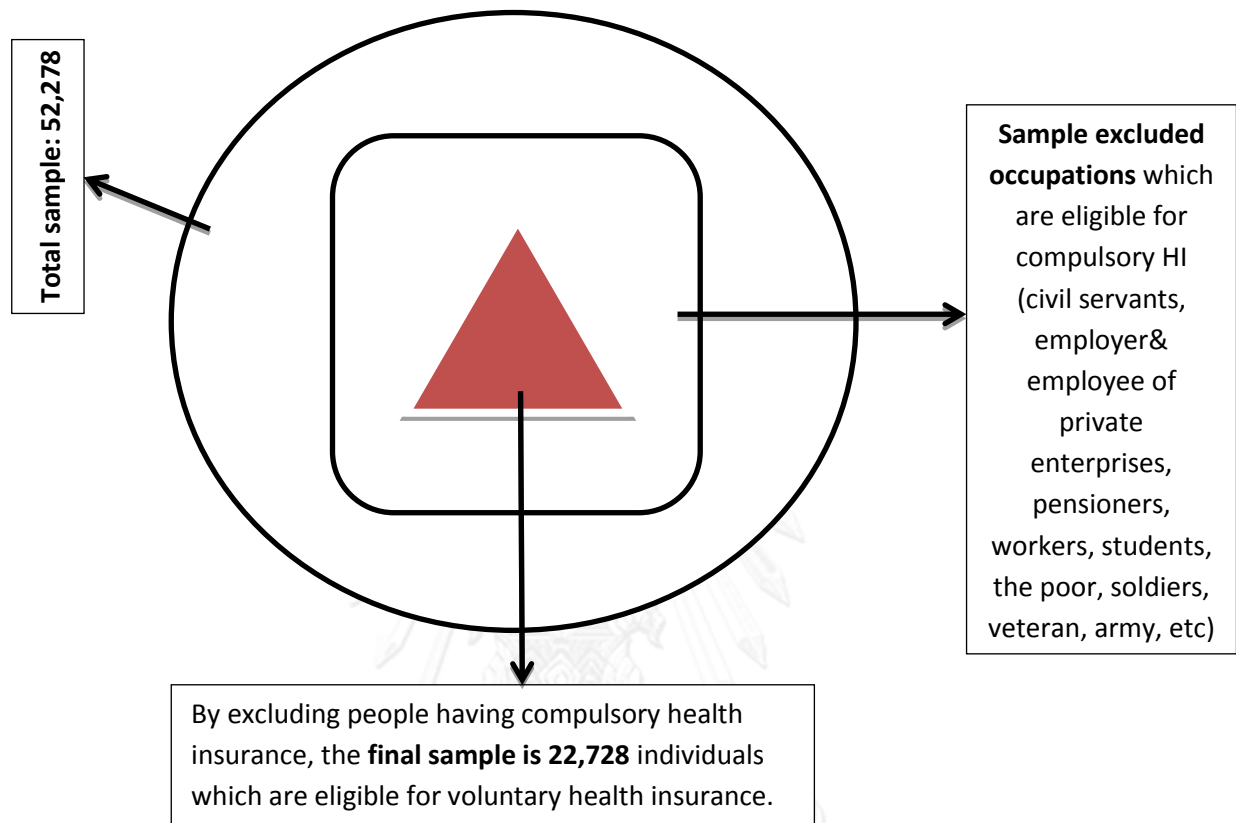
#### **4.2.2 Data used for analysis and main definition**

##### 4.2.2.1 Data used for analysis

- *Individual information:* age, sex, education level, occupation, marital status, health status
- *Household information:* Socio-economic conditions of the households divided into 5 quintile groups of wealth index
- *Information about health insurance participation:* enroll or not enrolling, never enroll or used to enroll, barriers from participating and renewing.

The total sample of the project is 52,287 individuals who are eligible to both types of health insurance. This study only focuses on voluntary health insurance, thus the author based on occupations and type of health insurance of insured people to categorize and exclude people who are not eligible for voluntary health insurance. Hence, the final sample of this study is 22,728 individuals.

Figure 15: Method of identifying the study's sample



In the first step, occupation is used as a tool to identify the eligible people for voluntary health insurance. In this survey, there are more than 20 different occupations, which consist of both people eligible for compulsory and voluntary scheme. The sample is split by dropping the people in compulsory groups out of the total sample based on occupations. People with occupations like pensioners, workers, people working part time for commune people committee, soldiers, veteran, students and pupils, employer and employee in private enterprises, etc are dropped out of the sample.

In the second step of identifying the study sample, the categories of health insurance is used. Among people in the sample identified by the 1<sup>st</sup> step, there are many people having compulsory health insurance. It is because their main occupations at the time of the survey is different from their previous occupation by

which they got compulsory health insurance, such as pensioners who are beneficial from the health insurance that they co-paid in the past. They may be the poor who are eligible for free health care. They may be the disabled people or sick soldiers who get subsidized health insurance. Thus, in this step, based on the categories of health insurance, every people choose any type of insurance which is different from voluntary health insurance are excluded from the sample.

In short, the final sample of the study is 22,728 individuals which are eligible for voluntary health insurance. The people in this sample have to pay 100% of health insurance premium and get the benefit of co-payment 20% of medical expenses (80% covered by the health insurance fund) if the medical expenses exceed the amount of 15% of minimum wage (about 150,000 VND or \$7.5).

#### 4.2.2.2 Main definition

- Formal sector: The formal economy includes reported payroll items, income taxes, employee taxes and any other official economic factors
- Informal sector: Includes any economic activities which are not considered formal sector.
- Farmers: persons whose main source of income is from any activities related to farming and breeding, fishing and forestry.
- Dependents of employee: persons who don't have any source of income or the income is not enough to cover all their living expenditures and have to rely on the other family members 'income. In this study there are three main types of people in this group: sick and elderly people, unemployed people and family members in charge of houseworks.
- Health facility: commune health centers, provincial/ district hospitals which are registered as health care service provider for insured people.
- Never enroll: implies the person has never enrolled in voluntary health insurance before the survey date
- Used to enroll: implies the person had health insurance before but decide not to renew this year.

- Complex procedure: consist of the procedures in issuing health insurance card and process of getting health care at health care provider.
- Switching type of health insurance: implies people who move from compulsory into voluntary scheme.

#### 4.2.3 Data description and analysis

In the first regression, the dependent variable,  $Y$ , captures the participation in voluntary health insurance (enrolled or not enroll). Explanatory variables include quintile which will be divided into five dummy variables (1<sup>st</sup> quintile group, 2<sup>nd</sup> quintile group, 3<sup>rd</sup> quintile group, 4<sup>th</sup> quintile group and 5<sup>th</sup> quintile group), a dummy variable of sex (male and female), a dummy variable of occupation (farmers, employed & self-employed people, dependents), 5 dummy variables for educational level (less than primary, primary, secondary, high school and higher education), a dummy variable for marital status (married and unmarried), together with categorical dummy variables for age groups (age0622, age2360, age61), a dummy variable of health status (bad, average, good).

The first model used in the data analysis is as followed:

$$Y_i = \begin{cases} 1 & \rightarrow \text{enrolling in voluntary health insurance if } Y_i^* > 0 \\ 0 & \rightarrow \text{not enrolling in voluntary health insurance if } Y_i^* \leq 0 \end{cases}$$

Latent variables:

$$Y_i^* = \alpha + \beta X_{it} + \gamma_i + \varepsilon_i$$

Where:  $Y$  stands for cross-sectional unit

$\gamma_i$  is individual specific effects

$\varepsilon_i$  is idiosyncratic error system

To be specific, the equation for the first binary logistic regression about enrollment is:

$$\Pr[Y_i=1] = F(\beta_0 + \beta_1 \text{male} + \beta_2 \text{married} + \beta_3 \text{age2360} + \beta_4 \text{age61} + \beta_5 \text{quintile1} + \beta_6 \text{quintile2} + \beta_7 \text{quintile3} + \beta_8 \text{quintile4} + \beta_9 \text{lessprimary} + \beta_{10} \text{primary} + \beta_{11} \text{secondary} + \beta_{12} \text{highschool} + \beta_{13} \text{bad} + \beta_{14} \text{vaverage} + \beta_{15} \text{farmer} + \beta_{16} \text{employed} + \varepsilon)$$

Three regressions with the same explanatory variables and the samples of each occupation groups will be conducted to analyze the different factors affecting the enrollment of people of each group.

The second model used in the data analysis is as followed:

$Y_i = 1 \rightarrow$  never enroll in health insurance if  $Y^*_i > 0$

$= 0 \rightarrow$  used to enroll in health insurance if  $Y^*_i \leq 0$

Latent variables:

$$Y^*_i = \alpha + \beta X_{it} + \gamma_i + \varepsilon_i$$

Where: Y stands for cross-sectional unit

$\gamma_i$  is individual specific effects

$\varepsilon_i$  is idiosyncratic error system

In the second regression, the dependent Y capture the participation status of Not enroll group (never enroll or used to enroll). Explanatory variables include the same ones of the first regression with additional variable of barriers.

$$\begin{aligned} \Pr[Y_i=1] = F(\beta_0 + \beta_1 \text{male} + \beta_2 \text{married} + \beta_3 \text{age2360} + \beta_4 \text{age61} + \\ \beta_5 \text{quintile1} + \beta_6 \text{quintile2} + \beta_7 \text{quintile3} + \beta_8 \text{quintile4} + \beta_9 \text{lessprimary} + \beta_{10} \text{primary} \\ + \beta_{11} \text{secondary} + \beta_{12} \text{highschool} + \beta_{13} \text{bad} + \beta_{14} \text{vaverage} + \beta_{15} \text{farmer} + \\ \beta_{16} \text{employed} + \beta_{17} \text{nomoney} + \beta_{18} \text{nosick} + \beta_{19} \text{complexprocedure} + \beta_{20} \text{poorquality} \\ + \beta_{21} \text{inadequatebenefit} + \beta_{22} \text{poorattitude} + \beta_{23} \text{noHlinfo} + \beta_{24} \text{nodesire} + \\ \beta_{25} \text{switchtype} + \varepsilon) \end{aligned}$$

Three regressions with the same explanatory variables and the sample of occupation groups will be conducted to analyze the barriers that affect the enrollment of each occupation groups as well the different impacts of each barrier.

**Table 7: Description of selected variables and expected sign**

Variable	Type	Description	Exp Sign (1 <sup>st</sup> model)	Exp Sign (2 <sup>nd</sup> model)
ENROLL	dependent	1 if having voluntary health insurance		

		0 if not having any kind of health insurance		
NEVER	dependent	1 if never enroll 0 if used to enroll		
Quintile1	dummy	1 if belonging to the 1 <sup>st</sup> quintile	-	+
Quintile2	dummy	1 if belonging to the 2 <sup>nd</sup> quintile	-	+
Quintile3	dummy	1 if belonging to the 3 <sup>rd</sup> quintile	-	+
Quintile4	dummy	1 if belonging to the 4 <sup>th</sup> quintile	-	+
Quintile5	dummy	1 if belonging to the 5 <sup>th</sup> quintile(omitted from equation)		
Male	dummy	1 if male and 0 if female	-	-
Less than primary	dummy	1 if being able to read and write or no school; 0 otherwise	-	+
Primary	dummy	1 if getting the highest education level at primary and 0 otherwise	-	+
Secondary	dummy	1 if getting the highest education level at secondary and 0 otherwise	-	+
High school	dummy	1 if getting the highest education level at high school and 0 otherwise	-	+
Higher education	dummy	1 if having training at university, college, professional school and 0 otherwise (omitted)		
Married	dummy	1 if getting married and 0 otherwise	-	-
Farmer	dummy	1 if farmers and 0 otherwise	-	+



Dependents	Dummy	1 if dependents of employee and 0 otherwise (omitted in 1 <sup>st</sup> )		+
Employed	Dummy	1 if employed and 0 otherwise (omitted in 2 <sup>nd</sup> )	-	
Age0622	Dummy	1 if age from 6-22 and 0 otherwise (omitted)		
Age2360	Dummy	1 if age from 23-60 and 0 otherwise	-	+
Age61	Dummy	1 if age above 61 and 0 otherwise	+	-
BadHealth	Dummy	1 if health is bad and 0 otherwise	+	-
AverageHealth	Dummy	1 if health is average and 0 otherwise	-	+
GoodHealth	Dummy	1 if health is good and 0 otherwise (omitted)		
No money	Dummy	1 if no money to buy HI and 0 otherwise		+
No sickness	Dummy	1 if does not feel sick and 0 otherwise (omitted)		+
Inadequate benefit	Dummy	1 if not benefit from HI and 0 otherwise		-
Poor quality	Dummy	1 if poor quality of care and 0 otherwise		-
Poor attitude of health staff	Dummy	1 if poor attitude of health staff and 0 otherwise		-
Complex procedure	Dummy	1 if complex procedure and 0 otherwise		-
No information	dummy	1 if no information and 0 otherwise		+

No desire	dummy	1 if no desire and 0 otherwise		+
Switch type	dummy	1 if switch type and 0 otherwise		-



CHAPTER 5  
RESULTS & DISCUSSION

5.1 Descriptive analysis

5.1.1 Descriptive analysis of selected variables

The total observation of this study is 22,728 individuals with 53.3% of female and 46.6% of male. In this study, about 58.3% of people in the sample finished secondary school while only 6.36% of people attending higher education (university, college or professional school). The study focuses on voluntary health insurance which leads to people in the sample have to be eligible to this scheme and makes the major age group from 23 to 60 years old. The children from 0 to 5 years old are excluded from the sample because they are eligible to “Free health care for children under 6” scheme which is classified in compulsory health insurance scheme. Farming is major occupation in Bavi district and in this study; farmer is the target group of the analysis. In this sample, the number of farmer accounted for 50.16%. Wealth index is used to categorize households into five quintile groups based on each household’s properties. All individuals in a household are classified under the same quintile group of the household which makes the proportion of each quintile is not exactly 20%. About 80% of interviewees self-reported that their healths are average while only 3.8% of them feel bad about their health. Among the population under the survey, about 8% are enrolling in voluntary health insurance; 18% of them used to register in the past but drop out in present. The proportion of people who have never participated in voluntary health insurance schemes is quite high, about 74% of the whole population of the study.

**Table 8: Descriptive analysis for selected variables**

Characteristic	Frequency	Mean	Std.Dev	Percent (%)
<b>Sex (N= 22,728)</b>				
Male	10,586	0.4657	0.498	46.6
Female	12,142	0.534	0.498	53.3
<b>Education Level (N= 22,727)</b>				
Less than primary	759	0.033	0.179	3.34

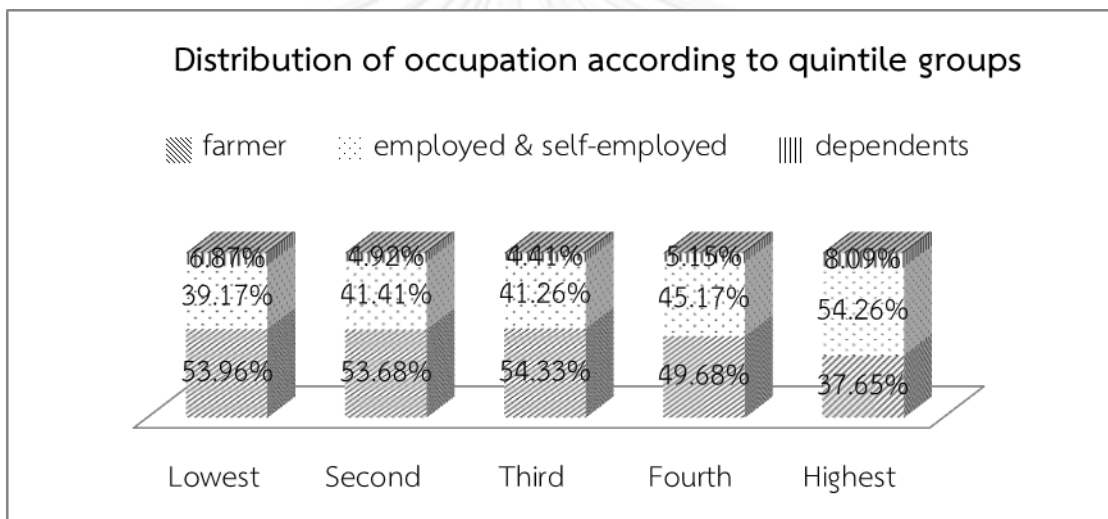
Primary	2,333	0.102	0.303	10.27
Secondary	13,248	0.582	0.493	58.29
High school	4,941	0.217	0.412	21.74
Higher Education	1,446	0.063	0.244	6.36
<b>Marital Status (N=22,728)</b>				
Married	18,541	0.815	0.387	81.6
Unmarried (single, divorced, widowed)	4,187	0.184	0.387	18.4
<b>Occupation (N= 22,728)</b>				
Farmer	11,410	0.502	0.5	50.2
Employed & Self-employed	10,035	0.441	0.496	44.15
Dependents (housewives, unemployed, Sick & elderly people)	1,283	0.056	0.23	5.65
<b>Age groups ( N= 22,728)</b>				
From 6 to 22	2,242	0.098	0.298	9.86
From 23 to 61	18,752	0.825	0.379	82.51
Above 61	1,734	0.076	0.265	7.63
<b>Wealth Index Quintiles (N=22,610)</b>				
Quintile1st_Lowest	2,913	0.128	0.335	12.88
Quintile2nd	4,963	0.219	0.413	21.95
Quintile3rd	5,649	0.249	0.432	24.98
Quintile4th	5,165	0.228	0.419	22.84
Quintile5th_Highest	3,920	0.173	0.378	17.34
<b>Health Status ( N = 22,728)</b>				
Bad	865	0.038	0.191	3.81
Average	17,713	0.779	0.414	77.93
Good	4,143	0.182	0.386	18.23
<b>Health Insurance Status</b>				
Enrolling(N=22,721)	1,835	0.08	0.272	8.08
Used to enroll but drop out (N=20,886)	4,030	0.192	0.394	17.73
Never enroll (N=20,886)	16,856	0.807	0.394	74.19

Source: Author's calculation from the data

Table 8 demonstrates the distribution of the population into different quintile groups according to occupation. As mentioned in the previous table, farmer is

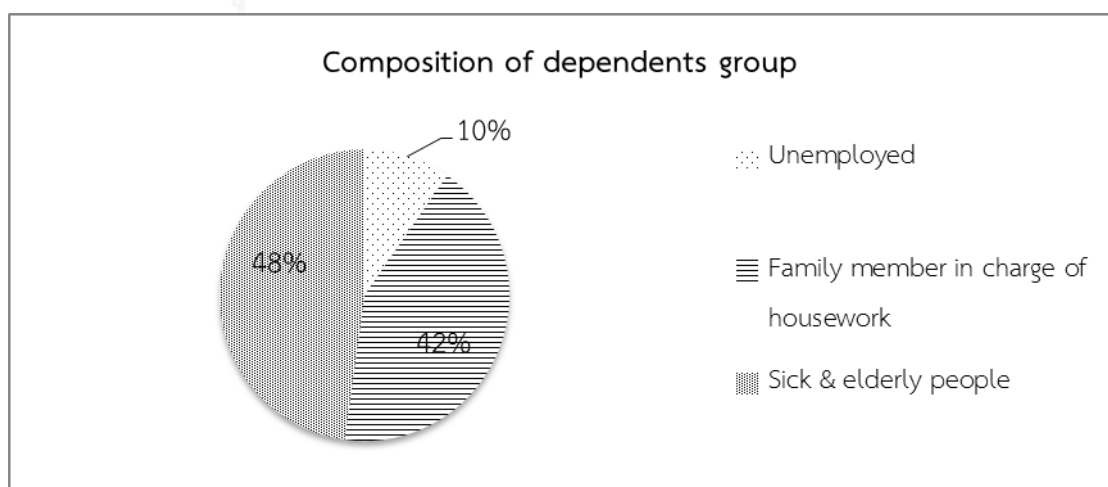
dominant occupation in the population which leads to its largest proportions in each quintile group. While farmer has a declining trend: from 53.96% of total number of people in the lowest quintile to 37.65% of that of the highest one, employed and self-employed group witnesses an opposite tendency: the percentage of people having jobs in the lowest quintile group is the lowest, accounted for 39.17% and in the highest quintile group is the highest, accounted for 54.26%. The dependents group which consists of three categories (unemployed, sick and elderly people, family member in charge of housework) has the least proportions in every quintile groups (Figure 5.2).

Figure 16: Distribution of occupation according to quintile groups



Source: Author's calculation from the data

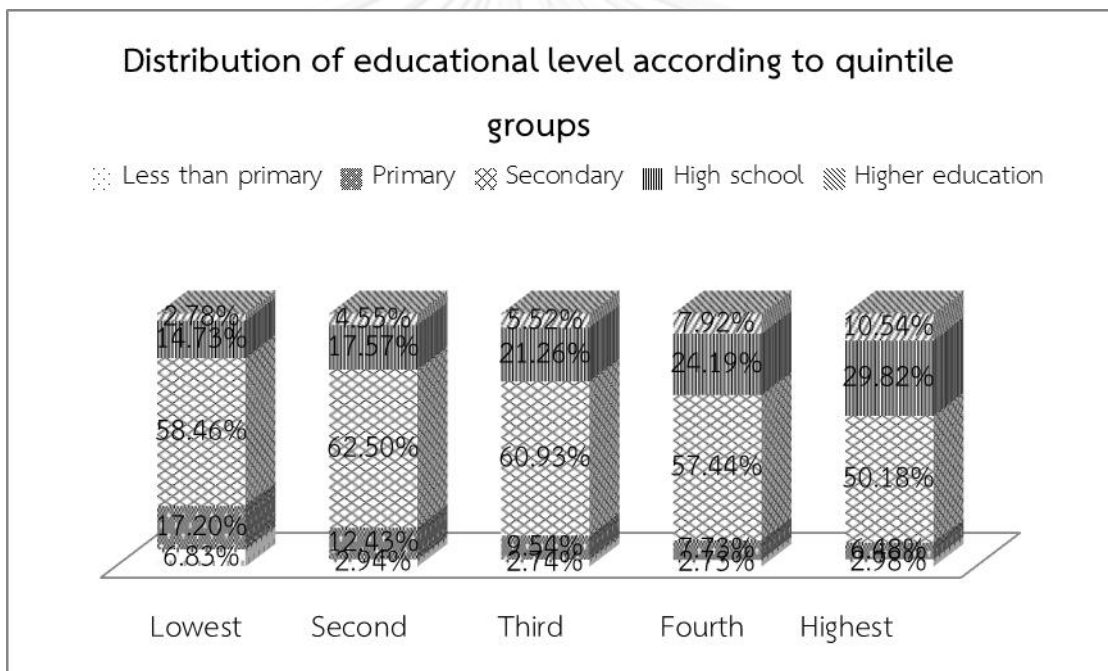
Figure 17: Composition of dependents group



Source: Author's calculation from the data

Unemployed people are defined as the people who have no job and no contribution to the family in terms of income and activities (for instance, house chores, children care, etc). According to figure 17, there is 10% of people in dependents group considering unemployed. The second category is family member in charge of housework (including cooking, cleaning, children care, etc), accounted for 42%. Due to this specific definition, female is the dominant gender in this category, which accounted for 86.47%. The last category is sick and elderly people who are not able to do any job and work due to their health condition which accounted for 48%.

Figure 18: Distribution of educational level according to quintile groups



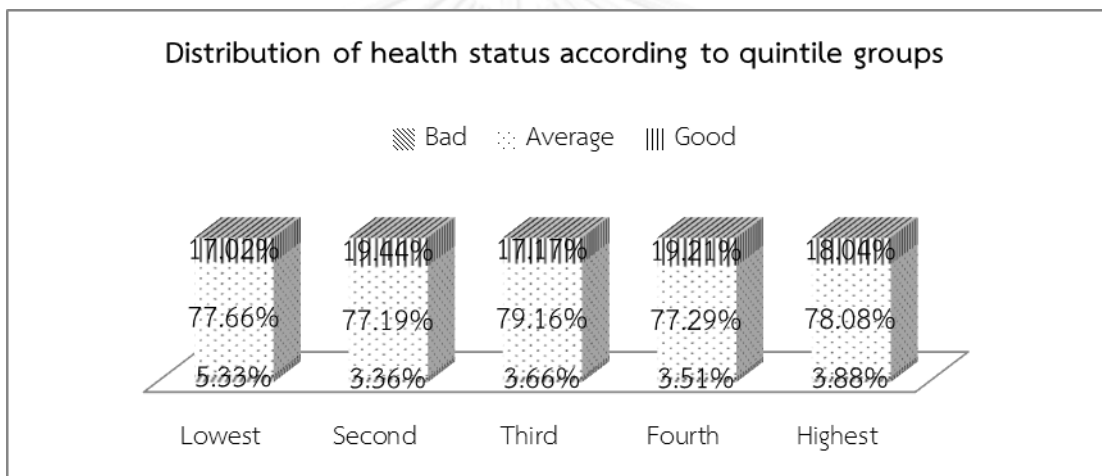
Source: Author's calculation from the data

Figure 18 illustrates the percentage of educational level of people in each quintile groups. In the lowest quintile group, the percentage of people who have educational level of primary or less than primary is the highest among all quintile groups, accounts for 24% while the percentage of people have higher education is the lowest, only accounts for 2.78%. The richer people are, the larger the proportion of people having higher educational level. People attending high school and higher education witnesses the highest proportion in the highest quintile groups,

which accounts for 29.82% and 10.54%, respectively while only 10% of people in this group having primary or less than primary educational background.

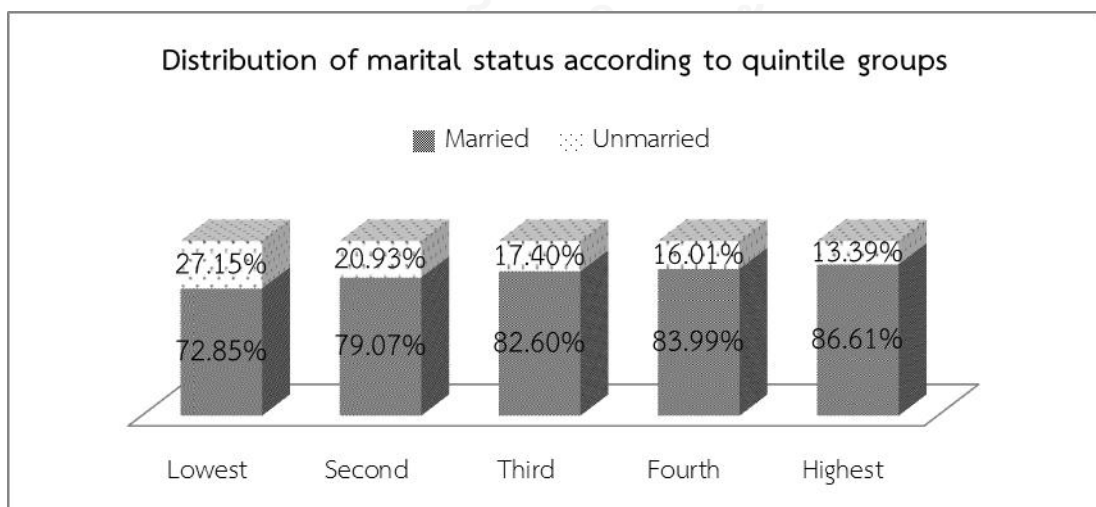
Figure 19 shows the health status of population under the surveys of different quintile groups. About 80% of people in all quintile groups self-reported their health in average condition. When people get richer, the health status seems better. From the figure, the highest quintile group witnesses the largest proportion of people having good health, accounts for 18% and the smallest proportion of people suffering bad health condition, accounts for about 3.9% while the lowest quintile group recognize the opposite.

Figure 19: Distribution of health status according to quintile groups



Source: Author's calculation from the data

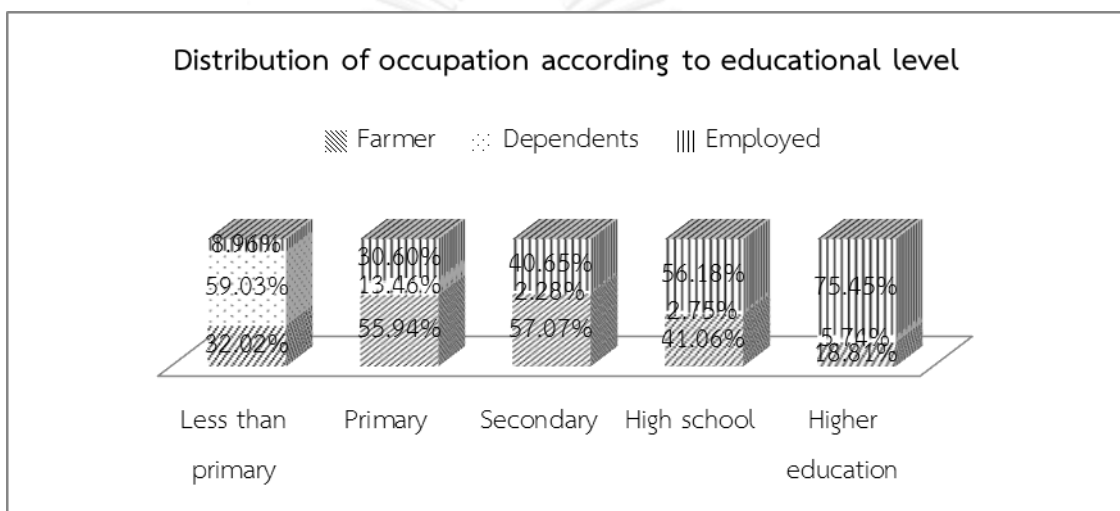
Figure 20: Distribution of marital status according to quintile groups



Source: Author's calculation from the data

Figure 20 describes the scatter of marital status of the population in the study by different quintile groups. Unmarried group consists of four categories: single, separated, widowed and divorced. According to the figure, the highest quintile group has the highest rate of people being married which accounts for about 87% and lowest rate of people being unmarried which accounts for about 13.4%. Meanwhile, the poorest group realizes the opposite tendency: the highest rate of unmarried people and the lowest rate of married people.

Figure 21: Distribution of occupation according to educational level



Source: Author's calculation from the data

Figure 21 gives a picture about the association between occupation and educational level of the population in the study. With the age group from 0 to 5 is excluded from the sample, the majority occupation of people who did not attend school is dependents (unemployed, family member in charge of house works, sick and elderly people), which accounts for 59% while farmer and employed accounts for 32% and 9%, respectively. The higher educational level the people are, the higher rate of being employed or self-employed the people have: from 9% with no school background to 75% with training in university or professional schools. More than 55% of people who have primary or secondary level education are working as farmer while 41% of people who attended high school choose farming as main occupation.



## 5.1.2 Health insurance enrolling status and selected variables

### 5.1.2.1 Enrollment and gender

Table 9 shows the distribution enrollment status according to the gender of the population in the study. There are 1,835 out of 22,721 people, which accounts for 8% of the sample having voluntary health insurance. According to the data from the study, female are more likely to buy health insurance than male. Among insured people, about 65% of them are female while only 35% of them are male. In group of male, the rate of male insured people is 6.2% (653 out of 10,582) which is lower than that of female groups, 9.74% (1,182 out of 12,139).

Table 9: Enrollment and gender

Enrollment Status	Male		Female		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Enrolling	653	35.59	1,182	64.41	1,835	100
Not Enrolling	9,929	47.54	10,957	52.46	20,886	100
Total	10,582	46.57	12,139	53.43	22,721	100

Source: Author's calculation from the data

### 5.1.2.2 Enrollment and educational level

Table 10 illustrates the scatter of enrollment status according to the educational level by comparing the rate of having health insurance of each group with the proportion of each group in the total population.

Table 10: Enrollment and educational level

Enrollment status	Less than primary		Primary		Secondary		High school		Higher education		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Total	%
Enrolling	65	<u>3.54</u>	164	<u>8.94</u>	961	<u>52.37</u>	439	<u>23.92</u>	206	<u>11.23</u>	1,835	100
Not enrolling	694	<u>3.32</u>	2,169	<u>10.39</u>	12,283	<u>58.81</u>	4,500	<u>21.55</u>	1,239	<u>5.93</u>	20,886	100
Total	759	<u>3.34</u>	2,333	<u>10.27</u>	13,244	<u>58.29</u>	4,939	<u>21.74</u>	1,445	<u>6.36</u>	22,721	100

Source: Author's calculation from the data

From the data from the study, people with higher educational level are more likely to enroll in voluntary health insurance. People with high school and higher education background have the higher rate of insured people than the overall rate of them over the whole population. Specifically, with 21.8% of people with high school level

in the sample but the percentage of them having health insurance is 24%. With only 6.36% of people attending colleges or professional schools but the proportion of them enrolling in the health insurance scheme is 11.23%. Meanwhile, people with primary and secondary educational level seem less likely to enroll. The rate of people with primary background having health insurance is about 9% which is lower than the rate of them in the whole population (10.27%). The same trend is witnessed in the secondary educational level groups: only 52% of them having health insurance which is lower than their overall rate of 59%.

### 5.1.2.3 Enrollment and marital status

Table 11 shows the distribution of enrollment status according to marital status. Among insured people, there are 80.5% of married people and 19.5% of unmarried one which is pretty similar to the distribution of married and unmarried people in the sample (81.6% and 19.4% respectively).

**Table 11: Enrollment and marital status**

Enrollment status	Married		Unmarried		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Enrolling	1,477	80.49	358	19.51	1,835	100
Not enrolling	17,059	81.68	3,827	18.32	20,886	100
Total	18,536	81.58	4,185	19.42	22,721	100

Source: Author's calculation from the data

### 5.1.2.4 Enrollment and occupation

Table 12 gives information about the distribution of enrollment status by occupation. Farmer is the major occupation in Bavi district which accounts more than 50% of the total population.

**Table 12: Enrollment and occupation**

Enrollment status	Farmer		Dependents		Employed & Self-employed		Total	
	Freq	%	Freq	%	Freq	%	Total	%
Enrolling	842	<u>45.89</u>	182	<u>9.92</u>	811	<u>44.19</u>	1,835	100
Not enrolling	10,567	<u>50.6</u>	1,100	<u>5.27</u>	9,219	<u>44.13</u>	20,886	100
Total	11,409	<u>50.21</u>	1,282	<u>5.64</u>	10,030	<u>44.15</u>	22,721	100

Source: Author's calculation from the data

According to the data which is illustrated in this table, farmer seems less likely to participate in voluntary health insurance scheme which is similar to what had been expected. This trend can be seen from the lower rate of farmer among insured people (46%) in comparison with the percentage of farmer in the sample (50%). Meanwhile, dependents group has higher rate of buying health insurance (9.92%) than the overall rate of this group in the total population (5.64%). It can be explained by the majority of dependents group are sick and elderly people with higher demand for health care than other groups.

#### 5.1.2.5 Enrollment and age

According to table 13, the age group from 23 to 60 years old occupied the largest proportion of both insured and uninsured people due to their largest composition in the age group. By comparing the rate of insured people with the overall rate of each group, it can be seen that the second age group from 23 to 60 years old seems less likely to enroll in voluntary scheme while the third age group from 61 and above has tendency to buy health insurance.

Table 13: Enrollment and age

Enrollment status	Age 06 -22		Age 23 - 60		Age above 61		Total	
	Freq	%	Freq	%	Freq	%	Total	%
Enrolling	176	<u>9.59</u>	1443	<u>78.64</u>	216	<u>11.77</u>	1,835	100
Not enrolling	2,066	<u>9.89</u>	17,302	<u>82.84</u>	1,518	<u>7.27</u>	20,886	100
Total	2,242	<u>9.87</u>	18,745	<u>82.5</u>	1,734	<u>7.63</u>	22,721	100

Source: Author's calculation from the data

#### 5.1.2.6 Enrollment and quintile groups

By comparing the rate of insured people and the overall rate of each quintile groups, it can be seen that the richer the people are, the more likely they enroll in health insurance scheme.

Table 14: Enrollment and quintile groups

Enrollment status	Lowest		Second		Third		Forth		Highest		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Total	%
Enrolling	117	<u>6.4</u>	290	<u>15.86</u>	391	<u>21.39</u>	486	<u>26.59</u>	544	<u>29.76</u>	1,828	100
Not enrolling	2,792	<u>13.44</u>	4,673	<u>22.49</u>	5,258	<u>25.31</u>	4,678	<u>22.52</u>	3,374	<u>16.24</u>	20,775	100

<b>Total</b>	2,909	<u>12.87</u>	4,963	<u>21.95</u>	5,649	<u>25</u>	5,164	<u>22.85</u>	3,918	<u>17.33</u>	22,603	100
--------------	-------	--------------	-------	--------------	-------	-----------	-------	--------------	-------	--------------	--------	-----

Source: Author's calculation from the data

The percentages of insured people in the lowest, second and third quintile groups are 6.4%, 16% and 21% respectively which are lower than the overall rate of each group: 13%, 22% and 25%. This can be considered as the evidence to conclude that people who have bad financial condition do not have capacity to buy health insurance. Meanwhile, people with better economic status in the fourth and highest quintile groups seem care for their health more by buying health insurance. There are 26.6% and 29.8% of insured people from fourth and fifth quintile groups which is higher than the overall rate of these groups in the whole population (23% and 17%).

#### 5.1.2.7 Enrollment and health status

According to the information given by table 15 about the enrollment and health status of people in the study, people with health status in bad condition are more likely to enroll in health insurance. It can be concluded from comparing the rate of insured people of people in bad health status with the overall rate of them in the sample. About 9.5% of insured people are in bad health condition, which is 2.5 times of the percentage of people with bad health in the sample. People with average and good health seems to be less likely to buy health insurance which can be recognized from the lower rate of insured people with average and good health in comparison with these overall rates of these groups in the population. (73.5% vs 78% of average health people group and 17% vs 18.2% of good health people group).

Table 15: Enrollment and health status

Enrollment status	Bad		Average		Good		Total	
	Freq	%	Freq	%	Freq	%	Total	%
<b>Enrolling</b>	173	<u>9.42</u>	1,347	<u>73.41</u>	315	<u>17.17</u>	1,835	100
<b>Not enrolling</b>	692	<u>3.31</u>	16,366	<u>78.36</u>	3,828	<u>18.33</u>	20,886	100
<b>Total</b>	865	<u>3.81</u>	17,713	<u>77.96</u>	4,143	<u>18.23</u>	22,721	100

Source: Author's calculation from the data

### 5.1.3 Health insurance non-enrolling status and selected variables & barriers

Among total 22,721 individuals with data of insurance status, there are 20,886 uninsured people which accounts for above 90% of the sample. It indicates that voluntary health insurance has a very low coverage in the informal sector in Bavi district. In these uninsured people, there are two statuses of non – enrolling: Never enroll before and Used to enroll but drop out. This part describes the relationships between these two statuses with selected variables and barriers.

#### 5.1.3.1 Non-enrollment and gender

Table 16 demonstrates the distribution of non-enrollment status by the gender of the population of the study. Among uninsured people, about 80% of them, regardless of their gender, never buy voluntary health insurance before and about 52% of these people are female. In the “used to enroll but drop out” group, the percentage of female also higher than that of male which accounts for about 54%.

**Table 16: Not – enrollment & gender**

Not - enrollment Status	Male		Female		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never	8,066	47.85	8,790	52.15	16,856	100
Used to enroll	1,863	46.23	2,167	53.77	4,030	100
<b>Total</b>	<b>9,929</b>	<b>47.54</b>	<b>10,957</b>	<b>52.46</b>	<b>20,886</b>	

Source: Author’s calculation from the data

#### 5.1.3.2 Non – enrollment and educational level

Table 17 shows the scatter of uninsured people by educational level. According to the table, the percentages of “used to enroll” people who are belonging to low educational level groups (4% of less than primary and 12.05% of primary) are higher than the percentages of people in these groups (3.32% of less than primary and 10.4% of primary) which means that people with low educational level are more likely to be used to enroll in health insurance. The same trend is noticed in the group of people with high school and higher education level: 22.88% and 9.28% of “used to enroll” people respectively (higher than the overall percentage of people in these groups in the total population). The opposite trend is

recognized in the middle group of people with secondary level. The proportions of “used to enroll” people of these groups are 51.79% which is lower than the overall proportion of people belonging to this group in the total population (58.81%), meaning that people with secondary level have tendency to never buy health insurance.

**Table 17: Non – enrollment & Educational Level**

Non-enrollment Status	Less than primary		Primary		Secondary		High school		Higher education		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Total	%
Never enroll	533	<u>3.16</u>	1,683	<u>9.98</u>	10,196	<u>60.49</u>	3,578	<u>21.24</u>	865	<u>5.13</u>	16,855	100
Used to enroll	161	<u>4.0</u>	486	<u>12.05</u>	2,087	<u>51.79</u>	922	<u>22.88</u>	374	<u>9.28</u>	4,030	100
<b>Total</b>	<b>694</b>	<b><u>3.32</u></b>	<b>2,169</b>	<b><u>10.39</u></b>	<b>12,283</b>	<b><u>58.81</u></b>	<b>4,500</b>	<b><u>21.55</u></b>	<b>1,239</b>	<b><u>5.93</u></b>	<b>20,885</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.3 Non – enrollment and marital status

According to the table 18, the “never enroll” group has 84.19% of married people which is higher than the percentage of married people in the total population (81.68%), meaning that people who is married are more likely to never buy health insurance before. The opposite trend is recognized in the unmarried group with 28.83% of them having health insurance in the past while only 18.32% of the total population is unmarried people.

**Table 18: Non- enrollment & marital status**

Non-enrollment status	Married		Unmarried		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	14,191	84.19	2,665	15.81	16,85	100
Used to enroll	2,868	71.17	1,162	28.83	6	100
<b>Total</b>	<b>17,059</b>	<b>81.68</b>	<b>3,827</b>	<b>18.32</b>	<b>20,88</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.4 Non – enrollment and occupation

Table 19 gives information about the distribution of people with different non-enrollment statuses by occupation. Farmer is the dominant occupation with

50.59% in the total population. According to the table, farmer seems more likely to never buy health insurance in the past. It is indicated from the lower percentage of farmers in the “used to enroll” group (42.48%) than the percentage of farmers in the total population (50.59%). The opposite tendencies are witnessed in the remained groups (dependents and employed & self-employed people). The proportions of people in these groups who are belonging to “used to enroll” group are 5.96% and 51.56% respectively which are higher than those of them in the total population (5.27% and 44.14%).

**Table 19: Non enrollment & Occupation**

Non-enrollment status	Farmer		Dependents		Employed & Self-employed		Total	
	Freq	%	Freq	%	Freq	%	Total	%
Never enroll	8,855	<u>52.53</u>	860	<u>5.1</u>	7,141	<u>42.37</u>	16,856	100
Used to enroll	1,712	<u>42.48</u>	240	<u>5.96</u>	2,078	<u>51.56</u>	4,030	100
<b>Total</b>	<b>10,567</b>	<b><u>50.59</u></b>	<b>1,100</b>	<b><u>5.27</u></b>	<b>9,219</b>	<b><u>44.14</u></b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.5 Non – enrollment and age

By comparing the rate of “never enroll” people with the overall rate of each age group, it can be seen that the second and the third age group seem less likely to never buy health insurance before while the first age group from 6 to 22 years old has tendency of having health insurance in the past.

**Table 20: Non-enrollment & age**

Non -enrollment status	Age 06 -22		Age 23 - 60		Age above 61		Total	
	Freq	%	Freq	%	Freq	%	Total	%
Never enroll	1,320	<u>7.83</u>	14,299	<u>84.83</u>	1,237	<u>7.34</u>	16,856	100
Used to enroll	746	<u>18.51</u>	3,003	<u>74.52</u>	281	<u>6.97</u>	4,030	100
<b>Total</b>	<b>2,066</b>	<b><u>9.89</u></b>	<b>17,302</b>	<b><u>82.84</u></b>	<b>1,518</b>	<b><u>7.27</u></b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

### 5.1.3.6 Non – enrollment and quintile groups

By comparing the rate of “used to enroll” people and the overall rate of each quintile groups, it can be recognized that people in the poorest and the poor groups are more likely to have health insurance before. The percentages of people in the 1<sup>st</sup> and 2<sup>nd</sup> quintile groups who had health insurance before are 19.03% and 24.13% which are higher than the overall percentage of them in the total population (13.44% and 22.49% respectively). The opposite trend is seen in the three remaining groups. The proportions of people in the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> quintile groups who never enroll in health insurance before are 25.96%, 23.03% and 16.8% which are all higher than the overall percentage of them in the total population (25.31%, 22.52% and 16.24% respectively). It indicates that people with better financial condition are less likely to have health insurance before.

**Table 21: Non enrollment & quintile groups**

Non –enrollment status	Lowest		Second		Third		Forth		Highest		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Total	%
Never enroll	2,030	<u>12.11</u>	3,707	<u>22.1</u>	4,354	<u>25.96</u>	3,863	<u>23.03</u>	2,817	<u>16.8</u>	16,771	100
Used to enroll	762	<u>19.03</u>	966	<u>24.13</u>	904	<u>22.58</u>	815	<u>20.35</u>	557	<u>13.91</u>	4,004	100
<b>Total</b>	<b>2,792</b>	<b><u>13.44</u></b>	<b>4,673</b>	<b><u>22.49</u></b>	<b>5,258</b>	<b><u>25.31</u></b>	<b>4,678</b>	<b><u>22.52</u></b>	<b>3,374</b>	<b><u>16.24</u></b>	<b>20,775</b>	<b>100</b>

Source: Author’s calculation from the data

### 5.1.3.7 Non – enrollment and health status

**Table 22: Non-enrollment & health status**

Non-enrollment status	Bad		Average		Good		Total	
	Freq	%	Freq	%	Freq	%	Total	%
Never enroll	490	<u>2.91</u>	13,248	<u>78.59</u>	3,118	<u>18.5</u>	16,856	100
Used to enroll	202	<u>5.01</u>	3,118	<u>77.37</u>	710	<u>17.62</u>	4,030	100
<b>Total</b>	<b>692</b>	<b><u>3.31</u></b>	<b>16,366</b>	<b><u>78.36</u></b>	<b>3,828</b>	<b><u>18.33</u></b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

According to the table 22, the people with bad health condition seems more likely to purchase health insurance before which can be explained by the higher rate of people with bad health in the “used to enroll” group than the rate of them in the total population. The opposite trend is seen in the other remaining groups. People



with average and good health are more likely to never enroll before. It can be recognized from the higher rate of them in the “never enroll” group than the rate of them in the total population.

#### 5.1.3.8 Non – enrollment and “no money to buy” barrier

“No money to buy” is the most likely barrier of people who are belonging to both “never enroll” and “used to enroll” group. There are 33.45% of “never enroll” people and 50.32% of “used to enroll” people having no money for buying health insurance. It seems that the dominant reason for dropping out of the scheme for people who had health insurance in the past is finance with more than a half of them stating this barrier. For “never enroll” group, this reason also ranks the first among all other reasons.

**Table 23: Non-enrollment & “no money to buy” barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	5,639	33.45	11,217	66.55	16,856	100
Used to enroll	2,028	50.32	2,002	49.68	4,030	100
<b>Total</b>	<b>7,667</b>	<b>36.71</b>	<b>13,219</b>	<b>63.29</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.9 Non – enrollment and “No sickness” Barrier

**Table 24: Non-enrollment & No sickness Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	4,540	26.93	12,316	73.07	16,856	100
Used to enroll	888	22.03	3,142	77.97	4,030	100
<b>Total</b>	<b>5,428</b>	<b>25.99</b>	<b>15,458</b>	<b>74.01</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

Many people give “no sickness” or “don’t fall sick” as the reason for not buying health insurance. This reason is the second highest one for people of both “never enroll” and “used to enroll” groups. About 27% and 22% of people who are belonging to “never enroll” and “used to enroll” groups state that they have good health so they don’t need health insurance. This reason seems being claimed more by people who never enroll than people who had health insurance in the past. It

can be recognized by comparing the percentage of people said “yes” in both groups to the overall percentage of the “yes” population with the total population (about 26%).

#### 5.1.3.10 Non – enrollment and Complex Procedure barrier

Complex procedures in both health insurance issuance and health care utilization of insured people are the 3<sup>rd</sup> common reason, according to the data of the study. People in the two groups seem to reach the same perception about this barrier. The percentages of people saying “yes” to this reason in two groups are similar to the percentage of them in the total population. (5.9% and 5.68% respective compared with 5.86%).

**Table 25: Non-enrollment & Complex Procedure Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	995	5.9	15,861	94.1	16,856	100
Used to enroll	229	5.68	3,801	94.32	4,030	100
<b>Total</b>	<b>1,224</b>	<b>5.86</b>	<b>19,662</b>	<b>94.14</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.11 Non – enrollment and Poor Quality barrier

Poor Quality of health care is another reason for people to participate in the health insurance. It seems interesting that there are more people in the “never enroll” group claim this reason than people in “used to enroll” group. It can be demonstrated from the higher percentage of about 3% of people saying “yes” in the first group while only 1% of people in second group agree with this barrier, comparing with the overall percentage of “yes” people in the total population.

**Table 26: Non-enrollment & Poor Quality Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	494	2.93	16,362	97.07	16,856	100
Used to enroll	44	1.09	3,986	98.01	4,030	100
<b>Total</b>	<b>538</b>	<b>2.58</b>	<b>20,348</b>	<b>97.42</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

### 5.1.3.12 Non – enrollment and inadequate health insurance benefit barrier

According to table 27, inadequate insurance benefit is the fourth reason that preventing people from having health insurance. There are 1.43% of people in “never enroll” group and 1.74% of people in “used to enroll” group agreeing with this reason. In comparison with the overall percentage of people saying “yes” in the total population, there are more people belonging to the second group claiming this reason than people in the first group.

**Table 27: Non-enrollment & Inadequate health insurance benefit Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	241	1.43	16,615	98.57	16,856	100
Used to enroll	70	1.74	3,960	98.26	4,030	100
<b>Total</b>	<b>311</b>	<b>1.49</b>	<b>20,575</b>	<b>98.51</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

### 5.1.3.13 Non – enrollment and No health insurance information barrier

Information about health insurance is necessary being popularized to the target groups to encourage them to buy health insurance. According to the table 28, it seems that this activity does not work well which makes no information about health insurance one of the reason for not enrolling of people in “never enroll” group. There are 0.87% of them stating that they don’t know about health insurance, which is higher than the proportion of 0.77% of this group in the total population.

**Table 28: Non-enrollment & No health insurance information Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	147	0.87	16,709	99.13	16,856	100
Used to enroll	14	0.35	4,016	99.65	4,030	100
<b>Total</b>	<b>161</b>	<b>0.77</b>	<b>20,725</b>	<b>99.23</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

### 5.1.3.14 Non – enrollment and “Poor Attitude of health staffs” barrier

Poor Attitude of health staffs is critical part of health care quality and satisfaction of patients. Table 29 indicates that poor attitude of health staffs is one of the reasons for dropping out of the health insurance scheme of people in the

second group with 0.6% of them stating this reason, which is higher than the overall rate of people saying “yes” to this barrier in the total population.

**Table 29: Non-enrollment & Poor Attitude of Health Staffs Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	73	0.43	16,783	99.57	16,856	100
Used to enroll	24	0.6	4,006	99.4	4,030	100
<b>Total</b>	<b>97</b>	<b>0.46</b>	<b>20,789</b>	<b>99.53</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.15 Non – enrollment and No desire for Health Insurance barrier

According to table 30, 21 out of 23 people claimed “no desire for health insurance” as the reason of their non-enrollment status were belonged to the “never enroll” group. It indicates that this barrier has more influence on the people who never buy insurance rather than people who had insurance before.

**Table 30: Non-enrollment & No desire for Health Insurance Barrier**

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	21	0.12	16,835	99.88	16,856	100
Used to enroll	2	0.05	4,028	99.95	4,030	100
<b>Total</b>	<b>23</b>	<b>0.11</b>	<b>20,863</b>	<b>99.89</b>	<b>20,886</b>	<b>100</b>

Source: Author’s calculation from the data

#### 5.1.3.16 Non – enrollment and Switch type of Insurance barrier

Switching type of health insurance is another dominant reason for “used to enroll” people in the study. Switching type means people moving from compulsory scheme to voluntary one, possibly because of changing the economic status (from the poor to the near poor) or changing work status (from formal employed to informal or unemployed) which makes them reconsider the decision of enrolling in health insurance. The percentage of people in the second group state this reason is quite high, 3.77%; 3% different with the overall percentage of people agreeing with this barrier of the total population.

Table 31: Non-enrollment &amp; Switch type of Insurance Barrier

Non-enrollment status	Yes		No		Total	
	Freq	Percent	Freq	Percent	Freq	Percent
Never enroll	2	0.01	16,854	99.99	16,856	100
Used to enroll	152	3.77	3,878	96.23	4,030	100
<b>Total</b>	<b>154</b>	<b>0.74</b>	<b>20,732</b>	<b>99.26</b>	<b>20,886</b>	<b>100</b>

Source: Author's calculation from the data

## 5.2 Regression analysis

### 5.2.1 Factors affecting the enrollment

The study concerns about the factors affecting the decision of buying voluntary health insurance of people in informal sector in Bavi district. Multi-collinearity among independent variables was checked and no serious collinearity was discovered. Binary logistic regression with dependent variable - the enrollment status (enrolling or not enrolling) and different independent variables of both demographic and economic factors was conducted in order to provide evidences about the association between the decision of participation in this voluntary scheme and some main factors. There are total four regressions will be performed with different subsamples. The first regression will consider the impact of factors to the whole population of the study. From the second to the fourth, the observation of each regression will be the population of each occupation group (farmer, employed & self-employed, dependents).

#### 5.2.1.1 Factors affecting the enrollment of people in Bavi district

Table 32: Estimated coefficients and marginal effects from binary logistic regression for enrollment of people in Bavi district for the entire sample (Dependent variable: Enrollment status)

Variables	Coef	Std.Err	P-value	[95% Conf. Interval]	Marginal Effects
Male	-0.604	0.055	0.000***	-0.713 -0.494	-0.042
Married	-0.044	0.071	0.536	-0.184 0.096	-0.003
age2360	0.007	0.092	0.934	-0.173 0.188	0.0005

age61	0.695	0.137	0.000***	0.425	0.965	0.062
lessprimary	-1.539	0.185	0.000***	-1.897	-1.172	-0.107
Primary	-1.059	0.126	0.000***	-1.307	-0.811	-0.087
secondary	-0.720	0.088	0.000***	-0.893	-0.547	-0.066
highschool	-0.527	0.093	0.000***	-0.710	-0.343	-0.051
quintile1	-1.294	0.108	0.000***	-1.506	-1.082	-0.089
quintile2	-0.845	0.078	0.000***	-0.999	-0.691	-0.068
quintile3	-0.673	0.071	0.000***	-0.814	-0.532	-0.057
quintile4	-0.372	0.067	0.000***	-0.505	-0.240	-0.035
BadHealth	1.072	0.109	0.000***	0.8571	1.287	0.114
AverageHealth	-0.041	0.066	0.530	-0.172	0.088	-0.002
Farmer	-0.341	0.110	0.002**	-0.558	-0.124	-0.025
Employed	-0.164	0.114	0.151	-0.390	0.0603	-0.013
_cons	-0.793	0.162	0.000	-1.113	-0.474	

---

Total observation: 22,603

\*\*\* Significant at 1%; \*\* Significant at 5%

---

Gender variable: This variable is a dummy one with the value of 1 for male and 0 for female. According to the result which is expressed in the table 5.25, gender is a significant variable at p-value  $<0.05$  and 95% CI  $[-0.71 - -0.49]$ . The coefficient of this variable is negative which means that male would be less likely to enroll in voluntary health insurance rather than female. The marginal effect is 0.042, meaning that if the person was a male; the predicted probability of buy health insurance would decrease by 0.042, given other variables constants.

Age variable: This variable is a categorical dummy with 3 age groups: 06 – 22; 23 -60; 61 and above. The age group from 06 to 22 years old was omitted from the regression. Only the coefficient of age group 61 and above was significant at p-value less than 5% and 95% CI with the positive sign. The marginal effect of age61 variable was 0.062 which means that the probability of buying health insurance of people

aged 61 and above increased 0.062 compared with people from age group 23-60, given other variables constant.

Educational level variable: This variable is categorical dummy variable consisting of 5 groups which are classified based on individual's educational level from less than primary to higher education. The variable "higher education" was omitted from the regression as the comparison group. The coefficients of four remaining variables were significant at p-value less than 5% and 95% CI. The signs of all of them were negative. It indicated that in comparison with those who have higher education background, people with less than primary, primary, secondary and high school background were less likely to buy voluntary health insurance. The marginal effects of four variables were negative and decreased when educational level of people increased from less than primary to high school. If a person only could read and write or were illiterate, his predicted probability of buying health insurance would decrease by 0.107. Regarding to the people attending primary, secondary and high school, their probability of enrolling in health insurance would reduce by 0.087; 0.066 and 0.051 respectively holding other variables constant.

Economic status variable: This variable is a categorical dummy variable with 5 quintile groups classified by wealth index based on household's properties. Quintile 5 was omitted from the regression as a comparison variable. All four remaining variables were significant at p-value less than 5% and 95% CI. The coefficients of them were negative and increased along with the increase of economic condition which means that the better the economic condition is, the more likely people buy health insurance. The marginal effect of Quintile 1, Quintile 2, Quintile 3, Quintile 4 were -0.089; -0.068; -0.057; -0.035 which means that the probability of buying health insurance of people belonging to these quintile groups would decrease by 0.089; 0.068; 0.057 and 0.035 respectively holding other variables unchanged, when comparing to the people in the highest quintile.

Health status variable: This variable is categorical dummy variable with 3 status bad, average and good which were self-reported by the interviewees in the sample. The "good" variable was omitted from the regression and became comparison variable. Only bad variable was significant in the regression and had

positive sign which means that if people were in bad health condition, they would likely to buy health insurance with the probability increasing by 0.114, given other variables constant. The average variable was insignificant and had negative sign which means that if people have average or good health, they are less likely to enroll in the health insurance scheme.

Occupation variable: This variable is categorical dummy variables with 3 occupational groups: farmers, employed & self-employed, dependents. The dependents group was omitted from the regression and became comparison group. Both coefficient of farmer and employed variable were negative but farmer variable was significant at p-value less than 5% and 95% CI while employed variable was insignificant. The sign of the coefficient of farmer variable was negative with marginal effect of -0.025, meaning that if a person was a farmer, the predicted probability of enrolling in health insurance would decrease by 0.025, holding other variables constant. The coefficient of employed variable was insignificant which means that we could not find out the difference in the likelihood of buying health insurance between employed & self-employed people and dependents.

The coefficient of marital status was not significant which means that the impact of this variable on the decision of enrollment in voluntary health insurance could not be investigated.

### **5.2.1.2 Factors affecting the enrollment of each occupation groups**

#### **5.2.1.2.1 Farmers**

Binary logistic regression was performed with dependent variable of whether a farmer would enroll in voluntary health insurance or not. The significance of coefficients of variables in the regression was investigated using p-value at 5% and 95% CI. Marginal effects were calculated to see the differences in the probability of buying health insurance among farmers with different demographic and socio-economic status.

According to Table 33, economic status had important impact on the decision of enrolling in voluntary health insurance among farmers in Bavi district. The coefficients of all quintile groups were significant at p-value less than 5% and 95% CI. The signs of their coefficients were negative and their marginal effects increased from



the lowest quintile to the highest quintile group which means that the poorest people were least likely to buy health insurance in comparison with the four remaining quintile groups. The probability of participating in the voluntary scheme of people belonging to Quintile 1, Quintile 2, Quintile 3, Quintile 4 decreased by 0.080; 0.063; 0.053; 0.035 respectively, compared with the highest quintile group and given other variables unchanged.

**Table 33: Estimated coefficients and marginal effects from binary logistic regression for enrollment of farmer (the sample of farmer) (Dependent variable: Farmers who are enrolling)**

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	-0.492	0.087	0.000***	-0.663	-0.322	-0.032
Married	-0.051	0.117	0.662	-0.280	0.178	-0.003
age2360	-0.160	0.147	0.278	-0.450	0.129	-0.011
age61	0.607	0.193	0.002**	0.228	0.986	0.0570
quintile1	-1.210	0.150	0.000***	-1.505	-0.915	-0.080
quintile2	-0.832	0.116	0.000***	-1.060	-0.604	-0.063
quintile3	-0.666	0.108	0.000***	-0.878	-0.454	-0.053
quintile4	-0.393	0.106	0.000***	-0.602	-0.185	-0.035
Lessprimary	-1.125	0.335	0.001***	-1.781	-0.468	-0.133
Primary	-0.852	0.225	0.000***	-1.295	-0.409	-0.110
Secondary	-0.623	0.193	0.001***	-1.003	-0.243	-0.086
Highschool	-0.480	0.203	0.018**	-0.879	-0.080	-0.069
BadHealth	1.114	0.152	0.000***	0.814	1.413	0.183
AverageHealth	-0.094	0.098	0.339	-0.288	0.099	-0.010
_cons	-1.074	0.258	0.000	-1.580	-0.568	

Total observation: 11,346

\*\*\* Significant at 1% ; \*\* Significant at 5%

Educational level also played an important part in the decision of holding insurance of farmer. All dummy variables under the categorical education variables had significant and negative coefficients with the increasing trend when the educational level increased which means that the more educated a farmer is, the higher likely he buy health insurance. Marginal effects of these variables recognized the same sign and same trend as their coefficients. In comparison with people with higher education background, the probability of enrolling in voluntary health insurance scheme of farmers with less than primary or primary or secondary or high school background decreased by 0.133; 0.110; 0.086; 0.069 respectively, holding other variables constant.

In terms of demographic factors, gender variable was significant with negative coefficient which means that male farmer was less likely enroll in health insurance rather than female farmer with the probability decreased by -0.032. Regarding to age variable, only farmer in age group from 61 and above was found out having tendency of buying health insurance with significant coefficient and marginal effect of 0.057. It indicated that the probability of elderly people over 61 years old and above of purchasing health insurance increased 0.057 compared with people belonging to age group from 6 to 22 years old, holding other variables constant. In the regard of health status variables, bad health was found to be significant with positive coefficient and marginal effect of 0.183 which means that farmers with bad health condition was more likely to buy health insurance rather than those with good health status.

#### **5.2.1.2.2 Employed & Self-employed people**

Binary logistic regression was performed with dependent variable of whether an employed people would enroll in voluntary health insurance or not. The significance of coefficients of variables in the regression was investigated using p-value at 5% and 95% CI. Marginal effects were calculated to see the differences in the probability of buying health insurance among employed people with different demographic and socio-economic status.

According to table 34, gender variable was significant with negative coefficient and marginal effect of -0.052 at p-value <5% and 95% CI which means that the

probability of male workers of enrolling in voluntary health insurance would decrease by 0.052 in comparison with that of female workers holding other variables remained unchanged.

Age group from 61 and above had significant coefficient and positive marginal effect of 0.117 at p-value <5% and 95% CI which means if a worker was 61 or above years old, the probability of purchasing voluntary health insurance would increase by 0.117 in comparison with people belonged to age group from 06 to 22 years old, holding other variables constant.

In terms of economic variables, all four quintile variables included in the regression were negative significant at p-value <5% and 95% CI and increased along with the increase of economic status from lowest quintile to the fourth quintile group which means that the richer the workers were, the higher likelihood of purchasing voluntary health insurance they had. The probability of participating in the scheme of people belonging to Quintile 1, Quintile2, Quintile 3, Quintile 4 decrease by 0.103; 0.075; 0.064 and 0.03 respective, in comparison with that of people under quintile 5, given other variables constant.

**Table 34: Estimated coefficients and marginal effects from binary logistic regression for enrollment of employed and self-employed people (Dependent variable: Employed & Self-employed people who are enrolling)**

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	-0.710	0.076	0.000***	-0.860	-0.560	-0.052
Married	-0.146	0.105	0.163	-0.352	0.059	-0.011
age2360	0.180	0.129	0.163	-0.073	0.434	0.012
age61	1.172	0.323	0.000***	0.537	1.806	0.117
quintile1	-1.466	0.186	0.000***	-1.831	-1.100	-0.103
quintile2	-0.878	0.119	0.000***	-1.113	-0.643	-0.075
quintile3	-0.708	0.107	0.000***	-0.919	-0.497	-0.064
quintile4	-0.374	0.096	0.000***	-0.564	-0.185	-0.038
lessprimary	-2.158	0.758	0.004***	-3.644	-0.671	-0.138

Primary	-1.442	0.228	0.000***	-1.890	-0.994	-0.115
Secondary	-0.728	0.108	0.000***	-0.940	-0.515	-0.073
highschool	-0.515	0.113	0.000***	-0.738	-0.292	-0.055
Bad	1.198	0.201	0.000***	0.803	1.592	0.137
Average	-0.018	0.094	0.842	-0.203	0.165	-0.001
_cons	-0.960	0.173	0.000	-1.300	-0.620	

---

Total observation: 9,982

\*\*\* Significant at 1% ; \*\* Significant at 5%

---

Health status also had impact on the decision of holding voluntary health insurance of workers in the informal sector in Bavi district. The bad variable had significant coefficient with positive sign at p-value <5% and 95% CI which means that people with bad health condition had higher probability of buying health insurance by 0.137 compared with that of people with good health status.

Educational level variables were significant to the enrollment of employed people in voluntary health insurance. All educational level variable included in the regression had negatively significant coefficient at p-value <5% and 95% CI and realized an increasing trend in marginal effect along with the increase of level of education. The probability of purchasing voluntary health insurance of workers belonging to less than primary level, primary level, secondary level and high school level decreased by 0.138; 0.115; 0.073 and 0.055 respectively in comparison with that of people with higher education background, holding other variable constant.

#### 5.1.2.2.3 Dependents

Binary logistic regression was performed with dependent variable of whether a dependent would enroll in voluntary health insurance or not. The significance of coefficients of variables in the regression was investigated using p-value at 5% and 95% CI. Marginal effects were calculated to see the differences in the probability of buying health insurance among dependents with different demographic and socio-economic status.

**Table 35: Estimated coefficients and marginal effects from binary logistic regression for enrollment of dependents (Dependent variable: Dependents who are enrolling)**

Variables	Coef	Std.Err	P-value	[95% Conf. Interval]	Marginal Effects
Male	-0.370	0.205	0.071*	-0.773 0.031	-0.042
Married	0.219	0.184	0.233	-0.141 0.580	0.024
age2360	-0.161	0.329	0.625	-0.807 0.485	-0.019
age61	-0.079	0.369	0.830	-0.804 0.645	-0.009
quintile1	-1.113	0.321	0.001***	-1.743 -0.484	-0.114
quintile2	-0.590	0.258	0.022**	-1.097 -0.084	-0.072
quintile3	-0.393	0.240	0.102*	-0.865 0.077	-0.051
quintile4	-0.132	0.222	0.552	-0.567 0.303	-0.018
lessprimary	-0.893	0.387	0.021**	-1.652 -0.134	-0.101
Primary	-0.459	0.379	0.225	-1.202 0.283	-0.060
secondary	-0.414	0.324	0.202	-1.051 0.221	-0.055
highschool	-0.444	0.358	0.215	-1.146 0.257	-0.058
BadHealth	0.679	0.351	0.053*	-0.008 1.367	0.099
AverageHealth	-0.067	0.314	0.830	-0.685 0.549	-0.007
_cons	-0.932	0.448	0.038	-1.812 -0.052	

Total observation: 1,275

\*\*\* Significant at 1% ; \*\* Significant at 5%

According to table 5.28, only some of education, economic and health status variables were significant in the regression. In term of economic variables, the coefficient of Quintile 1 and Quintile 2 were significant at p-value < 5% and 95% CI. The sign of their coefficients were negative with the marginal effect of -0.114 and -0.072. It implied that the dependents belonging to the poorest and the poor groups were less likely to purchasing voluntary health insurance than people under the richest group. The coefficients of Quintile 3 and Quintile 4 were insignificant at p-

value <5% and 95% CI, thus we could not find out the differences in the enrollment in voluntary health insurance of dependents under 3<sup>rd</sup> and 4<sup>th</sup> quintile groups and those belonging the 5<sup>th</sup> quintile group.

Regarding education variables, only people with less than primary background were significant less likely to buy voluntary health insurance. The coefficient of “lessthanprimary” variable had negative sign with the marginal effect of -0.101 which means that the probability of enrolling in health insurance of dependents under less than primary level decreased by 0.101 compared with that of people with higher education background, given other variables constant.

### **5.2.2 Barriers affecting the non-enrollment**

As mentioned in the descriptive analysis of this chapter, only more than 8% of people enrolling in voluntary health insurance while about 90% of people in the population of this study are uninsured people and there are about 80% of them never having health insurance before. It is consistent to the statistics demonstrated in the chapter 2 about the low coverage of voluntary health insurance (Table 1.4). This part of chapter 5 will deal with the barriers of people with different non-enrollment statuses: never enroll and used to enroll but drop out. Four regressions will be conducted. The first regression with the whole population of the study will be performed to analyze the impact of barriers to the overall population. From the 2<sup>nd</sup> to the 4<sup>th</sup> regressions, the observation will be limited in each occupation groups (farmer, employed and self-employed, dependents) to evaluate the impact of each barrier to each occupation with the purposes of finding the reasons that prevent people to never enroll or make them drop out of the scheme.

### 5.2.2.1 Barriers affecting non-enrollment of people in Bavi district

Table 36: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of people in Bavi district for the entire non-enrollment sample (Dependent variable: People who never enroll)

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	0.248	0.041	0.000***	0.1681	0.328	0.034
married	0.357	0.049	0.000***	0.259	0.455	0.053
age2360	0.772	0.059	0.000***	0.654	0.889	0.129
age61	1.115	0.109	0.000***	0.900	1.330	0.171
quintile1	-0.321	0.069	0.000***	-0.457	-0.185	-0.048
quintile2	-0.050	0.063	0.429	-0.175	0.074	-0.0079
quintile3	0.076	0.063	0.224	-0.046	0.200	0.010
quintile4	-0.022	0.063	0.727	-0.146	0.101	-0.003
lessprimary	0.513	0.136	0.000***	0.247	0.780	0.086
primary	0.422	0.090	0.000***	0.245	0.598	0.072
secondary	0.742	0.072	0.000***	0.599	0.884	0.118
highschool	0.591	0.077	0.000***	0.439	0.742	0.098
Badhealth	-0.625	0.102	0.000***	-0.826	-0.424	-0.097
Averagehealth	-0.130	0.049	0.008***	-0.226	-0.033	-0.017
Farmer	0.368	0.042	0.000***	0.284	0.452	0.052
Dependents	0.184	0.102	0.070*	-0.015	0.384	0.027
Nomoneytobuy	-1.041	0.054	0.000***	-1.147	-0.935	-0.156
Nosick	-0.398	0.059	0.000***	-0.514	-0.281	-0.046
ComplexProcedure	-0.634	0.087	0.000***	-0.806	-0.463	-0.077
PoorQuality	0.330	0.165	0.046**	0.006	0.654	0.028
InadequateBenefit	-0.910	0.146	0.000***	-1.197	-0.623	-0.12
Poorattitude	-0.982	0.245	0.000***	-1.462	-0.502	-0.134
noHlinfo	0.214	0.288	0.457	-0.350	0.779	0.019
Nodesire	0.070	0.743	0.924	-1.386	1.528	0.007
SwitchHltype	-6.324	0.714	0.000***	-7.724	-4.924	-0.868

_cons	-1.074	0.110	0.002**	0.130	0.563
-------	--------	-------	---------	-------	-------

Total observation: 20,775

\*\*\* Significant at 1%; \*\* Significant at 5%; \*Significant at 10%

#### a. Demographic and socio-economic factors:

According to the table 36, gender, marital status, age, educational level, economic status, health status and occupation are significant variables to the “never enroll” status.

Gender has positive coefficient with positive marginal effect of 0.034 at p-value <5% and 95% CI meaning that if a person is male, he is more likely to never enroll in health insurance with his probability of never enrolling increasing by 0.034, compared with female probability, holding other variables constant.

Marital status has positive coefficient with marginal effect of 0.053 at p-value <5% and 95% CI which means that if a person is married, his probability of never buying health insurance will increase by 0.053, compared with unmarried people, holding other variables unchanged.

Both two dummy variables of age (age2360 and age61) are positive significant at p-value <5% and 95% CI with marginal effects of 0.129 and 0.171, respectively. It indicates that people belonging to these two age groups are more likely to never enroll in health insurance. With the increase in both coefficients and marginal effects, it shows that the older the people are, the more likely they never buy health insurance, compared with the age group from 6 to 22 years old, given other variables constant.

In terms of economic variables, only the 1<sup>st</sup> dummy variable of 1<sup>st</sup> quintile is significant at p-value <5% and 95% CI with negative sign, which means that if a person belongs to the poorest group, he is less likely to never enroll and thus more likely to be used to enroll in health insurance in the past. With the marginal effect of -0.048, the probability of never purchasing health insurance of people belonging to the poorest groups decreases by 0.048, compared with that of people in the highest quintile groups, holding other variables constant.

Regarding to educational level variables, all four dummy variables have positive significant coefficients at p-value <5% and 95% CI with the marginal effects



from lowest to highest educational level of 0.086; 0.072; 0.118 & 0.098, respectively. It indicates that people in Bavi district are more likely to never enroll in health insurance scheme, regardless of their educational background. It seems that people with higher educational background (secondary and high school) have higher probability of never purchasing health insurance than the people with less than primary and primary level. It can be seen from the higher marginal effects of the secondary and high school variables than those of the less than primary and primary variables.

Both dummy variables of health status are negative significant with marginal effects of -0.097 for bad health variable and -0.017 for average health variable at p-value <5% and 95% CI, meaning that people with bad and average health condition are more likely to be used to enroll in health insurance in the past but drop out. The probabilities of used to holding health insurance of people with bad and average health decrease by 0.097 & 0.017 respectively, compared with people with good health, holding other variables constant.

Farmer has positive significant coefficient and marginal effects of 0.052 which means that if a person is a farmer, he is more likely to never enroll in health insurance and his probability of never buying health insurance increase by 0.052, compared with the employed group, given other variables unchanged.

#### **b. Barriers**

According to the table 36, there are 7 barriers which are significant in the regression at p-value <5% and 95% CI, namely no money to buy, no sickness, complex procedure, poor quality of care, inadequate health insurance benefit, poor attitude of health staffs, switching type of health insurance. We will investigate closely to each barrier to analyze the trend of them affecting the non-enrollment status of people in Bavi district.

According to the part of descriptive analysis in this chapter, “no money to buy” is the most common barrier in both “never enroll” and “used to enroll” group. In the regression, it has negative significant and marginal effect of -0.156 at p-value <5% and 95% CI, meaning that if a person claim finance is the reason for not currently having health insurance, the probability of never enrolling of him will

decrease by 0.156. It can be demonstrated in other words that most of people who coped with this barriers are belonged to the “used to enroll” group rather than “never enroll” group.

No sickness or “does not fall sick” is the second common barrier of both “never enroll” and “used to enroll” groups. This variable has negative significant coefficient and marginal effect of 0.046 at p-value <5% and 95% CI, meaning that if a person claim he does not fall sick to buy health insurance, his probability of never holding health insurance will decrease by 0.046. It indicates that this barrier having more impact on “used to enroll” group than “never enroll” group but still rank high position in both groups.

Complex procedure is another reason that keeps people from enrolling in health insurance but the impact of it to two groups will be different. It has negative coefficient with marginal effect of -0.077 at p-value <5% and 95% CI, meaning that if a person is unsatisfied with long issuance health insurance care and long waiting time for getting care, his the probability of belonging to “never enroll” group decrease by 0.077. In short, people who are used to enroll in health insurance in the past state this reason as one of their reasons for dropping out rather than people who never enroll before.

Another reason preventing people participating in health insurance is poor quality of care for insured people. It is interesting that poor quality variable have positive coefficient and marginal effect of 0.028. It means that this reason is stated mostly by “never enroll” people rather than people in the “used to enroll” group with the probability of people belonging to “never enroll” group increase by 0.028, compared with “used to enroll” group. It can be explained by the perception of people, especially people who had no real experience on health insurance services in general which should be taken care of by policy makers.

Inadequate health insurance benefit and poor health staffs ‘attitude is the two following reasons that prevent people from enrolling in health insurance. They both have negative coefficient and marginal effects of -0.12 and -0.134, respectively which means that if a person claim them as his reason for not currently having health insurance, he or she is more likely belonged to “used to enroll” group; with

the probability of belonging to “never enroll” group decrease by 0.12 & 0.134 respectively.

The last barrier is switching type of health insurance which means people moving from compulsory scheme to voluntary one (for instance the poor people who used to be eligible to free health care for the poor but now they are not). This barrier has negative significant coefficient and marginal effect of -0.868 at p-value <5% and 95% CI. This barrier is specific for “used to enroll” group by definition.

#### **5.2.2.2 Barriers affecting non-enrollment of farmer in Bavi district**

According to the table 37, farmer group is similar to the whole population in terms of significant, sign and trend of demographic and socio-economic factors affecting the non-enrollment status which are gender, marital status, age, economic status, educational level, health status.

In terms of barriers, no money to buy, no sickness, complex procedure, poor quality of care, inadequate health insurance benefit, poor attitude of health staffs are significant reason for people not enrolling in health insurance but the impact on the farmer belonging to two groups “never enroll” and “used to enroll” is different.

“No money to buy” is the most common reason of farmer for not currently having health insurance with about 53% of people choosing this barrier. This barrier has negative significant coefficient and marginal effect of -0.153 at p-value <5% and 95% CI which means that if a farmer claim finance is the reason for not buying health insurance, his probability of never enrolling health insurance decrease by 0.153, holding other variables constant. We can demonstrate in other word that it is more likely that he is belonged to “used to enroll” group. Thus, by comparing between two groups, finance is the barrier claimed more by farmer who is used to purchasing health insurance rather than who never enrolls.

No sickness variable has negative significant coefficient and marginal effect of -0.038 at p-value <5% and 95% CI, meaning that if a farmer claims he does not fall sick to buy health insurance, his probability of never holding health insurance will decrease by 0.038. It indicates that this barrier having more impact on farmer in “used to enroll” group than farmer in “never enroll” group but still rank the second common barrier of both groups.

Table 37: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of Farmer (Dependent variable: Farmer who never enrolls)

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	0.269	0.063	0.000***	0.145	0.393	0.034
Married	0.456	0.078	0.000***	0.301	0.610	0.063
age2360	0.742	0.098	0.000***	0.549	0.936	0.113
age61	1.046	0.152	0.000***	0.747	1.344	0.147
quintile1	-0.279	0.110	0.011***	-0.496	-0.062	-0.038
quintile2	0.009	0.104	0.928	-0.195	0.214	0.001
quintile3	0.095	0.103	0.353	-0.106	0.298	0.011
quintile4	0.016	0.105	0.876	-0.190	0.223	0.002
lessprimary	0.409	0.241	0.090*	-0.064	0.882	0.064
Primary	0.400	0.180	0.027**	0.046	0.755	0.063
secondary	0.757	0.166	0.000***	0.431	1.083	0.109
highschool	0.480	0.173	0.006**	0.140	0.819	0.074
Badhealth	-0.69	0.144	0.000***	-0.972	-0.407	-0.101
Averagehealth	-0.098	0.076	0.196	-0.248	0.050	-0.012
Nomoneytobuy	-1.116	0.080	0.000***	-1.273	-0.959	-0.153
Nosick	-0.379	0.092	0.000***	-0.560	-0.197	-0.038
ComplexProcedure	-0.606	0.139	0.000***	-0.880	-0.332	-0.064
PoorQuality	0.256	0.261	0.327	-0.256	0.769	0.019
InadequateBenefit	-1.009	0.218	0.000***	-1.436	-0.581	-0.122
Poorattitude	-1.161	0.341	0.001***	-1.832	-0.491	-0.149
noHlinfo	0.549	0.467	0.240	-0.367	1.466	0.037
Nodesire	(omitted)					
SwitchHltype	(omitted)					
_cons	0.653	0.2182604	0.003	0.225	1.080	

---

Total observation: 10,436

\*\*\* Significant at 1%; \*\* Significant at 5%; \*Significant at 10%

---

Complex procedure is another reason that prevents people from buying in health insurance but its impact on two groups is different. It has negative coefficient with marginal effect of -0.064 at p-value <5% and 95% CI, meaning that if a farmer who feel annoyed with long issuance health insurance card and long waiting time for getting care, his the probability of belonging to “never enroll” group decrease by 0.064. In short, people who are used to enroll in health insurance in the past state this reason as one of their reasons for dropping out rather than people who never enroll before.

To farmer, poor quality is another reason preventing them from participating in health insurance. Similarly to the previous regression, poor quality variable have positive coefficient and marginal effect of 0.028. It means that this reason is stated mostly by farmers in “never enroll” group rather than farmers in the “used to enroll” group with the probability of farmers belonging to “never enroll” group increase by 0.019, compared with “used to enroll” group.

Inadequate benefit of health insurance and poor attitude of health staff are the two following reasons that prevent farmer from enrolling in health insurance. They both have negative coefficient and marginal effects of -0.122 and -0.149, respectively which means that if a farmer claim them as his reason for not currently having health insurance, he or she is more likely belonged to “used to enroll” group; with the probability of belonging to “never enroll” group decrease by 0.122 and 0.149, respectively.

The barriers of “No desire to buy” and “Change in type of health insurance” are omitted from the regression which means that there is no farmer claiming these reasons. It is consistent to the previous regression that farmers are more likely to never enroll in health insurance, thus there is no one changing type of health insurance.

### 5.2.2.3 Barriers affecting non-enrollment of employed & self-employed people in Bavi district

Table 38: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of employed & self-employed people (Dependent variable: Employed people who never enroll)

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	0.251	0.056	0.000***	0.140	0.363	0.0395
Married	0.344	0.071	0.000***	0.204	0.485	0.057
age2360	0.784	0.081	0.000***	0.625	0.943	0.145
age61	1.420	0.311	0.000***	0.809	2.030	0.226
quintile1	-0.344	0.097	0.000***	-0.535	-0.153	-0.056
quintile2	-0.130	0.086	0.132	-0.299	0.039	-0.020
quintile3	0.028	0.085	0.741	-0.138	0.195	0.004
quintile4	-0.054	0.084	0.517	-0.219	0.110	-0.008
Lessprimary	0.406	0.308	0.187	-0.197	1.010	0.074
Primary	0.282	0.120	0.019**	0.045	0.518	0.053
Secondary	0.658	0.086	0.000***	0.489	0.827	0.114
Highschool	0.593	0.091	0.000***	0.413	0.773	0.105
Badhealth	-0.711	0.188	0.000***	-1.079	-0.342	-0.123
Averagehealth	-0.137	0.065	0.036**	-0.266	-0.008	-0.020
Nomoneytobuy	-0.946	0.078	0.000***	-1.100	-0.791	-0.157
Nosick	-0.382	0.081	0.000***	-0.543	-0.222	-0.051
ComplexProcedure	-0.694	0.119	0.000***	-0.928	-0.461	-0.100
PoorQuality	0.339	0.219	0.122	-0.090	0.769	0.035
InadequateBenefit	-0.841	0.212	0.000***	-1.257	-0.425	-0.126
Poorattitude	-0.978	0.367	0.008***	-1.698	-0.257	-0.153
noHlinfo	-0.048	0.397	0.902	-0.828	0.730	-0.005
Nodesire	-0.550	0.779	0.480	-2.078	0.977	-0.097
SwitchHltype	-6.146	1.009	0.000***	-8.125	-4.166	-0.846
_cons	0.401	0.139	0.004	0.1271	0.675	

---

Total observation: 9,173

\*\*\* Significant at 1%; \*\* Significant at 5%; \*Significant at 10%

---

Comparing with the result of 1<sup>st</sup> and 2<sup>nd</sup> regressions, there are some differences in the demographic and socio-economic factors that affecting the non-enrollment status of employed and self-employed people. Similarly to the two previous regressions, gender, age, marital status, economic status, health status are significant factors with the same sign and trend. Educational level variables are witnessed differences in the number of significant variables: 3 out of 4 variables have positive significant coefficients at p-value <5% and 95% CI. But the same trend that is the more educated the employed people are, the higher likelihood of never enroll they have is observed.

In terms of barriers, there are five significant reasons for not buying health insurance of employed people which are no money to buy, no sickness, complex procedure, inadequate health insurance benefit, poor attitude of health staff and switching type of health insurance.

Financial difficulty is also the most common reason of employed for not purchasing health insurance which accounts for more than 40% of the people choosing this barrier. This variable has negative significant coefficient with marginal effect of -0.157 at p-value <5% and 95% CI, meaning that if an employed people claim it as the reason, his probability of never enrolling decrease by 0.157, compared with used to enroll, holding other variables constant. It can be demonstrated finance having more impact on employed people who are used to enroll than employed people who never enroll.

No sickness is also the second common reason for workers with the negative coefficient and marginal effect of -0.051 at p-value <5% and 95% CI. It indicates that if employed people who state well-being as one of the reason for not buying health insurance, his probability of never enrolling decrease by 0.051. In other words, decision of dropping out of people in “used to enroll” group seems more affected by this reason than people in “never enroll” group.

Two barriers related to benefit of insurance and poor health staffs' attitude are the following significant reasons of not enrolling of employed people. "Inadequate benefit" or " Don't get benefits from insurance" seems to be more claimed by workers in "used to enroll" group than those in "never enroll" group. It is demonstrated from the negative sign of its coefficients with the marginal effect of -0.126 at p-value <5% and 95% CI. The same trend is recognized in the health staff's manner barrier with the negative coefficient and marginal effect of -0.153.

To employed group, switching type of health insurance seems to be an important reason. It has negative significant coefficient with very large marginal effect of -0.846, meaning that majority of workers who are used to enroll claimed it as the reason why they stopped buying health insurance.

#### 5.2.2.4 Barriers affecting non-enrollment of dependents in Bavi district

**Table 39: Estimated coefficients and marginal effects from binary logistic regression for non-enrollment of Dependents (Dependent variable: Dependents who never enrolls)**

Variables	Coef	Std.Err	P-value	[95% Conf.	Interval]	Marginal Effects
Male	0.117	0.189	0.536	-0.254	0.489	0.017
Married	0.090	0.172	0.598	-0.247	0.429	0.013
age2360	0.857	0.302	0.005***	0.263	1.451	0.149
age61	0.780	0.336	0.020**	0.121	1.439	0.138
quintile1	-0.181	0.266	0.496	-0.703	0.340	-0.029
quintile2	0.243	0.264	0.358	-0.275	0.761	0.036
quintile3	0.415	0.262	0.114	-0.099	0.930	0.059
quintile4	-0.045	0.248	0.856	-0.532	0.442	-0.007
Lessprimary	1.449	0.373	0.000***	0.717	2.182	0.271
Primary	1.717	0.384	0.000***	0.964	2.470	0.304
Secondary	1.306	0.329	0.000***	0.659	1.952	0.250
Highschool	1.301	0.360	0.000***	0.595	2.007	0.250
Badhealth	-0.538	0.356	0.131	-1.237	0.160	-0.077
Averagehealth	-0.398	0.306	0.194	-1.000	0.202	-0.055



Nomoneytobuy	-1.163	0.214	0.000***	-1.583	-0.744	-0.184
Nosick	-0.590	0.272	0.030**	-1.124	-0.056	-0.073
ComplexProcedure	-0.177	0.369	0.631	-0.900	0.546	-0.019
PoorQuality	1.549	1.061	0.144	-0.530	3.629	0.094
InadequateBenefit	-0.703	0.558	0.208	-1.798	0.391	-0.091
Poorattitude	0.104	1.130	0.926	-2.111	2.321	0.010
noHlinfo	-0.372	1.104	0.736	-2.537	1.792	-0.043
Nodesire	(omitted)					
SwitchHltype	-4.126	1.093	0.000***	-6.269	-1.984	-0.755
_cons	0.110	0.470	0.814	-0.811	1.031	

---

Total observation: 1,094

\*\*\* Significant at 1%; \*\* Significant at 5%; \*Significant at 10%

---

According to table 39, only age and educational level are significant to the non-enrollment status of dependents. These variables have the same sign and trend which is similar to these previous regressions.

Regarding to the barriers that prevent dependents from enrolling in health insurance, no money to buy, no sickness and switching type of health insurance are significant reasons.

“No money to buy” variable has negative significant coefficient with marginal effect of -0.184, meaning that if a dependent has no money to buy health insurance, his probability of never enrolling decrease by 0.184, compared with used to enroll, given other variables constant. It indicates that dependents belonging to “used to enroll” group are more affected by this reason than dependents that never enroll.

“Does not fall sick” or “Did not use health insurance last year” are also reasons for dependents for not buying health insurance. This variable has negative significant with marginal effect of -0.073, meaning that if a dependent feel too well-being to buy health insurance, his probability of never enrolling decrease by 0.073, compared with used to enroll, given other variables constant. It indicates that

dependents who used to enroll in the past is more affected by good health barrier than dependents that never enroll.

Switching type of health insurance is another barrier of dependents. It has negative significant coefficient with a large marginal effect of -0.755 at p-value <5% and 95% CI, meaning that if a dependent claims this reason, it is more likely that he belongs to the “used to enroll” group.

### **5.3 Discussion**

#### **5.3.1 Enrollment & Demographic & socio-economic factors**

##### **5.3.1.1 Enrollment and gender**

This study found out male are less likely to enrolling in voluntary health insurance, regardless of the occupations they have rather than female. This finding makes sense because in the insurance scheme, there are some benefit packages that are designed specifically for women such as antenatal care for pregnant women, delivery services, which makes health insurance more appealing to women than to men.

##### **5.3.1.2 Enrollment and age**

We found out that people belonging to the age group of 61 years old and above have tendency of enrolling in voluntary health insurance scheme rather than people in other age groups. This result is similar to the expected one. It seems that when being elder, people worry more about their health and decide to buy health insurance. When looking at closely at the data, among people who self-reported their health in bad condition, the people of age group 61 and above accounted for about 26%, which is much higher than the proportion of this group in the total population (7.63%). It is consistent with the finding in health status. It could be seen as a sign of adverse selection in voluntary health insurance scheme which needed more attention of government.

##### **5.3.1.3 Enrollment and educational level**

The study found out that the more educated the people are, the higher likelihood of purchasing voluntary health insurance of people is. This conclusion is demonstrated from the negative sign of all dummy variables of education, comparing with the omitted educational level – higher education. It is similar to what the author

expected. The impact of education on the enrollment of health insurance already proved in several papers (V. Q. Anh, 2006; Khan & Ahmed, 2013; Mohamed, 2012; Nguyen & Knowles, 2010) and is demonstrated again in this study. In order to increase the coverage of voluntary health insurance in the informal sector, together with the policies on the roadmap to universal health coverage, Ministry of Health should cooperate with local government such as Commune People's Council or professional associations like Women Organization and Farmer Associations to popularize the benefit of health insurance in order to enhance the awareness of people on this scheme.

#### **5.3.1.4 Enrollment and occupation**

In the first regression of the whole sample, farmer is a negative significant dummy variable in the occupation variables groups with p-value less than 5% and 95% CI which means that farmer are less likely to be insured by voluntary health insurance and is same as the expected result. Farmer is eligible for voluntary scheme and has to pay 100% of the premium. After student and pupil became subject of compulsory scheme, farmer is the next target group for universal health coverage. However, the coverage of this group is not quite high; there are only about 30% of farmers having insurance in 2010 (Table 5). The policies had some changes in premium payment that is if the whole farmer household enrolls in the scheme, the premium from the 2<sup>nd</sup> to 5<sup>th</sup> enrollee will be decreased by 10% respectively, from 6<sup>th</sup> enrollee onwards, the premium is 60%. However, even with these changes, this scheme seems not to be appealing to the farmers due to some drawbacks. First, it is not always that all members in a household working as farmers so it is difficult for them to get the higher percentage of subsidy. Secondly, because they are in the informal sector with unstable job, some of members are documented in household record but they don't live with the whole family due to their movable jobs. Because they need to register into health facilities in the areas where their households located, it is difficult for them to buy and use health insurance along with the household. Finally, even percentage of subsidy progress as the number of enrollee increases, the total amount of premium is still quite high for farmer households with lower middle income, hence they decide not to purchasing voluntary health

insurance for all but only for needed member. There are some points mentioned above for government and ministry of health to adjust with the purposes of expanding the coverage of health insurance on farmer

#### **5.3.1.5 Enrollment and quintile groups**

The study found out that the richer the people are, the higher likelihood of purchasing voluntary health insurance is. All dummy variables of economic status are negatively significant to the enrollment status, which is same as the expected results. It implies that when the economic status becomes better, people have more capacities to take care about their health which makes them want to enroll in health insurance scheme as a way of securing their well-being. It is easily seen that when poor people are in the struggle for living, they don't have both capacity and strength to take care of their health even they want to. Health insurance's objective is reducing the catastrophic risk of the poor due to medical expenses but it would make no good to them if they can't even afford for health insurance premium and become insured. Hence, subsidy for people who are in difficult condition should be taken into account. Currently, the poor and the single elderly people are subjects of subsidized health insurance premium but other groups like the near-poor, the poor who have just escaped from poverty also need attention from government and society. Besides, government should attach importance on economic development policies such as microfinance, subsidies for farmers, professional education for dependents in order to improve their economic conditions.

#### **5.3.1.6 Enrollment and health status**

In the result shown in the table 32, dummy variables "bad" represented for bad health status is found out positively significant at p-value less than 5% and 95% CI compared with good health. It indicates that people with bad health are more likely to buy voluntary health insurance rather than other groups, which is consistent with the finding in the relationship between enrollment and age and similar to the expected result. This is another sign of adverse selection of people to health insurance scheme. It seems that they only buy health insurance when their health go bad and drop out later when getting better.

### 5.3.1.7 Comparison of marginal effect between occupations

Table 40: Marginal effects of economic variables from binary logistic regression for enrollment of each occupation

	Farmer	Employed & Self-employed workers	Dependents
1 <sup>st</sup> quintile	-0.080	-0.103	-0.114
2 <sup>nd</sup> quintile	-0.063	-0.075	-0.072
3 <sup>rd</sup> quintile	-0.053	-0.064	-0.051
4 <sup>th</sup> quintile	-0.035	-0.038	-0.018

As mentioned in the previous parts, economic variables were significant in three regressions of occupation and recognized the same increasing trend in the marginal effect. It indicated that the richer the people were, the more likely they enroll in voluntary health insurance, regardless of their occupation. In other words, it could be demonstrated that people under the poor and the poorest group had lower likelihood of purchasing voluntary health insurance in comparison with those under the richest group, regardless of their occupation. This conclusion was the same with that of the first regression on the enrollment of the whole sample of the study.

Farmer and employed & self-employed people share the same significant factors while dependents groups only has some dummy variables of economic status and educational level as significant determinants.

In terms of economic status, the marginal effect of 1<sup>st</sup> quintile variable of dependents is the highest among three occupation groups which means that if a dependent is in the poorest quintile group, he is less likely to buy health insurance rather than farmer and employed & self-employed people belonging to the same economic group. The marginal effect of 2<sup>nd</sup> quintile variable of employed & self-employed people rank the highest among three groups which means that if an employed people belonging to the poor group, he is less likely to enroll in voluntary health insurance compared with farmer and dependents of the same group. Due to 3<sup>rd</sup> and 4<sup>th</sup> quintile variables are not significant to dependents at p-value less than 5% and 95% CI, thus we could not find out the differences in probability of holding voluntary health insurance between dependents and other two groups. The marginal

effects of 3<sup>rd</sup> and 4<sup>th</sup> quintile variables of employed & self-employed people are larger than those of farmer, meaning that employed workers in the average and the rich group are less interested in being insured than farmer in the same group.

This finding gives information about the target group which is firstly needed to paid attention in each quintile group when allocating resources.

### **5.3.2 Non-enrollment and Demographic & socio-economic factors**

#### **5.3.2.1 Non-enrollment and gender**

The study found out that male are more likely to never enroll in health insurance in the past, which is consistent with the finding in the association between enrollment and gender about the higher likelihood of female than male in having voluntary health insurance. This result is also similar to the expected one.

#### **5.3.2.2 Non-enrollment and age**

Among people who don't currently enroll in health insurance, the study found out that people belonging to these two age groups: 23-60 and 61 above are more likely to never enroll in health insurance and the older the people are, the more likely they never buy health insurance. The sign of dummy variable of age group 61 and above is opposite with the expected one, which illustrate the specific situation of Bavi district. This finding supports the result of a study on health care utilization on Bavi district in 2012 in which people aged 66 and above having tendency of self-treatment rather than going to formal health services (Trang, 2012). This result is consistent with a study on Red river delta about voluntary health insurance in 2006 in which the people with age 41 and above having low coverage of health insurance than people who are younger (V. Q. Anh, 2006).

#### **5.3.2.3 Non-enrollment and marital status**

The study found out that among people who don't have health insurance, people who are married are more likely to never enroll in health insurance, compared with unmarried population. The author expected that married people are more likely to have health insurance before but the result is opposite. This finding is similar to a study on voluntary health insurance enrollment in 2006 in which the single group had higher probability of buying health insurance cards then other groups. According to the author, single people purchased health insurance more in

order to ensure their lives when they became older (V. Q. Anh, 2006). This finding can be explained by the habit of married people in Bavi district. In a study about health care utilization in Bavi district in 2012, the results showed that married people were more likely to use health care services at tertiary and secondary health hospitals (Trang, 2012). In this rural district, there is only 1 district hospital at grade-III as the highest health center which does not meet the demand for health care of this group. Thus, they decide not to enroll in health insurance but prefer direct payment when seeking care at higher level of health institutions.

#### **5.3.2.4 Non-enrollment and quintile groups**

The study found out that the poorer the people are, their higher likelihoods of used to enrolling are, among the non-enrolled people. This finding is interesting and opposite to the expect result. One possible explanation is that many people in the first quintile group may used to be eligible for subsidized health insurance premium for the poor – one of type of compulsory scheme. At the time the survey conducted, they may no longer be eligible for this type of health insurance anymore and being moved into voluntary groups which are not subsidized. Therefore, relying on the subsidy on health care for a long time, they feel uncomfortable in many ways, mainly financial aspect, to cover the cost themselves which makes them decided to not buy health insurance.

#### **5.3.2.5 Non-enrollment and educational level**

In the table 36, all four dummy variables have positive significant coefficients at p-value <5% and 95% CI with the marginal effects from lowest to highest educational level of 0.086; 0.072; 0.118 & 0.098, respectively. It indicates that among persons in Bavi district who currently don't have health insurance, people are more likely to never enroll in health insurance scheme, regardless of their educational background. This result is similar to what the author expected. With the higher marginal effects of the secondary and high school variables than those of the less than primary and primary variables, it seems that people with higher educational background (secondary and high school) have higher probability of never purchasing health insurance than the people with less than primary and primary level. This finding is consistent with the relationship between non-enrollment and economic

status which was demonstrated previously. In the previous paragraph, the study indicated that the richer the people are, the more likely of never enrolling in health insurance the people are. The positive association between educational level and property is being proved in several articles and we know that people with higher educational level are more likely to gain more wealth rather than people with lower level. In this paragraph, the study states that the people with higher educational background have tendency of never enrolling in health insurance which is similar to the finding with quintile groups.

#### **5.3.2.6 Non-enrollment and occupation**

Farmer has positive significant coefficient and marginal effect which means that if a person is a farmer, he is more likely to never enroll in health insurance. This result is same as the expected result and consistent with the negative relationships between occupation and enrollment from the regression of enrollment. It also can be explained that the majority of farmer population have secondary and high school background which accounted for about 85% of the farmer population.

#### **5.3.2.7 Non-enrollment and health status**

Both dummy variables of health status are negative significant, meaning that people with bad and average health condition are more likely to be used to enroll in health insurance in the past but drop out. It is natural that people with bad health buy health insurance as a method of insuring for their health and reducing the cost. This finding is consistent with the result of the regression on relationship between enrollment and demographic and socio-economic factors (Table 32) which raises the situation of adverse selection in the scheme.

### **5.3.3 Non-enrollment and Barriers**

#### **5.3.3.1 Non -enrollment and No money to buy**

According to the part of descriptive analysis in this chapter, financial barrier or “no money to buy” is the most common barrier in both “never enroll” and “used to enroll” group. In the regression, it has negative significant and marginal effect, meaning that most of people who coped with this barriers are belonged to the “used to enroll” group rather than “never enroll” group. This result is opposite to the expected one and can be explained by the previous findings about the



relationship between quintile groups and non-enrollment status: the poorer the people are, the more likely they used to have health insurance. And one possible explanation about this finding is that they used to be eligible for free health insurance card for the poor before but became ineligible at the time the survey conducted. Because of the fact that they are from the lowest quintile groups and their economic condition only slightly improved, they don't have capacity to pay for premium.

This is the main reason that being claimed in many papers on enrollment and barriers, especially by people in the informal sector. In this survey, most of them states that “they don't have money to buy” but did not blame for “expensive premium”. This can be implied in many different ways. First, it could be seen as a good sign of the voluntary scheme because the barrier is only from the people, not from the scheme itself. The current premium is reasonable but the coverage is low because the people's economic status is not quite good, thus the word will be handed to the other departments and ministries which are in charge of poverty alleviation and social development. However, in the bad scenery, they don't accused their non-enrollment on “expensive premium” due to they did not know about health insurance scheme. They did not know how much a voluntary health insurance costs them so they did not choose it as the reason. In this situation, qualitative studies are needed to be conducted to find out the underlying reason of the barrier.

#### **5.3.3.2 Non -enrollment and No sickness**

In this study, “does not fall sick” is the second common reason of people for not purchasing health insurance. The study also indicates that this barrier having more impact on people in “used to enroll” group than people in “never enroll” group, which is opposite to the expected result. Health is the main reason and plays a critical part in the decision of buying health insurance of people in Vietnam due to the high tendency of using private clinics and self-treatment rather than going to formal health services like health stations, hospitals (Trang, 2012). The stop in buying health insurance also can be explained by not using the health insurance service last year, which made them decide not to buy this year. It seems that people only

buying health insurance when they are seriously ill (Chinh, 2009; Mohamed, 2012). This finding points out the sign of adverse selection once again which is that people participate when being ill but stop and drop out when getting better.

#### **5.3.3.3 Non-enrollment and Complex procedure**

Complex procedure is another reason that prevents people from buying in health insurance. It seems to have more impact used to enroll group who were experienced the services for insured people, which is similar to the expected result. Procedures are complicated and very long in both health insurance and health care providers. It normally takes about at least 1 month and commonly 3 months to receive the health insurance card which is very long time for issuance. With the fact the people only buy health insurance when they are seriously ill, the characteristic of health insurance is very unattractive to the clients, which swing them away the scheme. In terms of health care providers, half a day is normal for the patients to wait to see the doctors every time they come to health facilities and the higher the level of the hospital is, the longer waiting time the patients have to spend, which discourages people to purchasing health insurance. Actually, only retired people who have a lot of time for waiting and chronic diseases are interested in health insurance scheme. Working people often seek care in private clinic or services for out-of-pocket payment, especially in case of acute illness.

#### **5.3.3.4 Non-enrollment and Poor quality**

Poor quality is another reason preventing them from participating in health insurance. It is interesting that this reason is stated mostly by people in “never enroll” group rather than those in the “used to enroll” group, which is opposite to the expected one and raise a question about the perception of people on services of health insurance. People who never enroll in health insurance before can be inexperienced or experienced in different ways. In terms of inexperienced, it is true because they are never insured before to use the health insurance services and make judgments on its quality. Their opinions on quality of care for insured people can be obtained from other people’s experiences, which discourage them to purchase health insurance. In the case of they are experienced, it can be explained that these people came to use services on their own expenses at health facilities

before and observed the differences in quality of services between health insurance and out-of-pocket payment. Even in the 1<sup>st</sup> or the 2<sup>nd</sup> case, the fact about the quality of health insurance services is true and need to be improved if the government wants to expand the coverage in time.

#### **5.3.3.5 Non-enrollment and Inadequate Insurance Benefit**

Health insurance benefit is following reasons that prevent people from enrolling in health insurance and this barrier affected more on the people who used to enroll than those that never enroll, which is similar to the expected result. This reason is adequate, especially for people in the informal sector with 100% premium payment because health insurance scheme in Vietnam shares the same features and benefits, regardless of compulsory or voluntary. Thus, people who are eligible for voluntary health insurance need to pay 100% of premium but receive the same benefits on services, compared with other subsidized groups and that is one of the reasons why they don't feel appealing to health insurance.

In terms of health insurance objective of financial protection, it seems that health insurance brings less benefit to insured people, especially to the poor. In Vietnam, hospitals enjoy great autonomy and there is normal for every hospital to have two sections: insurance and fee-for-services, which creates their self-interest in fee-for-services rather than the insurance section. It is the origin of the supplier-induced demand which happens in several hospitals and the inequity in quality of care and attitude of health staffs between two sections. Noticeably, insured people are often recommended to use unnecessary services which are out of the insurance services in order to gain more profits (Matsushima, 2013). Due to this fact, even a patient is insured, he still have large amount of medical expenses and the objective of financial protection is not fulfilled.

#### **5.3.3.6 Enrollment and Poor Attitude of Health Staff**

Being unsatisfied with the attitude of health staffs to insured people, compared with uninsured people is another reason that makes people decide not to participating in health insurance. This reason is more claimed by people who used to enroll than people that never enroll, which was expected by the author. In terms of quality, patient-centered is one of the dimensions and it is required treating patients

with respect and compassion. Once the patients have bad feedback on the attitude of health staffs, it is related to the quality of health care in general. This finding was discovered in some papers (R. Basaza et al., 2008; De Allegri et al., 2006; MOH, 2010) and this situation is being reported many years which require more efforts from government and ministry of health.

Underhanded payment of patients for health staffs in order to get quick and effective treatment is derived from this reason as well. As mentioned above, financial incentives have a deep association with the inequity of quality and benefit. Hence, in terms of poor attitude, it can also be solved by finance. Due to this “bad tradition”, the poor, who are the target of financial protection of health insurance, are the one who suffer the most. Therefore, even they are insured, the treatment they receive is different with other people in the same group and uninsured people, which discourages them to buy health insurance. According to Trang. N.N. M in her study about health care utilization in Bavi district, the poor are more likely to treat themselves at home rather than seek care at health facilities.

#### **5.3.3.7 Enrollment and Switching type of Health Insurance**

The barriers “Switching type of health insurance” is negatively significant with quite large marginal effect which means that it is one of the reason of dropping out of the insurance scheme of people. Switching type of health insurance implies the people who were moved from compulsory to voluntary scheme. From being subsidized by government (the poor) or co-paid by employer (employees), they have to pay 100% of premium by themselves. This sudden change might make people feel uncomfortable and decide not to buy health insurance. Another explanation for the poor specially is that they don't know about voluntary scheme. They were selected by the local people commune for being eligible and given the health insurance card for free without any attempts and awareness of the scheme. One they were not eligible anymore together with their ignorance about health insurance scheme; they chose to accept the change and live with it rather than find other substitutions.

### 5.3.3.8 Comparison of marginal effect between occupations

According to table 41, there are 6 negatively significant barriers and 1 positively significant one (whole population). The barrier “poor quality” is significant in the first regression of the whole population only, hence we could not find out the differences in the impact of this barrier on each group. With these negative barriers, they indicate that they had more impact on the “used to enroll” group in the decision of dropping out of the health insurance scheme rather than on the “never enroll” group in the decision of enrollment, thus we compare their marginal effects with one another to find out the different impact of each barrier on each groups.

**Table 41: Marginal effects of barriers from binary logistic regression for enrollment of each occupation**

	Whole population	Farmer	Employed & Self- employed workers	Dependents
No money to buy	-0.156***	-0.153***	-0.157***	-0.184***
No sickness	-0.046***	-0.038***	-0.051***	-0.073**
Complex Procedure	-0.077***	-0.064***	-0.100***	-0.019
Poor quality	0.0289**	0.019	0.0350	0.094
Inadequate Insurance benefit	-0.120***	-0.122***	-0.126***	-0.091
Poor attitude of health staffs	-0.134***	-0.149***	-0.153***	0.010
Switching type of Health insurance	0.0193***	omitted	-0.846***	-0.755***

“No money to buy” is the first ranking barrier of the whole population, following by “poor attitude of health staff” and “inadequate insurance benefit” as the 2<sup>nd</sup> and the 3<sup>rd</sup> most common reason for not buying health insurance. Complex procedure and No sickness turns in the fourth and fifth reason that has influence on the decision of buying health insurance or not. In the result of the regression of the whole population, switching type of health insurance had the least influence. All barriers have more influence on “used to enroll” than “never enroll” people.

When considering each occupation group, we found that the impacts of each barrier to each group are different by comparing the marginal effects of each barrier with one another.

Firstly, in the farmer group, the financial difficulty ranks first in affecting the decision of enrolling in health insurance. The second barrier is the attitude of health staff, following with the third reason of inadequate benefit of insurance. Complex procedure became the fourth barrier and no sickness has the least impact on the enrollment decision of farmer. All five barriers have more effect on the farmers in “used to enroll” group than “never enroll” group.

In terms of employed and self-employed people, there are 6 barriers with the first affected barrier is switching type of health insurance. The second reason that most of employed people claimed is “no money to buy”, following with the third barrier of poor health staffs’ attitude. The fourth barrier is inadequate benefit of insurance. The two last barriers are complex procedure and no sickness. All 6 barriers have more effect on employed people who used to enroll than those that never enroll.

The dependents group has only 3 barriers with the order from highest impact to lowest impact are: switching in type of health insurance, no money to buy and no sickness.

#### **5.3.4 Limitations**

The study tried to discover the relationship between the enrollment status and demographic & socio-economic factors as well as the barriers of non-enrollment and its different impacts on two groups of people: never enroll and used to enroll. We used the secondary data from two projects: Indepth Universal Health Insurance and Epidemiological Field Laboratory of Bavi. Thus, it is impossible to avoid limitation.

Firstly, the project is for one year only which means that there is no dataset of the change in enrollment status of people. We only have access to the change in enrollment of people who are not enrolling in health insurance (never enroll or used to enroll) but we don’t have the data of change in enrollment of people who have

insurance at the time the survey conducted (firstly enroll or continual enroll). Therefore, the barriers of enrollment of each group are not fully analyzed.

Perception and awareness of people on health insurance scheme are very important and play vital role in their decision of purchasing health insurance or not. However, this information is not included in the questionnaire, thus the study could not assess the relationship between them and the enrollment decision. The information about perception and awareness is also a measurement of the effectiveness of policies in terms of both coverage expansion and quality improvement, thus the results of this study only represent partially the current situation of the policy enforcement and barriers of people on enrollment.

The dataset involved the self-reported health status only but did not either record the exact diseases that people had or the severity of the disease. Hence, this study could not analyze the impact of different types of diseases on the decision of buying health insurance.

The study used the dataset taken from one rural district in the North of Vietnam, even the findings could be used as evidence for policy makers in doing policy adjustment, it could not be generalized for the whole country but only part of situation in the North of Vietnam.

This study is cross-sectional quantitative study which explores barriers of not buying health insurance of people with different demographic and socio-economic status. However, in order to capture the complete picture about the problems that health insurance scheme are coping with, besides pointing out the barriers, it is needed to discover the underlying of each barrier. Therefore, further qualitative studies on the barriers of not participating in health insurance scheme of people in informal sector needed to be conducted.

About the barrier analysis, at first factor analysis was done in order to reduce the number of barriers by grouping the barriers that are similar and correlated with one another. However, after trying to conduct this on Stata, it turned out that the data is unacceptable for using factor analysis. Thus, the study used ad hoc method to reduce the original 18 barriers from three categories of personal, health insurance and health care provider into 9 barriers.

## CHAPTER 6

### CONCLUSION & RECOMMENDATIONS

#### 6.1 Conclusion

The study aims at describing the trend of voluntary health insurance and identifying the demographic and socio-economic factors and barriers that had significant impacts on the enrollment in the scheme of people in the informal sector in Bavi district in 2012. The study also concerns about the different impacts of the barriers on the two different non-enrollment groups (never enroll and used to enroll). The methods used in the study were descriptive analysis and binary logistic regression.

The study results shows that the statistic significant determinants related to the enrollment of voluntary health insurance scheme of people under the survey by following: gender, age, educational level, economic status, health status and occupation were significant to the enrollment of voluntary health insurance of people under the survey. In the study, female, elderly people (people aged 61 and above) and people with bad health condition were found to be more interested in the participation in the voluntary scheme while the voluntary scheme seems to be less appealing to the poor, farmer and people with little educational level in comparison with the others of the same variable groups. When considering the factors affecting the enrollment of each occupation groups, it turns out that farmer and employed people shared the same factors with the whole population while what most concern the dependents were economic status and education. The standout common factor about the three occupation groups is economic status: people belonging to the poorest group were found out to have lowest likelihood of buying voluntary health insurance.

In terms of barriers, the most common barrier that prevents people from purchasing health insurance are “no money to buy”, following by “no sickness” and “complex procedure” as the second and the third barriers which are claimed by people. The other common barriers that have influence on the decision of enrolling in health insurance were: poor quality of care, inadequate insurance benefit, poor



attitude of health staffs. The study also concerns about the specific barriers of different study groups. “No desire for health insurance” and “No information about health insurance” are more claimed by people who never enroll in the past while “Switching type of health insurance” is being blamed for non-enrollment status by a quite large percentage of people who used to enroll. When considering the impacts of these barriers on the two different non-enrollment groups, the results seem to be interesting. The financial difficulties is the main barrier to the whole population and has more impact on the “used to enroll” group while “poor quality of care” is the reason that was mostly claimed by the “never enroll” group. Farmers share the same order of barriers in the impact level on the decision of enrollment while employed and dependent people choose “switching in type of health insurance” as their most influenced reason of their non-enrollment status.

With these findings, the study raises some problems about the current situation of voluntary health insurance in particular and the national health insurance scheme in general.

The first standout problem is the adverse selection, which is noticed by the impact of many positively significant determinants on the decision of enrollment like age (elderly people, health status (people with bad health) and the barrier “no sickness”. It seems that people are interested in buying health insurance when being sick and drop out later when getting better. Adverse selection is a problem which is needed to be considered because it is directly associated with the financial sustainability of health insurance fund. Currently, due to the focus on the expanding coverage of health insurance; the current low coverage of people in some target group, especially people in the informal sector and the major objectives of health insurance of financial protection; national health insurance does not conduct screening on the clients of health insurance. However, protection should be provided for the needed groups like the poor, the near-poor, vulnerable groups with financial difficulties but not for the people who have enough capacity but want to be beneficiary from the scheme.

Secondly, the results imply the health insurance scheme has several problems itself in terms of quality of services and procedures. Besides the financial difficulty, the other barriers that mostly claimed by people who had experienced with health insurance are related to the quality of health care for insured people like poor attitude of health staff, complex procedure. These issues can be demonstrated as follows. Hospitals in Vietnam enjoy great autonomy which creates their self-interest in fee-for-service section than insurance section and it is one of the reasons for the inequity of care between two sections and of the health staff's manners.

Thirdly, the benefit package of health insurance is another issue which is needed more attention from policy makers. People in the survey claims inadequate insurance benefit as the third reason for not buying health insurance. It indicates the doubt of people in the informal sector on the visible benefit brought in by health insurance like financial protection, health improvement as well as the dissatisfaction with the inequity of services and financial benefit between different target groups. As mentioned above about the hospital's self-interest in fee-for-services, it also makes hospitals apply supply-induced-demand for patients which increase their medical expenses. Noticeably, insured people are often recommended to use unnecessary services which are out of the insurance services in order to gain more profits (Matsushima, 2013). Due to this fact, even a patient is insured, he still have large amount of medical expenses and the objective of financial protection is not fulfilled.

The last but not least issue of health insurance is the perception of people which plays important part in their decision of purchasing health insurance. Even this study does not include the data about perception in the questionnaires; we could see the sign of bad perception about health insurance scheme within the findings of the research. It is noticed that people who are inexperienced with health insurance mostly claims "poor quality of care" as the main reason for their non-enrollment status while other specific barriers related to quality like poor attitude of health staff, complex procedure and inadequate insurance benefit have less impact on them. This problem is very critical to the goal of expanding the coverage of voluntary health insurance on the people in the informal sector. It suggests either their lack of information about health insurance or the popularity of the informal information

about this scheme (mouth-to-mouth conversation) instead of official information. It also illustrates the bad reputation of health care services for insured people which is partial true in some ways. Hence, more efforts of government should be done in order to mitigate the situation so that health insurance scheme can approach to the people.

## 6.2 Recommendations

Based on the findings of the study, I would like to suggest some recommendations in order to improve the health insurance scheme in terms of information availability, quality, benefit package and adverse selection with the purposes of bringing in a more approachable scheme for people in the informal sector:

- Provide necessary information about health insurance principles, rights and benefits to the people and regularly update the changes in policies to the population. Organize workshops or discussions about health insurance where people can share official information as well as the actual experiences they have with one another in order to improve the awareness and understanding of people in the community.
- Improve the quality of care for insured people at the commune stations (the regular level of registered insurance services providers in the rural) in terms of expanding the list of eligible drugs for insurance, allocating higher qualified health staff (doctors, physicians) and health equipment and tools, allocating more funds for building infrastructure.
- Give training on attitude and manners to health staffs and strictly monitor their behaviors during work. Together with training, adjust the payment mechanism for the health staff which is related to the outcome and satisfaction of patient in order to encourage them to treat patients with respect and compassion. It could be defined as a bonus besides salary.
- Set up a proper payment mechanism between health insurance system and health care provider in consulting and treatment facilities to enhance the medical service quality and equity.

- Further studies with the patterns of diseases and the severity of diseases needed to be conducted to contribute more evidences about adverse selection.

Further studies with the full range of enrollment status are needed to be conducted to fully assess the barriers and their impacts on people of different enrollment status groups.



## REFERENCES

- Abel-Smith, B. (1992). Health insurance in developing countries: lessons from experience. Health policy and planning, 7(3), 215-226.
- Alkenbrack, S., Jacobs, B., & Lindelow, M. (2013). Achieving universal health coverage through voluntary insurance: what can we learn from the experience of Lao PDR? BMC health services research, 13, 521. doi: 10.1186/1472-6963-13-521
- Anh, H.D. (2011). Social Health Insurance as a means to achieving universal coverage and more equitable health outcomes In Unicef (Ed.). Hanoi: Unicef.
- Anh, V.Q. (2006). The determinants affecting the enrollment of voluntary health insurance scheme in Red River Delta Region in Vietnam. (Master), Chulalongkorn University, Bangkok, Thailand.
- Asenso-Okyere, W. K., Osei-Akoto, I., Anum, A., & Appiah, E. N. (1997). Willingness to pay for health insurance in a developing economy. A pilot study of the informal sector of Ghana using contingent valuation. Health policy, 42(3), 223-237.
- Asgary, A., Willis, K., Taghvaei, A. A., & Rafeian, M. (2004). Estimating rural households' willingness to pay for health insurance. The European journal of health economics : HEPAC : health economics in prevention and care, 5(3), 209-215. doi: 10.1007/s10198-004-0233-6
- Barnighausen, T., Liu, Y., Zhang, X., & Sauerborn, R. (2007). Willingness to pay for social health insurance among informal sector workers in Wuhan, China: a contingent valuation study. BMC health services research, 7, 114. doi: 10.1186/1472-6963-7-114
- Basaza, R., Criel, B., & Van der Stuyft, P. (2008). Community health insurance in Uganda: why does enrolment remain low? A view from beneath. Health policy, 87(2), 172-184. doi: 10.1016/j.healthpol.2007.12.008
- Basaza, R. K., O'Connell, T. S., & Chapcakova, I. (2013). Players and processes behind the national health insurance scheme: a case study of Uganda. BMC health services research, 13, 357. doi: 10.1186/1472-6963-13-357
- Carrin, G., Waelkens, M. P., & Criel, B. (2005). Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems. Tropical medicine & international health : TM & IH, 10(8), 799-811. doi: 10.1111/j.1365-3156.2005.01455.x
- Chinh, D.V. . (2009). Assessing health care utilization of people with health insurance in Lam Dong province in 2009. Hanoi: Ministry of Health.

- Chuc, N. T., & Diwan, V. (2003). FilaBavi, a demographic surveillance site, an epidemiological field laboratory in Vietnam. Scandinavian journal of public health. Supplement, 62, 3-7.
- Davies, P., & Carrin, G. (2001). Risk-pooling--necessary but not sufficient? Bulletin of the World Health Organization, 79(7), 587.
- De Allegri, M., Sanon, M., & Sauerborn, R. (2006). "To enrol or not to enrol?": A qualitative investigation of demand for health insurance in rural West Africa. Social science & medicine, 62(6), 1520-1527. doi: 10.1016/j.socscimed.2005.07.036
- Dror, D. M., Radermacher, R., & Koren, R. (2007). Willingness to pay for health insurance among rural and poor persons: field evidence from seven micro health insurance units in India. Health policy, 82(1), 12-27. doi: 10.1016/j.healthpol.2006.07.011
- GSO. (2005). Statistic Yearbook 2005 (ed.). Hanoi: Statistical Publishing House.
- GSO. (2008). Health Statistics Yearbook 2008 (ed.). Hanoi: Ministry of Health.
- GSO. (2010). Statistics Yearbook 2010 (ed.). Hanoi: Statistical Publishing House.
- GSO. (2012a). National Labour Report 2012. In G. S. Office (Ed.), *National Labour Report*. Hanoi.
- GSO. (2012b). Statistics Yearbook 2012 (ed.). Hanoi: Statistical Publishing House.
- Holmer, M. (1984). Tax policy and the demand for health insurance. Journal of health economics, 3(3), 203-221.
- Huong, D.L. (2006). Mortality in transitional Vietnam (Master), Umea University Umea.
- Kempe, A., Beaty, B. L., Crane, L. A., Stokstad, J., Barrow, J., Belman, S., & Steiner, J. F. (2005). Changes in access, utilization, and quality of care after enrollment into a state child health insurance plan. Pediatrics, 115(2), 364-371. doi: 10.1542/peds.2004-0475
- Khan, J. A., & Ahmed, S. (2013). Impact of educational intervention on willingness-to-pay for health insurance: A study of informal sector workers in urban Bangladesh. Health economics review, 3(1), 12. doi: 10.1186/2191-1991-3-12
- Krueger, A. B., & Kuziemko, I. (2013). The demand for health insurance among uninsured Americans: results of a survey experiment and implications for policy. Journal of health economics, 32(5), 780-793. doi: 10.1016/j.jhealeco.2012.09.005
- Liu, X., Tang, S., Yu, B., Phuong, N. K., Yan, F., Thien, D. D., & Tolhurst, R. (2012). Can rural health insurance improve equity in health care utilization? A comparison between China and Vietnam. International journal for equity in health, 11, 10. doi: 10.1186/1475-9276-11-10
- Lofgren, C., Thanh, N. X., Chuc, N. T., Emmelin, A., & Lindholm, L. (2008). People's willingness to pay for health insurance in rural Vietnam. Cost effectiveness and resource allocation : C/E, 6, 16. doi: 10.1186/1478-7547-6-16

- Long, G.T. (2011). Reaching a universal health insurance in Vietnam: Challenges and the role of government. Asia - Pacific Development Journal, Vol. 18, No. 1(August 2011).
- Marquis, M. S., Buntin, M. B., Escarce, J. J., Kapur, K., & Yegian, J. M. (2004). Subsidies and the demand for individual health insurance in California. Health services research, 39(5), 1547-1570. doi: 10.1111/j.1475-6773.2004.00303.x
- Mathauer, I., Schmidt, J. O., & Wenyaa, M. (2008). Extending social health insurance to the informal sector in Kenya. An assessment of factors affecting demand. The International journal of health planning and management, 23(1), 51-68. doi: 10.1002/hpm.914
- Matsushima, M and Yamada, H. (2013). Public Health Insurance in Vietnam towards Universal Coverage: Identifying the challenges, issues, and problems in its design and organizational practices. OSIPP Discussion Paper(DP-2013-E-003).
- Minh, H.V.; Phuong, N.T.K.P. and Saksena, P. (2012). Assessment of Financial Protection in Vietnam Health System: Analyses of Vietnam living standard survey data 2002 - 2010 Hanoi: Hanoi Medical University, World Health Organization
- MOH. (2010). Report on the universal coverage scheme. Hanoi: Ministry of Health
- MOH. (2011). National Health Accounts 1998-2010 (ed.). Hanoi: Statisctical Publishing House.
- Mohamed, M.A.E.S. (2012). Potential determinants of the desire to enroll in the National Health Insurance Fund among families in the informal sector in the Northern State of Sudan (Master), Chulalongkorn University, Bangkok, Thailand.
- Monheit, A. C., & Vistnes, J. P. (2005). The demand for dependent health insurance: how important is the cost of family coverage? Journal of health economics, 24(6), 1108-1131. doi: 10.1016/j.jhealeco.2005.04.005
- Moreno-Serra, R., & Smith, P. C. (2012). Does progress towards universal health coverage improve population health? Lancet, 380(9845), 917-923. doi: 10.1016/S0140-6736(12)61039-3
- Nguyen, H., & Knowles, J. (2010). Demand for voluntary health insurance in developing countries: the case of Vietnam's school-age children and adolescent student health insurance program. Social science & medicine, 71(12), 2074-2082. doi: 10.1016/j.socscimed.2010.09.033
- Oanh, T.T.M. (2010). Health care for the poor in 5 mountainous provinces in the North and Central Highlands. Hanoi: MOH.
- Odeyemi, I. A., & Nixon, J. (2013). The role and uptake of private health insurance in different health care systems: are there lessons for developing countries?

- ClinicoEconomics and outcomes research : CEOR, 5, 109-118. doi: 10.2147/CEOR.S40386
- Panda, P., Chakraborty, A., Dror, D. M., & Bedi, A. S. (2013). Enrolment in community-based health insurance schemes in rural Bihar and Uttar Pradesh, India. Health policy and planning. doi: 10.1093/heapol/czt077
- Parente, S. T., Evans, W. N., Schoenman, J. A., & Finch, M. D. (2005). Health care use and expenditures of Medicare HMO disenrollees. Health care financing review, 26(3), 31-43.
- Ramirez, M., Chang, D. C., Rogers, S. O., Yu, P. T., Easterlin, M., Coimbra, R., & Kobayashi, L. (2013). Can universal coverage eliminate health disparities? Reversal of disparate injury outcomes in elderly insured minorities. The Journal of surgical research, 182(2), 264-269. doi: 10.1016/j.jss.2012.01.032
- Russel, S. and Abdella, K. (2002). Too poor to be sick: Coping with the costs of illness in East Hararghe, Ethiopia. In S. t. children (Ed.).
- Russell, S. (2005). Illuminating cases: understanding the economic burden of illness through case study household research. Health policy and planning, 20(5), 277-289. doi: 10.1093/heapol/czi035
- Rutstein, S.Q. and Johnson, K. (2004). DHS comparative reports 6: The DHS Wealth Index. In O. M. Calverton (Ed.), *DHS comparative reports*. Maryland, USA.
- Shafie, A. A., & Hassali, M. A. (2013). Willingness to pay for voluntary community-based health insurance: findings from an exploratory study in the state of Penang, Malaysia. Social science & medicine, 96, 272-276. doi: 10.1016/j.socscimed.2013.02.045
- Shone, L. P., Dick, A. W., Klein, J. D., Zwanziger, J., & Szilagyi, P. G. (2005). Reduction in racial and ethnic disparities after enrollment in the State Children's Health Insurance Program. Pediatrics, 115(6), e697-705. doi: 10.1542/peds.2004-1726
- Sparrow, R., Suryahadi, A., & Widyanti, W. (2013). Social health insurance for the poor: targeting and impact of Indonesia's Askeskin programme. Social science & medicine, 96, 264-271. doi: 10.1016/j.socscimed.2012.09.043
- Thoa, N.T.M. (2011). Health care utilization and economic growth of households in Ba Vi, Vietnam. (Master), Umea University, Umea, Sweden.
- Thuy, N.T. Human Resource for Health in Vietnam and mobilization of medical doctors to commune health centers. Hanoi: Ministry of Health.
- Tien, T.V.; Phuong, H.T.; Mathauer, I and Phuong, N.T.K. (2011). A health financing review of Vietnam with a focus on social health insurance. Hanoi: World Health Organization.
- Trang, N.N.M. (2012). Differences in Health care utilization in Bavi District, Vietnam, 2002 - 2011. (Master), Chulalongkorn University, Bangkok, Thailand.



- Veugelers, P. J., & Yip, A. M. (2003). Socioeconomic disparities in health care use: Does universal coverage reduce inequalities in health? Journal of epidemiology and community health, 57(6), 424-428.
- Vietnam Health System on the threshold of 5 year plan 2011- 2015. (2010). In JAHR (Ed.), *JAHR*. Hanoi: Department of Planning and Finance, Ministry of Health.
- Wagstaff.A. (2007). Health Insurance for the Poor: Initial Impacts of Vietnam's Health Care Fund for the Poor Impact Evaluation Series, No.11.
- World Bank. (2014). Retrieved 20 March 2014, from World Bank
- Xu, K., Evans, D. B., Kawabata, K., Zeramdini, R., Klavus, J., & Murray, C. J. (2003). Household catastrophic health expenditure: a multicountry analysis. Lancet, 362(9378), 111-117. doi: 10.1016/S0140-6736(03)13861-5
- Ying, X. H., Hu, T. W., Ren, J., Chen, W., Xu, K., & Huang, J. H. (2007). Demand for private health insurance in Chinese urban areas. Health economics, 16(10), 1041-1050. doi: 10.1002/hec.1206



APPENDIX

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

## VITA

Name : Ms. Le My Lan

Date of birth : 07/03/1990

Place of birth : Hanoi, Vietnam

Nationality : Vietnam

Education : Bachelor, graduated in 2012

Faculty of English,  
Academy of Finance  
Hanoi, Vietnam

Working experience:

2012 - 2013 : Project Secretary

DOTARV project

Hanoi Medical University, Hanoi, Vietnam

Permanent address : No 1 Lane 144 Bach Dang St, Hoan Kiem Dist.

Hanoi, Vietnam

Email: lan.lemy@yahoo.com