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PRIVATE HEALTH INSURANCE IN MALAYSIA: MARKET DEMAND, ADVERSE SELECTION AND MORAL HAZARD

BY

AISHA ELALIM RAMADAN

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ABSTRACT

Health contributes to the growth and wellbeing of human capital and thus to the development of nations. The demand for healthcare has led to continued increases in healthcare costs which are projected to increase further. Various factors contribute to healthcare spending including, among others, changes in disease patterns, wealth or GDP growth, lifestyle, technology, and an ageing population. Despite the numerous efforts and commitments made by the Malaysian government, the healthcare costs continue to increase over the years. The continuous increase of out-of-pocket expenditures on healthcare remains a challenge for Malaysians in the presence of a dual nature healthcare system. Besides its main objective of promoting health, private health insurance (PHI) helps in mitigating the financial loss caused if healthcare is needed. Despite its advantage, the penetration of private health insurance is low in Malaysia. This study aims to examine the impact of selected socioeconomic, demographic, health, health-related characteristics on the demand for private health insurance in Malaysia. In addition, the study aims to investigate how private health insurance affects the demand for healthcare utilization in Malaysia. Healthcare utilization is measured using the number of hospital admission and the number of days stayed at the hospital. To fulfill the objectives, the study aims to identify the existence of two situations of inefficiencies in the insurance market, namely; adverse selection and moral hazard. Adverse selection occurs when consumers opt to purchase health insurance based on their expected future healthcare needs. On the other hand, moral hazard is a situation when consumers over utilize healthcare services when they are insured. A national representative cross-sectional data, NHMS 2011 is used for the cross sectional analysis of the demand for private health insurance and healthcare utilization. In the first part of the econometric analysis, a Probit model is adopted to study the demand for private health insurance. Variables reflecting an individual's risk behaviour towards their health such as smoking, Body Mass Index, the number of days of vigorous activities performed in a week and self-assessed health are used to test for adverse selection. In the second part, two scenarios are considered; exogeneity and endogeneity of private health insurance. First, a negative binomial is used to study the effect of private health insurance on the demand for hospital admissions and the number of nights stayed at the hospital when exogeneity is assumed. Second, the endogeneity of private health insurance is addressed using GMM estimation technique. Moral hazard is examined by looking at the association between private health insurance and the healthcare services in the study. Nine interaction terms between health insurance and illnesses are generated to assist in studying the moral hazard effect. Findings reveal that the demand for private health insurance is well determined by age, household size and location. Evidence of adverse selection is found in the demand for private health insurance. Age, gender and education are found to have strong influence on the demand for hospital admission and hospital stay. Chinese are found to stay fewer days in the hospital when admitted compared to Malays. Evidence of moral hazard is found for privately insured individuals. The study could provide insights for policy makers to accommodate the challenges facing the system in terms of accessibility, efficiency and quality of healthcare delivery especially with the impending aspirations of the National Health Insurance Scheme (NHIS) to introduce in the country.

ملخّص البحث

تساهم الصحة في تنمية ورفاهية القوى البشرية العاملة وبالتالي تقود إلى تقدم الدول، إلا أن تزايد الطلب على الرِّعاية الصحية قد أدى إلى الزِيادة المطردة في تكلفتها، ويتوقع استمرار هذه الزيادة في المستقبل، لعدة عوامل منها: التَّحول في نَمَط الأمراض و الثروة أو الناتج المحلي الإجمالي و نمط الحياة و التِّكنواوجيا والشَّيخُوخة، وعلى الرُّغم مِن الجهُود والالتزامات مِن قبل الحكومة الماليزية فإنّ تكلفة الرِّعاية الصّحيّة في ماليزيا مازالت في زيادة مستمرة، وبالتّالي فقد أصبح توفير الرّعاية الصحيّة يمثل تحديا كبيرًا للمواطن الماليزي حيث يتطلب توفير الرِّعاية الصّحية المناسبة زيادةَ إنفاق الفرد على الخدمات الصّحيّة خاصة في ظل وجود نظام مزدوج للرّعاية الصحيّة. من هنا تتجلى أهمية التأمين الصحي و الذي يساهم في زيادة المستوى العام للصحة، و تخفيف العبء المالي للحصول على الرعاية الصحية المناسبة، وعلى الرغم من هذه الأهمية للتأمين الصحي الخاص فإنَّ مستوى الوعي به مازالَ ضعيفًا، ولذا هدفت هذه الدراسة لاختبار بعض العوامل الاقتصادية والاجتماعية والديموغرافية والصحية والعوامل الأخرى المرتبطة بالصحة وانعكاساتها على الطلب على التأمين الصحي الخاص في ماليزيا، بالإضافة إلى ذلك هدفت هذه الدراسة للبحث في كيفية تأثير التأمين الطبي الخاص على الرعاية الصحية والتي تم قياسها بعدد مرات دخول المستشفى ومدة الإقامة فيها، وكذلك حددت هذه الدراسة بعض حالات عدم الكفاءة في سوق التأمين الصحي مثل الاختيار العكسي والخطر الأخلاقي (adverse selection and moral hazard) حيث يتم الاختيار العكسي عندما يشتري المستهلك التأمين الصحي الخاص استناداً على توقعاته بحجم الرعاية الصحية التي قد يحتاجها في المستقبل، أما الخطر الأخلاقي فيتم عندما يتلقى الشخص خدمات صحية تفوق احتياجاته من الرعاية الصحية في وجود التأمين الصحي الخاص، واعتمدت هذه الدراسة على بيانات مقطعية تم تجميعها من وزارة الصحة الماليزية لتحليل الطلب على التأمين الصحي والرعاية الصحية. المتغيرات التي تم اختيارها لدراسة الاختيار العكسي هي مؤشرات كتلة الجسم، عدد الأيام التي يقوم بها الشخص بنشاط جسدي قوي في الأسبوع، تقدير الشخص لصحته العامة ومعدل التدخين (من الشيشة أو السجائر أو ماشابههما) في اليوم الواحد. عند تحليل الطلب على الرِّعاية الصِّحية تم التمييز بين حالتين احصائيتين، عندما يكون متغير التأمين الصِّحي الخاص خارجي المنشأ، وعندما يكون المتغير باطني النمو، حيث تم

تحليل الطلب على الرعاية الصحية بواسطة نموذج Negative binomial في حالة التَّأمين الصِّحي خارجي المنشأ، بينما استعان البحث بطريقة GMM في تحليل النموذج عندما يكون المتغير باطني النمو، ولفحص وجود الخطر الأخلاقي قامت الدراسة بتحليل أثر متغير التأمين الصِّحي الخاص على الرعاية الصحية، كما تم اختبار تسعة علاقات تفاعلية بين متغير التأمين الصحي الخاص وتسعة من الأمراض وأثرهم على الرعاية الصحية. لقد أظهرت الدراسة عدد من النتائج حيث وُجِدَ أنَّ السِّن و حجم الأسرة والمكان هي أكثر العوامل التي تؤثر على طلب التّأمين الصِّحي، وأن كلًا مِن السن و التعليم والجنس لهم تأثير ذو دلالة إحصائية على عدد مرات دخول المستشفى ومدة الإقامة فيها، حيث وُجِد أنَّ مدة إقامة الصينيين في المستشفى أقل من أولئك الملايو الأصل، كما تم إثبات وجود الخطر الأخلاقي بالنسبة للأشخاص الذين يمتلكون تأمينًا صحيًّا خاصًّا، ويمكن أن توفر هذه الدراسة رؤية واضحة بالنسبة لصناع السياسة لإستيعاب كل التحديات التي تواجه النظام الصحي للمجتمع من حيث إمكانية الوصول للرعاية الصحية المناسبة، وفعالية وجودة هذه الرعاية خصوصًا في الوقت الذي تسعى فيه الدولة لتطبيق نظام التأمين الصِّحي الوطني في البلاد.

APPROVAL PAGE

This dissertation of Aisha El Alim Ramadan has been approved by the following:

Selamah Abdullah Yusof
Supervisor

Jarita Duasa
Co-supervisor

Norma Saad
Co-supervisor

Noor Hazilah A Manaf
Co-supervisor

Ruzita Mohd Amin
Internal Examiner

Shamzaeffa Samsuddin
External Examiner

Norashidah Binti Mohamed Nor
External Examiner

El Fatih Abudllahi Abdelsalam
Chairman

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Aisha El Alim Ramadan

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TABLE OF CONTENTS

Abstract ii
Abstract in Arabic iii
Approval Page v
Declaration vii
Copyright..viii
Acknowledgments...ix
List of Tables xiii
List of Figures...xiv

CHAPTER ONE: INTRODUCTION 1
1.1 Introduction...1
1.2 Statement of Problem...10
1.3 Research Questions..13
1.4 Objectives...14
1.5 Contribution of the Study 14
1.6 Structure of the Thesis..15

CHAPTER TWO: AN OVERVIEW OF MALAYSIAN HEALTH, HEALTHCARE AND INSURANCE SYSTEM 17
2.1 Introduction...17
2.2 Health Status in Malaysia 17
2.3 Healthcare Financing in Malaysia 21
2.3.1 The Role of the Private Health Sector in Malaysia......................... 28
2.3.2 Development of Private Health Insurance in Malaysia 30
2.4 Regulating Malaysia's Private Healthcare Sector 32
2.5 Chapter Summary..35

CHAPTER THREE: LITERATURE REVIEW.. 37
3.1 Introduction...37
3.2 Nature of Private Health Insurance.. 37
3.3 Factors Related to Private Health Insurance.................................... 39
3.4 Asymmetric Information in Health Insurance Market...................... 55
3.4.1 Adverse Selection in Health Insurance.. 56
3.4.2 Moral Hazard in Health Insurance.. 64
3.5 Chapter Summary..77

CHAPTER FOUR: THEORETICAL FRAMEWORK................................... 79
4.1 Introduction...79
4.2 The Interrelation Between Health, Healthcare, And Health Insurance 79
4.3 Expected Utility Theory...80
4.3.1 The Theory of Adverse Selection 83
4.3.2 The Theory of Moral Hazard 85
4.4 Econometric Modelling...88
4.4.1 Demand for Health Insurance 88

4.4.2 Demand for Healthcare Utilization ... 89
4.4.2.1 Simultaneity and Selection Bias ... 91
4.5 Modelling the Demand For Private Health Insurance And Healthcare Utilization ... 92
4.5.1 Attitude Towards Risk ... 93
4.5.2 Demographic Factors ... 94
4.5.2.1 Gender ... 94
4.5.2.2 Age ... 94
4.5.2.3 Household Size ... 95
4.5.3 Social and Economic Factors ... 96
4.5.3.1 Income ... 96
4.5.3.2 Employment ... 96
4.5.3.3 Education ... 97
4.3.5.4 Marital Status ... 97
4.5.4 Health Status ... 98
4.6 Chapter Summary ... 98

CHAPTER FIVE: EMPIRICAL FRAMEWORK ... 100
5.1 Introduction ... 100
5.2 Methodology ... 101
5.2.1 Model Specification ... 101
5.2.2 The Importance of Instrumental Variables ... 103
5.2.3 Demand for Private Health Insurance ... 105
5.2.4 Demand for Healthcare Utilization ... 106
5.2.4.1 Exogeneity of Private Health Insurance ... 106
5.2.4.2 Endogeneity of Private Health Insurance ... 107
5.3 Moral Hazard Effect ... 110
5.4 Data ... 111
5.4.1 Data Background ... 111
5.4.1.1 Sample and Variables Selections ... 111
5.4.2 Dependent Variables ... 113
5.4.2.1 Insurance Status ... 113
5.4.2.2 Healthcare Utilization ... 113
5.4.3 Independent Variables ... 113
5.5 Chapter Summary ... 118

CHAPTER SIX: FINDINGS ... 119
6.1 Introduction ... 119
6.2 Descriptive Statistics ... 119
6.2.1 Frequency Distribution of Private Health Insurance by Selected Explanatory Variables ... 122
6.3 Demand for Private Health Insurance ... 123
6.4 Demand for Healthcare Utilization ... 129
6.4.1 Exogeneity of Private Health Insurance ... 129
6.4.2 Endogeneity of Private Health Insurance ... 131
6.4.3 Hospital Admissions ... 131
6.4.4 Hospital Stay ... 137
6.5 Chapter Summary ... 141

CHAPTER SEVEN: CONCLUSION ... 143

7.1 Introduction……………………………………………………………143
7.2 Research Findings………………………………………………………..143
7.2.1 First Objective 143
7.2.2 Second Objective 145
7.2.3 Third Objective 146
7.2.3.1 Demand for Hospital Admission…………………………..146
7.2.3.2 Demand for Hospital Stay………………………………....148
7.3 Policy Implications……………………………………………………149
7.3.1 Implication for Academia 149
7.3.2 Implication for Practice.. 150
7.3.3 Implication for Government and Policy Makers 150
7.4 Limitation of the Study………………………………………………..152
7.5 Future Research…………………………………………………………153
7.6 Chapter Summary………………………………………………………..153

BIBLOGRAPHY 155
APPENDICES 165
APPENDIX A 165
APPENDIX B 167

LIST OF TABLES

Table 1.1	Trend of Hospital Admission of Elderly People, Ministry of Health Hospitals, 2005-2008	3
Table 1.2	Trends in Health Out-of-Pocket Expenditures, 2000-2012	5
Table 1.3	Admissions in Healthcare Facilities, 2011	11
Table 2.1	10 Principal Causes of Death in Ministry of Health Hospitals, 2011	18
Table 2.2	10 Principal Causes of Hospitalization in Ministry of Health Hospitals, 2012	19
Table 2.3	Selected Financing Agent Measurements (Million RM)	24
Table 2.4	Total Health Expenditures by Sources of Financing, 2012	25
Table 2.5	Selected Ration Indicators for Expenditure on Health, 1997-2013	26
Table 2.6	Medical and Health Insurance Market Share by Gross Premium, 2009	31
Table 3.1	Previous Studies of the Demand for Private Health Insurance	53
Table 5.1	Explanatory Variables for the Demand Equations	116
Table 5.2	Description of Health Variables	118
Table 6.1	Summary Statistics for Dependent and Independent variables	122
Table 6.2	Frequency of Insurance Status by Age Group	123
Table 6.3	Frequency of Insurance Status by Gender	123
Table 6.4	Frequency of Patients by Chronic Diseases and Insurance Status	124
Table 6.5	Probit Regression Results for the Demand of Private Health Insurance	126
Table 6.6	Selection criteria of the Standard Count Models (Hospital Admissions)	131
Table 6.7	Selection criteria of the standard count models (Hospital Stay)	132
Table 6.8	Estimates for Hospital Admission	134
Table 6.9	Estimates for Hospital Stay	140

LIST OF FIGURES

Figure 1.1	Malaysian Population, 1960-2012	2
Figure 1.2	Ageing Population in Malaysia, 1960-2011	3
Figure 4.1	Expected Utility Theory	83
Figure 4.2a	Demand for Medical Care and Ex Post Moral Hazard (inelastic demand)	87
Figure 4.2b	Demand for Medical Care and Ex Post Moral Hazard (elastic demand)	88

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Health is a priority issue in most of the developed and developing world. It contributes to the growth and wellbeing of human capital and thus to the development of nations. According to the world Health Organization (WHO), *'good health is a state of complete physical, social and mental wellbeing and not merely negatively as the absence of disease or infirmity'* (as cited in Grad, 2002). It is often hard to predict when and how a person's health will deteriorate even if some illnesses are hereditary. When a person becomes sick, his or her first priority is to seek the necessary medical attention with finances becoming a secondary consideration. In Malaysia, health has also been one of the government's main issues. Much effort has been made in the past few decades to improve the overall health of Malaysian to ensure an overall social stability in the country (Ministry of Health, 2011a).

Naturally, health and healthcare are two related subjects that health system. As argued by Grossman (1972), everyone inherits a certain stock of health when born which is subject to depreciation overtime. Factors such as the growing population, longevity, technology, life style and changes in disease patterns contribute to the depreciation of health stock and consequently to increased healthcare cost. For instance, the demand for healthcare increases as the number of population increase. Statistics show that there has been a steady increase in the Malaysian population from the year 1960 to 2012 (Figure 1.1). The population has increased from 8,160,975 million in 1960

to 29,465,375 million in 2012 and is projected to increase to 35 million by the year 2025 (World Bank, 2014).

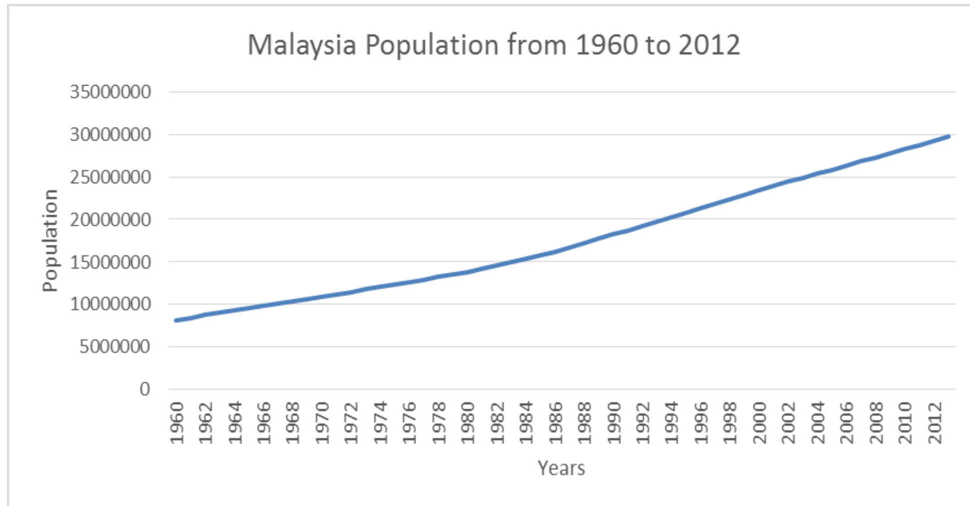

Figure 1.1 Malaysia Population from 1960-2012
Source: World Data Bank (2014) www.databank.worldbank.org

An increase in the number and proportion of ageing population is another factor. Figure 1.2 shows that the percentage of ageing population or the elderly increases over the same period (1960-2012). This implies that there is an improvement in the level of the overall health of the population. Improvement in health indicators such as life expectancy and mortality rate can affect the health status of the population. For instance, the estimated life expectancy at birth for males has increased from 70.8 years in 2002 to 72.3 years in 2012 whereas for females the rate has increased from 77.2 years to 75.3 years over the same period (Ministry of Health, 2012b). The report also shows a slight decrease in the mortality rates from the year 1972 (1 percent) to 2012 (0.3 percent) per 1000 live births. The elderly usually demands more healthcare because the probability of them getting illnesses especially those related to age is high such as heart diseases, dementia and osteoporosis (Samsudin, 2010).

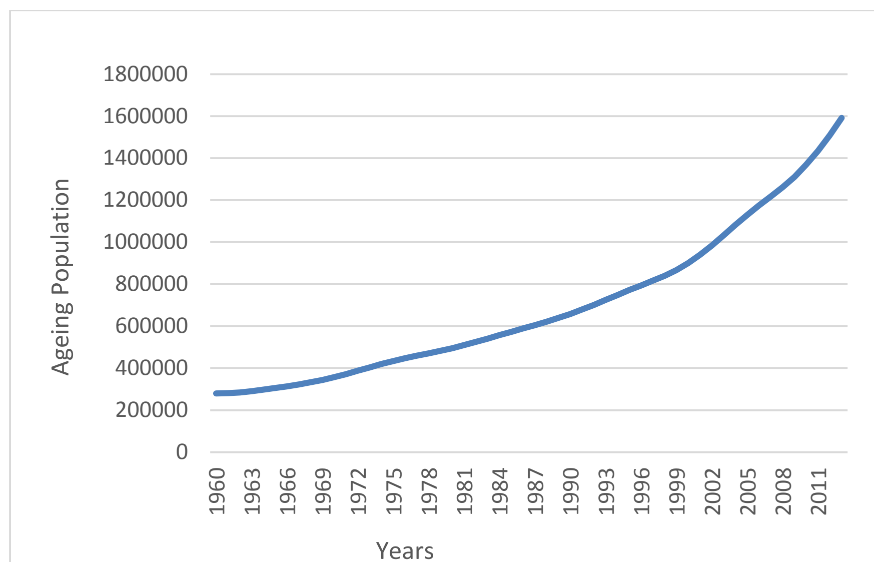

Figure 1.2 Ageing Population in Malaysia, 1960-2011
Source: World Data Bank, 2014 www.databank.worldbank.org

The percentage of elderly people being admitted into hospitals has increased over the period 2005-2008 with more than 400,000 in 2008 or 20.3 percent of total admissions (Table 1.1). The demand for medical services exceeds the rate of population growth, as the aged population is expected to grow at a disproportionate rate. This is expected to consume a large proportion of funds for health where it is estimated that approximately 30 to 60 percent of total healthcare cost will go towards the elderly (Ministry of Health, 2011a).

Table 1.1 Trend of Hospital Admission of Elderly People, Ministry of Health Hospitals, 2005-2008

Year	Number of Admissions for Elderly People	% of Total Hospital Admission
2005	338,469	18.57
2006	358,828	19.10
2008	418,181	20.37

Source: Country Health Plan, 10th Malaysia Plan 2011-2015. Ministry of Health

The problem is that sustained demands for healthcare have led to a continuous increase in healthcare costs which are even projected to increase further. Moreover, with increased awareness of the various types and standards of healthcare, patients are increasingly demanding the very best in healthcare quality. With this new demand, health expenditures, especially the out-of-pocket expenditures, are considerable financial burdens to many. The continuous increase of such expenditures means financial strain in other areas (Bhat and Jain, 2006). For instance, these expenditures may divert resources away from essential needs other than health such as education, transportation and others. Table 1.2 shows the trend of the out-of-pocket expenditures over the 2000-2012 period. The out-of-pocket expenditures as a share of the Gross Domestic Product have increased slightly from 1.2 percent in 2000 to 1.7 percent in 2012. A slow increase of expenditures is also realised as a share of private consumption due to the fact that private consumption also accounts for an increasing share of GDP during the same period (0.7 percent).

With this, the issue of financing healthcare enters into the picture to avoid out-of-pocket expenditures from increasing further. In many societies, the government is the main provider of healthcare (a political agenda priority). Malaysia has a dual healthcare delivery system where healthcare is provided by both the public and the private sector. Despite the dual system in healthcare delivery, the Malaysian government remains the major healthcare provider in Malaysia. Healthcare services are provided to the public through public hospitals and public clinics that are spread in all parts of the country. The services range from outpatient curative care to preventive and promotion of health. Being the main public health provider, the Ministry of Health provides primary care, secondary care and tertiary care through various types of health facilities where patients are charged a nominal fee of RM1 for primary care at health clinics in the country. The government

subsidises nearly 98 percent of the patients' cost of treatment of the population in order to make healthcare affordable and accessible (Chai *et al.,* 2008). Statistics show that 67.3 percent of the hospital admissions in 2011 are made in public hospitals compared to 28.5 percent in private hospitals (Ministry of Health, 2012a).

Table 1.2 Trends in Health Out-of-Pocket Expenditures, 2000–2012

Year	Health OOPE[a] (RM million)	GDP (RM million)	Private Consumption (RM million)	Health OOPE as% of GDP	Health OOPE as% of private consumption
2000	4,134	356,400	155,941	1.2	2.7
2001	4,149	352,579	162,618	1.2	2.6
2002	4,631	383,213	172,485	1.2	2.7
2003	5,632	418,769	186,674	1.4	3.0
2004	6,677	474,048	208,571	1.4	3.2
2005	7, 681	543,578	240,187	1.5	3.3
2006	8,722	596,784	264,584	1.5	3.4
2007	9, 690	665,340	300,418	1.5	3.3
2008	10,560	796,948	344, 215	1.4	3.1
2009	10,422	712,857	348,168	1.5	3.1
2010	12,389	797,327	378,791	1.5	3.3
2011	14,237	884,455	418,767	1.6	3.4
2012	15,584	941, 237	461,295	1.7	3.4

Source: Malaysia National Health Accounts (2013). www.moh.org.my/nha
Malaysian Healthcare Demand Analysis (2013)
[a] Out-of-Pocket Expenditures

The heavy utilization of public healthcare services reflects the biggest burden borne by the Malaysian government. To finance public healthcare services, the government mainly collect taxes either directly or indirectly from the population. Healthcare can be financed through contributions made to the Employment Provident fund (EPF) and Social Security Organization (SOCSO). The contributions to the EPF are made by employed individuals mainly to create savings for older age for the contributor and his family and can be an aid for their healthcare needs. For instance, individuals can

withdraw 30 percent of their savings for medical expenses from EPF. SOCSO on the other hand, is a contribution made by employees earning less than RM3000 per month to cover work related injuries or illnesses (Chai *et al.,* 2008 and Chee and Barraclough, 2007).

Nevertheless, the government cannot do all, and to reduce this burden, it pushes towards privatisation policies which started with Dr Mahathir's administration in the early 1980s. The departure from governmental to privatization policy has began with the corporatization of some of the national health institutions in the country (Chee and Barraclough, 2007). The privatisations of the public drug manufacturing and distributing service government Medical Store in 1994 and the corporatization of University Malaya hospital in 1993 and the National Heart Centre in 1998 were some of the government initiatives towards curbing the healthcare costs (Chee, 2007). To help encourage the private sector to invest in healthcare, the government has provided various incentives to private corporations such as industrial building allowance for hospital buildings, exemption from service tax for expenses on medical advice and use of medical equipment, and tax deduction for expenses for pre-employment training (Ministry of Health, 2011a).

The private sector has therefore given the opportunity to complement the public healthcare and is focussed mainly on curative services and includes general practitioner clinics and medical centres (Chai *et al.,* 2008). Patients obtain private healthcare services by either paying out of their pockets or through insurance coverage. Private health insurance is offered to the public to finance the provision of private healthcare. It also facilitates holders in reducing the problems within the existing national health system such as reducing waiting times (Costa and Garcia, 2001). Besides its objective of promoting health, health insurance helps mitigate the financial loss caused when

healthcare is needed. Arrow (1963) explains that health insurance fundamentally seeks to reduce the risk of financial loss.

Although private health insurance is beneficial, its penetration in Malaysia is seen to be insignificant. In 2013, private health insurance constituted only 16 percent out of private health expenditures whereas almost 80 percent of the private expenditures came from private household out-of-pocket payment (Ministry of Health, 2013b). With these facts, the challenge is how to transfer the out-of-pocket expenditures through a good insurance system. The concentration of the private healthcare providers in the urban areas contributes to the low penetration of private health insurance especially among rural population (Kananatu, 2002; Chee and Barrachlough, 2007 and Rasiah *et al.,* 2011). Furthermore, private healthcare facilities are accessible only to those who can afford to pay the high user charges and co-payments (Chai *et al.,* 2008).

Despite its crucial role in reducing healthcare costs, health insurance can be a source of serious problems. There is a lack of transparency in the right information between the consumers and the suppliers of health insurance. From the economic perspective, this asymmetric information creates two situations of inefficiency: adverse selection and moral hazard. Both problems arise when insurers are unable to identify the potential risk to monitor their clients use.

Adverse selection is a case wherein consumers are better aware of their health and their expected medical expenditures than the insurance company. This means that they can better predict their future health insurance needs (Phelps, 2003). In such cases, high-risk individuals have an incentive to purchase insurance at a premium that is based on a lower risk group. Behavioural attitudes such as drinking and smoking make it difficult for the supplier to predict the future health risks of each consumer. The lack of a proper database makes it difficult for the supplier to differentiate among applicants. This results

in suppliers charging both the healthy and the unhealthy applicants the same. When faced with this situation, healthy consumers prefer to rather remain uninsured than paying for an expensive policy leaving the insurance company with an abundance of unhealthy policyholders with a high risk of future illness. To protect themselves against adverse selection, companies usually exclude pre-existing conditions[1] which the individual may be aware of but not the insurance company. Similarly, the insurance company may require the individual to undergo certain medical tests in order to have an initial idea of the health status of the individual. Insurers may also require a minimum waiting period before commencing any service.[2] Open enrolment periods are also a method to reduce adverse selection. Another approach is to set the condition for an annual subscription to a health plan as means to prevent an individual switching to a more comprehensive plan when they are ill (Henderson, 2005).

The problem of moral hazard occurs when people change their behaviour when they are insured in a way that increases the probability of them making the claim. Those with health insurance tend to not maintain their health status or tend to practice riskier behaviours. Insurance holders tend to do less exercise, follow bad eating habits, undergo less frequent routine medical check-ups, and other risky behaviour such as smoking and drinking. Another type of moral hazard is when consumers demand unnecessary and expensive healthcare such as unneeded medical tests and treatments. Al Khatib (2007) opines that the moral hazards that arise from a subscription to an insurance plan affects the cost of care. Nyman (2003) further explains that additional cost arises from moral

[1]Pre-existing condition is a medical condition caused by an injury or disease that exists prior to the application for health insurance. Policies often exclude them from individual coverage or at minimum include them only after a waiting period (usually 6-12 months).
[2]E.g., 10 months for obstetrics care.

hazard in the form of prolonged stays in the hospital or undergoing some unnecessary procedure.

Moral hazard can further be attributed to physicians' behaviour towards their patients. In most cases, patient admissions, referrals, insurance reimbursements, and prescriptions are influenced by their physicians. The built up trust between patients and their doctors lead them to perform any diagnostic and therapeutic procedures recommended by their doctors. Having greater knowledge of medical treatments, doctors act as agents to their patients and may make decisions on their behalf. Knowing that insurance is paying for healthcare, doctors usually earn high incomes from billing their patients (Getzen, 2007). They may even generate more income by prescribing expensive branded drugs to patients instead of less expensive generic drugs[3] (Howard, 1997). Moreover, private hospitals tend to overcharge their patients with unnecessary treatments. Although medical insurance policies have helped reduce the financial burdens on patients, it creates an opportunity for healthcare providers to make profit.

Many approaches are used to limit the over utilisation of healthcare to minimise the effect of moral hazard. Since insurers have less knowledge about their clients, the best way to respond to overspending associated with moral hazard is by charging deductibles and co-payments.[4] Other successful approaches dealing with moral hazard relies on changing either the physician or patient's incentives. For instance, under managed care systems such as health maintenance organisations (HMO) in the United States, physicians

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[3]Generic drugs are equal to brand name drugs but are produced with patents that have expired. This means they cost less because they do not have to account for the cost of research, development, advertising, and marketing. In Malaysia, 40percent of generic drugs are locally manufactured, and road shows are conducted to promote these medicines (The Sun, May 28, 2012).

[4]The insurance deductible is a set amount of medical expense that must be paid by the insured patient prior to the insurance paying a claim. This initiative seeks to reduce the administrative costs of claims processing. However, in cases where the medical expense is high, deductibles are of little effect. A similar technique is copayment whereby the patient pays for part of the expense along with the insurance as a means to reduce the number of services utilised (Getzen, 2007).

receive incentives such as bonuses at the end of each year if the expenditures made by the organisation do not exceed their premium income. Another technique is the utilisation review. This technique differs from reviewing the providers whereby failure to comply with the guidelines set by the utilisation review may incur financial penalties to either the patient or their physicians (Getzen, 2007).

1.2 STATEMENT OF PROBLEM

The continuous increase of health expenditures remains a challenge for Malaysians in the presence of a dual nature healthcare system. The total expenditures on health have increased from RM8,286 million in 1997 to RM42,256 million in 2012 (Ministry of Health, 2013b). The report also reveals that the share of health spending on GDP has also increased from 2.9 percent to 4.49 percent over the same period. The lack of mandatory private health insurance may mean that subscribers are attracted to it due to the rising cost of healthcare (kefeli and Jones, 2012). Statistics show that the hospital admissions and hospital outpatients in the private sector were 1,020,397 and 3,867,668 respectively in 2013 compared to 904,816 and 3,505,591 in 2011 (Ministry of Health, 2014). This means there was more demand for services and the cost of healthcare also increased as a result. Despite the increase in the demand for private hospital admissions and outpatient visits, there is still a remarkable dependence on public hospitals. Table 1.3 depicts the dependence on public healthcare facilities by comparing healthcare utilization in Ministry of Health, non-Ministry of Health and the private sector healthcare facilities.

A report by Ministry of Health shows that there is a 3 percent annual increase in admissions to Ministry of Health hospitals.[5] Among the reasons for rises in healthcare

[5]Country Health Plan (10th Plan), 2011-2015." 1 Care for Malaysia".www.moh.org.my