ASSESSING FAIR FINANCING OF HEALTH CARE IN MALAYSIA

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ORIGINAL LITERARY WORK DECLARATION

ABSTRACT

The Malaysian health system has evolved significantly from the public sector dominated delivery system in the 1950's to a more balanced public private health care system found today. Rapid expansion of the private health sector occurred from the 1990's and as a consequence, private shares of health financing have been on the increase. This thesis on fair financing of health is motivated by welfare concerns arising from consumption of private health care by the poor, specifically the impact on household welfare caused by household out-of-pocket (OOP) health payments. The concept of fair financing generally holds that society has a moral obligation to ensure that the health needs of the poor can be met without requiring them to fully pay for the health care needed and consumed which they may not otherwise be able to afford.

Fair financing for health is examined using data from three comparable nationally representative household expenditure surveys conducted in 1993/94, 1998/99 and 2004/05. The first part of the study, assessment of financial risk protection for health, looks at the distribution of household OOP health payments as well as comparing household OOP payments to two payment thresholds - a catastrophic payment threshold which is set at a predetermined share of household consumption and official Malaysian household poverty lines. In essence this part of the study measures extent to which distributions of OOP payments are favouring richer or poorer persons, levels of catastrophic health payments and medical impoverishment. Availability of data allowed

financial risk protection to be assessed for the years 1993, 1998 and 2004. Financial risk protection for health has also been examined by geographical regions in Malaysia (Peninsular, Sabah and Sarawak), urban rural strata and ethnicity. Distributions of OOP payments have also been examined by public private sector providers and categories of health care services. The second part of the study assesses the progressivity of entire health financing system by measuring the progressivity of six health financing sources, namely personal income tax, sales tax, non-tax Federal Government revenues, social security funds from the Employee Provident Fund and Social Security Organisation, private health insurance payments and OOP health payments, singly and in combination. Availability of data and information allowed progressivity to be assessed for the years 1998 and 2004.

This study has found evidence of fair financing in Malaysia which included small OOP payment burdens for the average person with distributions favouring richer persons, low levels of catastrophic health payments and medical impoverishment as well as an overall progressive health financing system, mainly made up of four progressive financing sources namely personal income tax, social security funds, OOP health payments and private health insurance payments. As expected, this study has found that OOP payments have been predominantly for the purchase of private health care, mainly for non-hospital based care and pharmaceuticals. Financial risk protection was higher among some sub-populations in the country including those living in Sarawak, rural areas and the Chinese. However, over time from 1993 to 2004, some features of fair financing appeared to have diminished where the distribution of OOP payments and households incurring catastrophic health payments became less concentrated among the rich. The overall health financing system was found to be progressive in 1998 and

2004. Changes in progressivity were too small to make a definite conclusion of the trends over time.

Declining fairness in health financing in Malaysia may be explained by increasing OOP payments for private care and increasing uptake of private health insurance by poorer households. This in turn may be due in part to declining quality of care provided by the public health system which may have been partially caused by the rapidly expanding private health sector. If so, the situation is likely to worsen further if remedial actions are not taken.

This study has provided two main health policy lessons with regards to private provision and private financing of health care. The first is that extensive taxation-based funding of health care can ensure fair financing despite high OOP health payment shares of total health financing in a country. The second is that a situation of fair financing can co-exist with a large private health sector financed mainly from OOP payments. The main message is that it is not so much the quantum of payments that matters but rather the distribution of payments.

ABSTRAK

Sistem kesihatan Malaysia telah berkembang dengan pesat sejak tahun 1950-an, di mana sistem penyampaian kesihatan dikuasai oleh sektor awam, kepada sistem kesihatan awam dan swasta yang lebih seimbang pada hari ini. Perkembangan pesat sektor kesihatan swasta berlaku sejak tahun 1990-an dan sebagai akibatnya, bahagian pembiayaan kesihatan swasta telah meningkat. Kajian tentang pembiayaan kesihatan yang saksama ini didorong oleh soalan kebajikan yang timbul daripada penggunaan penjagaan kesihatan swasta oleh isi rumah miskin, khususnya kesan ke atas kebajikan isi rumah yang disebabkan oleh pembayaran kesihatan luar saku (OOP). Konsep pembiayaan kesihatan yang saksama secara umumnya berdasarkan pendapat bahawa masyarakat mempunyai tanggungjawab moral untuk memastikan keperluan kesihatan isi rumah miskin dapat dipenuhi tanpa memerlukan bayaran penuh atas kebimbingan yang mereka mungkin tidak mampu membayar.

Kajian pembiayaan kesihatan yang saksama ini menggunakan data daripada tiga penyiasatan perbelanjaan isi rumah kebangsaan yang boleh dibandingkan yang telah dijalankan pada tahun 1993/94, 1998/99 dan 2004/05. Bahagian pertama kajian ini, penilaian perlindungan risiko kewangan untuk kesihatan, melihat pengagihan pembayaran kesihatan OOP serta membuat perbandingan antara pembayaran ini dengan dua paras pembayaran masing-masing iaitu had pembayaran benca na isi rumah dan garis kemiskinan isi rumah Malaysia yang rasmi. Pada dasarnya kajian ini mengukur

sejauh mana pengagihan bayaran OOP membebankan isi rumah yang kaya atau miskin, tahap bayaran kesihatan bencana dan kemiskinan perubatan. Data sedia ada membenarkan kajian perlindungan risiko kewangan untuk tahun 1993, 1998 dan 2004. Perbandingan perlindungan risiko kewangan untuk kesihatan juga telah dilakukan antara Semenanjung Malaysia, Sabah dan Sarawak; antara penduduk luar bandar dan bandar; dan antara penduduk pelbagai kaum. Perbandingan pengagihan pembayaran OOP juga telah dilakukan antara pengamal kesihatan sektor awam dan swasta; dan juga antara pelbagai kategori perkhidmatan penjagaan kesihatan. Bahagian kedua kajian adalah untuk menilai progresiviti keseluruhan sistem pembiayaan kesihatan dengan menilai progresiviti enam sumber pembiayaan kesihatan, iaitu cukai pendapatan peribadi, cukai jualan, hasil bukan cukai Kerajaan Persekutuan, dana keselamatan sosial dari Kumpulan Wang Simpanan Pekerja dan Pertubuhan Keselamatan Sosial, pembayaran insurans kesihatan swasta dan pembayaran kesihatan OOP, secara berasingan dan keseluruhan. Data dan maklumat sedia ada membenarkan kajian progresiviti untuk tahun-tahun 1998 dan 2004.

Kajian ini menemui kesan bahawa pembiayaan kesihatan di Malaysia adalah saksama termasuklah beban pembayaran kesihatan OOP isi rumah yang rendah, pengagihan bayaran membebankan kepada yang kaya, tahap rendah pembayaran kesihatan bencana dan kemiskinan perubatan serta sistem pembiayaan kesihatan yang progresif yang terdiri daripada empat sumber pembiayaan progresif iaitu cukai pendapatan peribadi, dana keselamatan sosial, bayaran kesihatan OOP dan pembayaran insurans kesihatan swasta. Seperti yang dijangka, kajian ini telah mendapati bahawa pembayaran kesihatan OOP adalah untuk pembelian penjagaan kesihatan swasta, terutamanya penjagaan kesihatan bukan hospital dan pembelian ubatan farmaseutikal. Perlindungan risiko

kewangan adalah lebih tinggi dalam kalangan beberapa golongan penduduk di negara ini iaitu mereka yang tinggal di Sarawak, kawasan luar bandar dan orang Cina. Walau bagaimanapun, dari tahun 1993 sehingga 2004, beberapa ciri pembiayaan saksama telah berkurang di mana pengagihan pembayaran kesihatan OOP dan isi rumah yang menanggung bayaran kesihatan bencana kurang membebankan golongan kaya. Sistem pembiayaan kesihatan di Malaysia adalay progresif. Akan tetapi, perubahan indeks progressiviti adalah terlalu kecil untuk membuat keputusan jelas trend progressiti dari 1998 ke 2004.

Penurunan keadilan dalam pembiayaan kesihatan di Malaysia itu boleh dijelaskan dengan peningkatan bayaran kesihatan OOP untuk penjagaan swasta dan peningkatan pengambilan insurans kesihatan swasta oleh isi rumah miskin. Hal ini mungkin disebabkan oleh penurunan kualiti penjagaan sistem kesihatan awam yang sebahagiannya disebabkan oleh sektor kesihatan swasta yang berkembang pesat. Keadaan ini akan bertambah buruk jika tindakan tidak diambil untuk membetulkan situasi.

Kajian ini memberikan dua pengajaran utama berkenaan pembekalan penjagaan kesihatan swasta dan pembiayaan penjagaan kesihatan swasta. Pengajaran pertama adalah bahawa pembiayaan penjagaan kesihatan menggunakan cukai boleh memastikan pembiayaan saksama walaupun beban pembayaran kesihatan OOP yang tinggi. Pengajaran kedua adalah bahawa keadaan pembiayaan yang adil boleh wujud bersamasama dengan sektor kesihatan yang swasta yang luas yang dibiayai terutamanya daripada bayaran kesihatan OOP. Mesej utama menekankan kepentingan pengagihan pembayaran dan bukannya kuantum bayaran.

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LMIC

AIDS	Acquired Immunodeficiency Syndrome
ATP	Ability to pay
EB	Enumeration Block
EPF	Employees Provident Fund
EPU	Economic Planning Unit
CI	Concentration Index
CPI	Consumer Price Index
СТ	Computerised tomography
СТР	Capacity to pay
DPT	Diphtheria Pertussis Tetanus
DOS	Department of Statistics, Malaysia
GDP	Gross Domestic Product
GNP	Gross National Product
HES	Household Expenditure Survey
HIV	Human Immunodeficiency Virus
HSFS	The Health Services Financing Study
KI	Kakwani Index
KPJ	Kumpulan Perubatan Johor (Johor Medical
LCH	Life Cycle Hypothesis

Low and middle income countries

Group)

- LQ Living Quarters MCPI Medical Consumer Price Index MDG Millennium Development Goal MNHA Malaysia National Health Accounts MOH Ministry of Health, Malaysia MRI Magnetic resonance imaging NHMS II The Second National Health and Morbidity Survey NHMS III The Third National Health and Morbidity Survey NHS National Health Service OECD Organisation for Economic Cooperation and Development OOP Out of pocket PHFSA The Private Health Care Facilities and Services Act 1998 PIH Permanent Income Hypothesis RM **Ringgit Malaysia** SOCSO Social Security Organisation UK United Kingdom USA United States of America
- WHO World Health Organisation

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

Access to and receipt of needed health care have been acknowledged by most countries to be a pre-requisite for human development (2008, World Health Organisation, 2010). Unfortunately in the real world, health care is a scarce resource where demand far outstrips supply. Differential access to and receipt of care by different groups of people have contributed to inequality in the distribution of health between these groups. Literature abounds with examples of poorer health among the impoverished and other socially disadvantaged groups compared to the better-offs within a country (Balarajan et al., 2011, Marmot, 2006). These examples of health inequality are generally considered by most to be unfair, unjust or inequitable because they arise from situations which are preventable, in this case a mixture of poor access to care and other effects of social marginalisation (Whitehead, 1990) and thus efforts directed at avoiding occurrences of these health inequalities should be implemented in the interest of social justice (Daniels, 2008). The dilemma faced by countries, rich or poor, then revolves around the question of the 'fair distribution' of this scarce resource, health care, and the related question of its 'fair financing'. This thesis is focussed on the second question that of fair financing and more specifically on changes in fair financing in Malaysia caused by developments in her health system.

This chapter begins with Section 1.2 which explains the motivation behind this study on Malaysia and is followed by Section 1.3 which lists the objectives of the study. Section 1.4 discusses the significance and anticipated benefits to be expected of the study. The chapter concludes with Section 1.5 which details the layout of the thesis.

1.2 MOTIVATION FOR STUDY

All countries have in place systems to distribute and finance health care for their populations. However, systems which do so in a fair or equitable manner may not be universally found. This has led directly or indirectly to situations of inequitable distributions of health where good health is not being enjoyed by all but mainly by the socially privileged few. Health care which is fairly or equitably distributed aims to meet the people's health needs regardless of their social standing. Health care which is fairly or equitably financed aims to ensure that the burden of health payments and its welfare reducing impact falls mainly on the rich sparing the poor. It can be argued that the ultimate aim of these noble health system principles is to ensure provision of universal health coverage for the population of any country (World Health Organisation, 2010).

Universal health coverage, in brief, is when access to a comprehensive package of health care is made available to the entire population using public sources of financing without overburdening the poor (Gilson et al., 2007). Malaysia is an example of a middle income country with a long established health system providing universal access to comprehensive health care paid for using public funds. As a result, the Malaysian population has enjoyed rapidly improving health indicators over the past decades. This is reflected in the country being on the road to achieve all the health related Millennium Development Goals (MDGs) by 2015, with the possible exception of the goals to halt the spread of Human Immunodeficiency Virus (HIV), Acquired Immunodeficiency Syndrome (AIDS) and tuberculosis (Economic Planning Unit Malaysia and United Nations Country Team Malaysia, 2011). However, no one system can remain static due to the need to meet various socio-demographic, economic and other challenges to the system's capacity to continually provide adequate quality care for all. In common with the rest of the world, the Malaysian health system has had its own share of challenges and over time, these have resulted in major changes to the manner in which health care is being financed and delivered. As will be seen, these changes have the potential to impact on the fairness in the distribution and financing of health care in the country.

The Malaysian health system has traditionally been one which was mainly publicly financed and where health care services are delivered through publicly owned health facilities. Since achieving independence from British rule in 1957, the path taken by the government has been to gradually expand access to care by investing in health infrastructure, both physical and manpower, especially in the rural areas in the then Malaya and later, from 1963 onwards, in the newly established Malaysia. This combined with generous government subsidies, financed through general taxation, were attempts to ensure that health care remained accessible to the public (Rohaizat, 2004). Roemer (1991), in his classic review of national health systems worldwide, described the Malaysian health system of the 1980's as a welfare-oriented system. And indeed, the welfare ideology initially seemed to be driving the direction of health system development in this country. Policy statements issued from the government frequently made references to aspirations of 'a national health system which is equitable and affordable to all' and which culminated in the incorporated of this health system goal in the Ministry of Health's (MOH) Vision for Health¹ in the 1990's (Abu Bakar and Jegathesan, n.d.).

However, over the last few decades, this health scenario in Malaysia has changed substantially. Private provision of care, which in the early years was mainly restricted to primary care delivered in single doctor clinics, has come to the fore, which has been encouraged by several influential events that had economic and social impact on the country. These included efforts by the government to increase private participation in the country's economy by privatising certain public services in the 1980's, and the 1997 Asian financial crisis, which saw health tourism being promoted as a means of survival for existing private hospitals, and later, as a means of bringing in foreign exchange to the country (Chee and Barraclough, 2007). Combined with rising demand from an increasingly affluent and discerning society, these events have incentivised the development of a dynamic private health sector, which does not only include the hospitals and clinics of old but also a myriad of other more recent providers offering a diverse range of health care services.

The increasing prominence of the private health sector has given rise to equity concerns within Malaysian society. One of the consequences of this private sector expansion has been changes in the health financing mix in the country. As with most other countries,

¹ MOH's vision for health states that, "Malaysia is to be a nation of healthy individuals, families and communities, through a health system that is equitable, affordable, efficient, technologically appropriate, environmentally adaptable and consumer friendly, with an emphasis on quality, innovation, health promotion and respect for human dignity, and which promotes individual responsibility and community participation towards an enhanced quality of life".

health care in Malaysia is financed from a combination of sources. The cost of providing public health care is mainly subsidised by the government from taxation. Private care is paid for using a combination of direct household out-of-pocket (OOP) payments, funding from employers as part of the employee medical benefits and to a lesser extent, private health insurance. Minor contributions for both public and privately provided health care come from the two main social security funds in the country, the Employees Provident Fund (EPF) and the Social Security Organisation (SOCSO) (Ng, 2005). Foreign agencies such as the World Health Organisation (WHO) do not play a significant role in financing health care in Malaysia (Ministry of Health Malaysia, 2008b, pp. 13). All reported accounts indicate that health care in Malaysia is predominantly tax-financed (Westinghouse Health Systems, 1985, Ministry of Health Malaysia, 2006b, Ministry of Health Malaysia, 2008b, Ministry of Health Malaysia, 2009c, Ministry of Health Malaysia, 2011). However, in tandem with the development of the private health sector, private sources of financing have become increasingly more prominent in recent years. What should be of particular concern from the viewpoint of public welfare, is that private household OOP payments for health care currently makes up a significant share of the total health financing in the country.

Official estimates of national health expenditures as well as breakdowns for the different financing sources, using internationally accepted estimation methodologies, are available for the period 1997 to 2009 (Ministry of Health Malaysia, 2011). These published figures show that on average OOP payments for health make up 75.67 per cent of the annual private health expenditures from 1997 to 2009 or 33.73 per cent of the annual total health expenditures (Ministry of Health Malaysia, 2011, pp. 16). Higher OOP payment shares in a country's overall financing mix have been shown to

have higher negative welfare impact on the country's households especially poorer ones (Xu et al., 2007, van Doorslaer et al., 2007, van Doorslaer et al., 2006). It has been estimated that only when the OOP payment share drops below 15 to 20 per cent that household financial catastrophe caused by such payments can drop to negligible levels (Xu et al., 2010). The equity concerns surrounding OOP payment in Malaysia relate not just to its actual quantum but also to its distribution among the population in the country.

Direct household OOP payments for health are the least equitable manner of financing health care (World Health Organisation, 2010). OOP payments for health require the ill to have sufficient money on hand at the point of needing care or else they may have to forgo needed care (Wagstaff, 2008, O'Donnell et al., 2008b, Wagstaff and van Doorslaer, 2003, Xu et al., 2007). This money may come from household savings, borrowings or even sales of household assets (Whitehead et al., 2001). Thus it can be seen that household welfare, especially for the poor, may be negatively affected by these direct OOP payments for most health care, at least for the poor, are non-discretionary and can lead to immediate reduction in resources for other goods and services, including essential items such as food and housing. Borrowings and sales of economically productive assets can affect long-term household welfare (Russell and Gilson, 2006). Thus from a welfare standpoint, poor households need to be protected from making excessive OOP payments for health.

It has been argued that in countries where wide coverage has been achieved by means of a publicly financed health system, the rich would voluntarily opt not to utilise subsidised public care but instead purchase private care because of perceived quality issues with public care (Besley and Coate, 1991). This will then allow for better targeting of subsidised public health care to the poor, essentially creating a two-tiered health system of private care for the rich and public care for the poor. Indeed, existing evidence from the late 1990's, seems to point to the poor accessing public care more than the rich resulting in OOP payments for health to be favouring the rich and sparing the poor (Rozita, 2000, Yu et al., 2006, O'Donnell et al., 2007). However, over time as the private health sector expanded, there have been anecdotal accounts of even the poor accessing private care despite higher costs because of these same quality issues, mainly that of long waiting times (The Star, 24th July 2010). If so, they will then not benefit from the financial protection offered by the public health sector. As opposed to OOP payments for health, public funding of health care, whether it is through taxation or social health insurance, has the potential to protect households from needing to make excessive payments to access care. The caveats here are that the scope of coverage (numbers of people covered) needs to be sufficiently wide to include all the people of the country, the depth of coverage (types of health services covered) needs to be sufficiently comprehensive to include at least all necessary basic care, and that costsharing features need to spare the poor to provide adequate financial risk protection. From numerous appeals for public donations to fund life-saving health care in the newspapers, it would appear that many content that these features may be currently deficient in Malaysia, forcing even the poor to purchase private care and hence pay more OOP payments (The Star, 12th January 2009, The Star, 24th June 2009, The Star, 4th November 2011, The Star, 22nd April 2012).

This then is the backdrop against which this study is set – increasing reliance on direct household OOP payments for health amidst a rapidly expanding private health sector and, some would argue, an environment of decreasing public confidence in the performance of the public health sector. In such a setting, it would not be unreasonable for one to ask if the oft-mentioned government objective of an equitable and affordable health system continues to be met. This thesis, in essence, is an attempt to answer this question.

This study has as its main focus an evaluation of the performance of the Malaysian health financing system from an equity perspective. Equity in health has a very wide scope ranging from equity in health status, access to services, actual utilisation of services, to health financing. This evaluation is focussed on the financing aspects of the health system arising from the belief that the overall design and implementation of a country's health financing mechanism play a major role in deciding the other equity related issues of access and utilisation, a belief which also underlies the WHO's current work on universal health coverage (World Health Organisation, 2010). The health financing system functions to collect revenue, pool funds and to use these funds to purchase health care from providers. The mechanisms by which these functions are carried out will help determine the distribution of health services to the population. In the final picture, of course, equitable or fair financing for health is a necessary but not a sufficient condition for equitably or fairly distributed health status. For this to happen other conditions of social determinants of health, such as universal primary education, stable employment and eradication of poverty, have to be met (Commission on the Social Determinants of Health, 2008).
1.3 STUDY OBJECTIVES

Recent changes in the manner in which health care is delivered in Malaysia, specifically the growing prominence of private health sector, have led to concomitant changes in the health financing mix in the country. The Malaysian health system was previously one mainly financed through use of public funds but private sources of health funding are now becoming more dominant. The main objective of this study is to assess whether these changes in the financing mix have resulted in changes in the fair financing in health. Since a fairly financed health system is one in which the population enjoys financial risk protection from OOP health payments, the study will first assess the distribution of OOP health payments to evaluate if higher payment burdens are borne by Then the study will evaluate the extent to which the richer or poorer persons. population had incurred OOP payments large enough to be considered catastrophic to household welfare as well as the extent to which the population had incurred household OOP payments large enough to impoverish those making such payments. A fairly financed health system is also one in which the burden of all health payments should fall disproportionately on the rich or in other words, the fairly financed system is also one which is progressive. In this respect, the study will assess the extent to which household contributions to health financing in the country are found to be progressive in relation to households' living standards.

Fair financing will not only be assessed across richer or poorer persons but also across other socio-economic groups that may experience differing levels of economic development. The population of Malaysia is made up of different ethnic groups living in 13 states. The public-private health sector mix also differs in the different states² in the country and by urban rural strata. Thus, where data permits, this study will also examine distribution of fair financing in health by ethnic groups, states and by urban-rural strata. The study will broadly cover the period from 1990 to 2005, a period in which the private health sector expanded rapidly and when significant portions of health financing came from private sources. Specific aspects of fair financing will be examined at two (1998 and 2004) or three specific time points (1994, 1998 and 2004) for which data are available.

The specific objectives of this study then are to

- i. Identify an appropriate theoretical framework for evaluating fairness in financing of health care
- ii. Identify changes in the health system that may have impacted on the fairness in financing of health care in Malaysia over the period of study
- Evaluate characteristics of a series of three household datasets and identify appropriate measurements to ensure reasonably consistent estimates of changes in fairness in financing of health care across the period of study
- iv. Assess the distribution of household OOP payments for health care across households of differing living standards by comparing payment distributions at three selected time points, 1993, 1998 and 2004
- v. Assess the extent to which the Malaysian population had been exposed to catastrophic health payments by comparing levels of such payments at three selected time points, 1993, 1998 and 2004

² In this analysis, the states in Malaysia have been grouped into three regions, namely Peninsular Malaysia, Sabah and Sarawak.

- vi. Assess the extent to which the population had been impoverished by OOP health payments by comparing levels of medical impoverishment at three selected time points, 1993, 1998 and 2004
- vii. Assess the extent to which household contributions towards different sources of health financing in the country had been progressive by comparing progressivity of the health financing systems at two selected time points, 1998 and 2004
- viii. Assess whether health care in Malaysia had been fairly financed over the period 1993 to 2004, consequently the policy implications for Malaysia and thereby lessons for other countries with regards to ensuring fairness in financing of health care in the context of changing dynamics of public-private health sector participation.

1.4 SIGNIFICANCE OF STUDY

With possible exception of the few individuals³, health care is not valued in itself but for the health benefits that it produces. However, the value of a system to finance and deliver health care should not be restricted merely to being a tool to bring about health benefits. Properly designed and managed health systems have the potential to ensure fairness in the distribution of health, to many a worthy societal goal (Gilson et al., 2007). Thus, the performance of a health system should not be judged purely on improvement in the average levels of health in the population but also on the fairness in the distribution of that health. A health system is basically made up of two main components, the delivery arm and the financing arm. Likewise, these two components

³ Masochistic persons.

should also participate in the structure of a fair health system to ensure fair delivery of health care and the fair financing of that care.

If fairness is indeed the appropriate yardstick to measure health system performance, then the evidence produced in this study will add to the current body of knowledge in which it is contended that increases in private funding shares threaten the goal of fair financing of health. The existence of an extensive publicly financed and delivered health system has been said to promote fair financing. However, the effect of such a system side by side with a rapidly expanding private sector funded through private sources has been less studied. Contributions from this study will allow for better informed decisions concerning the appropriate mix of public private funding sources in the health sector.

It has been said that the only aspect of life that is constant is that of change. While the impetus for change may have been a desire for improvement, the outcome of change is at times unpredictable and may have unintended adverse consequences. So it is in the realm of the health sector as well. Changes in the way people live their lives and changes in the environment they live in, have challenged the integrity of health systems and their capacity to cope. Health system reforms are now going on in many parts of the world in an attempt to improve this situation. Many of these planned major health sector changes will alter the way health care is to be financed, delivered and distributed. Since these reforms are planned, awareness of their possible consequences should be high and thus mechanisms to monitor and to take corrective actions should have been factored in the reform design. However, the structure of the health sector is such that planned changes in other social and economic sectors may also bring about changes in

the delivery, financing and distribution of health care. Since the primary target of these planned changes had not been the health sector, their health consequences, beneficial or otherwise, may easily escape detection.

The changes in the health financing mix in Malaysia have been a result of planned changes both within and without the health sector proper, but predominantly within other social and economic spheres. The model of public provision and financing of health care in Malaysia, which has served the people well in the past, is being challenged by changing government views on the merits of continuing a welfare-based health system (Barraclough, 1999) and there have been indications of government's intention to shift part of the burden of financing health care from public to private hands (Malaysia, 1996). However, these reforms have yet to come to pass. In the meantime, efforts to increase national prosperity have led to government assisted expansion of private sector participation in most economic and even social sectors. As a result of the expanding private health sector, private shares of health financing have increased to a significant level, especially that portion contributed by household OOP payments. There is some evidence to show that health care had been fairly financed in the 1990's (van Doorslaer et al., 2006, van Doorslaer et al., 2007, Yu et al., 2006, Yu et al., 2008, Rozita, 2000). However, in view of the increasing role of the private health sector in Malaysia, it is important to re-visit and to re-assess the situation.

There is an ongoing debate on the merits of private provision and financing of health care as a means of supplementing existing public sector contributions in low and middle income countries (LMIC) (Hanson et al., 2008). It must however be noted that this debate has been conducted against a backdrop of countries struggling to achieve

universal health coverage. Thus the crux of the matter debated is on how the private health sector can assist in the achievement of universal health coverage. A unique situation exists in Malaysia, an upper middle income country, in which private health sector penetration occurred in a stable, predominantly public health system where universal health coverage had already been achieved. The uniqueness of the situation comes not from the size of the private health sector alone but in that private health providers are paid using private sources of funding. It is contended that public or private provision by itself is not the most important equity consideration. Instead it is the choice of public or private sources of health funds that matters more in considerations of fair financing. To be more specific, it is the use of direct household OOP payments that is of ultimate importance. Thus, the current effort to add to the body of evidence concerning the impact of increasing private funding of health care, and especially OOP payments, should be of value to inform public debate on future directions of health system development in this country, in particular the manner in which the expanding private health sector is to be funded.

The lessons learnt from this study are not only applicable locally, but can also provide guidance to other countries. Malaysia has been held internationally as an example of a middle income country with an efficient health system which has not only provided universal health coverage for her people but has also done so at low cost and with a high level of financial risk protection (Ikegami et al., 2011, Tangcharoensathien et al., 2011, van Doorslaer et al., 2006, van Doorslaer et al., 2007). Updates to the current body of knowledge concerning the performance of the Malaysian health system will serve to inform the global community of the equity impact of expanding private provision of health care without concomitant expansion of public funding. Malaysia's experience in

this matter may then be used by governments in other countries in their own quest for the optimum balance of public and private health sectors.

1.5 LAYOUT OF THESIS

The thesis is structured as follows:

- i. Chapter 2 reviews normative theories in health that explain how health status, health care and health financing should be distributed in a fair or equitable manner. This chapter will also discuss the importance of a health system in the attainment of fair financing and delivery of health care. This chapter sets out the theoretical framework within which fairness in health financing is examined in this study.
- Chapter 3 provides a background to the Malaysian health system, with a focus on changes during the last two decades with possible effects on the fairness in health financing.
- iii. Chapter 4 discusses the sources and definitions of data required for this equity analysis.
- iv. Chapter 5 examines the distribution of OOP payments for health care in Malaysia at the national level and across regions, urban-rural strata and ethnic groups to determine whether the burden of OOP payments for health care had been borne by richer or poorer portions of the population.
- v. Chapter 6 examines the extent to which the Malaysian population had been protected against making large OOP payments for health care to the extent that these payments can be termed 'catastrophic'.

- vi. Chapter 7 examines the extent to which the population had been impoverished by OOP payments for health care.
- vii. Chapter 8 assesses whether the distribution of households' total financial contributions towards financing of health care in Malaysia had been progressive.
- viii. Chapter 9 provides a summary of the main findings and a discussion on health care financing in Malaysia. It provides some policy implications for Malaysia and lessons for other countries. It also indicates a number of directions for future research in the area of fairness in health financing for Malaysia.

CHAPTER 2 THE FAIRLY FINANCED HEALTH SYSTEM – THEORY AND CONCEPTS

2.1 INTRODUCTION

What is a health system? Murray and Frenk (2000, pp. 718) have encapsulated the understanding of a health system succinctly by stating that "*a health system includes the resources, actors and institutions related to the financing, regulation and provision of health actions,*" which in turn have been defined as, "*any set of activities whose primary intent is to improve and maintain health.*" Health systems are thus complex entities made up of several components with diverse functions but all of which striving towards the common goal of improving or at the least maintaining population health. However, the role of health systems does not stop at just to improve or to maintain health. The WHO has pushed the boundaries even further by making a stand that health systems should also be held responsible for maintaining a fair distribution of health (Gilson et al., 2007, World Health Organisation, 2000). To achieve this distributive goal, the fair health system will need to be supported by functional components which are similarly morally aligned. In other words, the fair health system should be regulated in such a manner that ensures fair provision and fair financing of health care.

This chapter begins with a discussion of the meaning of a fair distribution of health or equity in health in Section 2.2 and its two closely related concepts, fair delivery of health care in Section 2.3 and fair financing of health in Section 2.4. Thereafter, Section 2.5 will discuss the attributes of a health system necessary to achieve a fair distribution of health, particularly the attributes of a fairly financed health system which is the focus of this thesis. The chapter concludes with Section 2.6 which summarises arguments in support of the role of a fairly financed health system to achieve equity in health.

2.2 EQUITY IN HEALTH

What is health and why do individuals prize health? The WHO has an expansive view of health which covers not only absence of disease and infirmity but also complete physical, mental and social well-being (World Health Organisation, 1946). In essence, health encompasses all that makes an individual well and happy. This understanding of health is reflected in Michael Grossman's classic work, "On the Concept of Health Capital and the Demand for Health", in which he discussed the two motivating factors that compel an individual to seek to be healthy (Grossman, 1972). Health, he states, can be viewed as a consumption commodity in that in seeking to be healthy, an individual is also seeking to maximise his utility. After all, as Grossman says, "sick days are a source of disutility" (Grossman, 1972, pp. 225). Health can also be viewed as an investment commodity in that an individual seeks health to increase the amount of time he has to participate in market and non-market activities or in other words the amount of time available for work and play. Health may be valued by individuals but due to various reasons, levels of health may differ from one individual to another. And when viewed from a more macro perspective, these differences in health levels among individuals may manifest in distributions of health across groups of individuals which society deems unfair or unjust.

2.2.1 Defining Equity in Health

What is a fair distribution of health and why is there a need to hold such a distribution to high esteem? Fairness in the distribution of health is also commonly referred to as 'equity in health'. Equity and equality have at times been used interchangeably but these terms actually have different connotations. Equality denotes equal distributions of an item of interest, say health, among individuals or groups in a society. This concept is relatively easy to understand and accept. Equity, on the other hand, refers to the distribution of an item of interest, taking health again as an example, across individuals or groups in a manner in which society accepts as fair. It is in the elucidation of this fairness in health that much philosophical debate has been directed.

The term, 'equity in health', did not truly enter scientific lexicon or modern public debate until the publication of Margaret Whitehead's seminal paper on the concepts and principles of equity in health in 1990 (Whitehead, 1990). Whitehead acknowledged that individuals possess certain physiological or genetic health advantages or disadvantages either at birth or as a result of the natural processes of ageing. At the outset, because of these and no other intervening factors, the health outcomes of individuals cannot be exactly identical. Inborn physiological advantages allow women on average to live longer than men. Differences in anatomy mean that men can never be plagued by cervical cancers or women by prostatic cancers. Physiological advantages again allow for better health in general among adolescents compared to the elderly. These examples of health inequalities, in Whitehead's opinion, are fair and just because they cannot be avoided. In addition, some individuals may willingly choose to participate in activities

that can harm their health. Thus higher rates of sports-related injuries among athletes as compared to the general public are also fair and just because they resulted from wilful free choice.

However, each individual has a maximum level of health potential that he can reach with whatever advantages or disadvantages bestowed upon him at birth as well as with assistance of medical technology available at the time. It is only fair and just that each should be allowed a fair opportunity to reach his potential and that social systems be structured to help him meet his goal and not to impede him. Thus, based on this premise, public policies should be directed, among others, at improving living and working conditions, improving access to health care and encouraging adoption of healthy lifestyles, which are all known to be determinants of health (Commission on the Social Determinants of Health, 2008). Moreover to be fair, these policies should not discriminate between people of different social classes. On the flip side, the lack of such health promoting policies and the fair distribution of resultant actions can lead to health gaps between the level of health that could be attained and what actually had been attained. These health gaps could have been avoided had the relevant policies and actions been in place. To illustrate her case, Whitehead pointed to the existence of large inequalities in health outcomes between the poor and the rich in Europe, implying that social conditions had restricted those in lower social classes from making health promoting choices. To conclude, she went on to define health inequity as, "differences in health which are unnecessary and avoidable but, in addition, are also considered unfair and unjust."

Braveman and Gruskin (2003) subsequently refined Whitehead's definition to remove ambiguity concerning wordings. In their opinion, the term 'avoidable' may provide an escape clause for government action. Many causes of inequity are difficult to resolve such as total eradication of poverty in very poor countries. Equity in health is related to human rights principles, specifically the right to the highest attainable level of health, and therefore regardless of the amount of effort needed, attempts must be made to reduce inequity. Equity in health was then defined as, "absence of systematic disparities in health (or in the major social determinants of health) between social groups who have different levels of underlying social advantage/disadvantage – that is, different positions in a social hierarchy." This definition notes that the causes of inequity are systemic in nature; they are the results of systems designed by societies. This in turn implies that societies should also be the ones to effect solutions to the problem of health inequity.

2.2.2 Differentiating Just from Unjust Health Distributions

According to Braveman and Gruskin (2003), distributions of good health outcomes which disfavour lower social classes are unfair and unjust. This seems to accord well with most public opinion on what constitutes justice in matters of health. In the sphere of distributive justice, Aristotle's formal principle of justice, that equals be treated equally and unequals unequally in proportion to the relevant inequalities, has been influential in shaping public opinion on many matters including health (Gillon, 1985). Thus, justice can be interpreted both on a horizontal basis, i.e. that equals be treated equally, and also on a vertical basis, i.e. that unequals be treated unequally in proportion to the relevant inequalities. Though helpful, Aristotle's general principle lacks substantive form to be of practical use to answer life's questions on justice. At face value, Aristotle's principle does not explain what equalities or inequalities that matter, or how to determine the appropriate measure of equality. These explanations are needed to answer society's question of what a just distribution of health should be and to guide society's remedial actions should unjust distributions be found. Answers to such questions are normative in nature as they require a value judgement. Common normative approaches in health economics have been examined and have been found wanting in providing guidance to define a just distribution of health.

Neo-classical welfare economics is one such normative approach. Welfare economics has at its core four tenets, i.e. utility maximisation, individual sovereignty, consequentialism and welfarism (Culyer, 1989, Hurley, 2000, Månsdotter et al., 2004). The premise of this branch of economics is dependent upon each individual having full mental capacity to rationally compare between alternative actions, rank preferences and choose that which will maximise his happiness or utility. Sum aggregates of individual utility will then be used as the basis to choose between social actions. In other words, at the more macro level, this welfarist approach implies that the design of social systems should be guided solely by the goal of maximising aggregate utility in society.

It will be obvious that this focus on maximising utility should not be a socially acceptable yardstick for determining a just distribution of health. Social systems which favour the majority but discriminate against minority groups will most likely maximise aggregate utility but health inequalities resulting from them are likely to be considered by society to be unjust especially if these minority groups are also socially disadvantaged or marginalised. Moreover, in theory, the goal of maximising utility in society is said to be achieved through the use of competitive markets to efficiently distribute goods and services which would also include health care. Consumption of goods and services in such markets is dependent on a person's income. It is unlikely that society takes kindly to a poor person being denied health care simply because he could not pay for it. This then is the main criticism of the welfarist approach in health that the almost exclusive focus on utility resulting in other non-utility related issues which most consider important in health, such as existence of financial and other barriers to care, and individuals' differential need for care, have all been subsumed under the supreme consideration of utility (Culyer, 1989, Hurley, 2000).

Several others have argued that utility should not be the outcome of interest in determining social welfare, but that it should be replaced with other outcomes more reflective of society's real welfare concerns. These opinions then form the body of extra-welfarist approaches in normative economics literature. Sen (1979) has opioned that the outcome of interest should not be utility per se but 'capabilities' – the freedom for an individual to choose to function or live life in ways in which he values. He then equates justice or fairness to the attainment of equality of capabilities between individuals. Social systems then should be designed to enable individuals to maximise their capabilities to function. Nussbaum (2000) has listed ten basic capabilities of which one is that of 'bodily health' – being able to have good health, including reproductive health, to be adequately nourished and to have adequate shelter, which would contribute to overall society well being.

Sen's capability approach has been influential mainly in the discipline of development economics. However, the extra-welfare approach to move away from a focus on utility as the measure of social welfare has also found favour within the discipline of health economics. Culyer (1989) has argued that instead of utility, the health status of an individual should instead be the outcome of interest. Based on this argument then, health systems should distribute health care such that the overall level of health in the society is maximised. However, this health maximisation approach suffers from criticisms which are similar to the classical welfarist approach, that the emphasis on maximising overall levels of health in society does not necessarily mean a concomitant fair distribution of health levels (Wagstaff, 1991). Health of minority groups may be sacrificed to promote improvement of the health for the majority. Again, many would consider this last scenario unfair or unjust which leads to the examination of the applicability of other existing theories of justice to the health sector.

There are many theories of justice but one of the most influential is that of John Rawls' 'justice as fairness' (Rawls, 1971). A just distribution, according to Rawls, calls for equal distribution of basic liberties or what he calls 'primary social goods'. These include many basic rights that are currently acknowledged in a democratic society such as freedom of speech and freedom to vote. According to Rawls, other goods are to be distributed equally unless the unequal distribution is to the benefit of the least advantaged person. He also stressed on the need for fair equality of opportunities, essentially that opportunities for advancement in society should be made equally available to all. However, Rawls' consideration of primary social goods explicitly excludes health and for simplicity his arguments were based on the assumption that people were healthy throughout their life course. Nevertheless, the basic arguments for justice implied in Rawls' theory have found wide public acceptance that others have attempted to extend its application to health and health care. Amongst them, Norman Daniels (2008) appears to be one who have developed the most comprehensive theory of justice for health and health care based on Rawls' theory of justice.

Daniels used Rawls' arguments for fair equality of opportunity to make the case for society to have a moral obligation to ensure a just distribution of health (Daniels, 2008). Basically he argued that health is required for normal human functioning and in turn normal human functioning is required to protect a person's opportunities in life, one of Rawls' primary social goods. Thus society should put in place institutions and systems in order for the people to attain good health. Moreover, these institutions and systems should ensure that the determinants of health which are within the control of society, including education, housing and health care, are made available to the people in a just manner. When applied to the health sector, Daniels calls for the distribution of health care biased in favour of those with higher health needs as these persons require more care to protect their opportunities in life. The person's need for health care should be the only criteria in the allocation of health care. He also emphasised that in a just society, health care payments should not unduly burden the poor since this would further compromise their opportunities in life. Based on this argument, the financing of health care should only be based on the person's ability-to-pay (ATP) for the services. In other words, richer members of society should cross-subsidise the poorer members. But regardless of their ATP, provision of health care should still be based on needs, that those who need more care should be given higher levels of care.

Based on Daniels' arguments, a just distribution of health is then the result of a fair distribution of social determinants of health including health care. Daniels' application of Rawls' theory to health lends theoretical backing to the two main schools of thought concerning fairness in the delivery and financing of health care. The first is that the delivery of health care should be based on the individual's need for care, rather than his ATP. The second is that payments for health care should be based on the person's ATP and not on need or actual receipt of care. A further extension to this second reasoning is that payments for health care should also not unduly burden the poor to the extent that the poor's welfare is further compromised. Taken together these principles require that fairness or equity in the delivery and financing of health care be assessed separately and findings combined to give a composite picture on the performance of a country's health system from the perspective of equity (Wagstaff and Van Doorslaer, 1993).

2.3 EQUITY IN THE DELIVERY OF HEALTH CARE

The ethical principle underlying equity in the delivery of health care is that care should be delivered on the basis of need and not ATP. A health system that has achieved fairness in the delivery of health care is one that ensures equal utilisation of health care for persons of equal health needs to the exclusion of other considerations including ATP, an example of Aristotle's rule of horizontal equity (Wagstaff and Doorslaer, 2000).

2.3.1 Access to and Utilisation of Health Care

In examining issues related to equity in the delivery of health care, it is logical to examine issues that can form barriers for individuals in need of care to access such care. Access to health care is first and foremost a supply issue which is related to the levels of availability of services to individuals (Goddard and Smith, 2001). Ensuring access to

care requires that there be adequate quantities of health care resources and that these resources be distributed in a manner in which individuals can gain easy physical access to them. However physical accessibility alone is not sufficient to ensure access to care. Access to health care also needs to be examined from the viewpoint of financial accessibility to care. Living in close physical proximity to a hospital does not automatically mean that an individual has access to health care offered there if he is unable to pay for the care he needs. Quality lends the third dimension to the issue of accessibility to health care. The quality of health care delivered in different health care facilities may differ and this differential quality can affect health outcomes. In view of this, access to health care of a lower quality should not be equated to access to health care of a higher quality.

Examination of access issues related to delivery of health care have often been facilitated by the examination of actual health care utilisation by individuals (Wagstaff and Van Doorslaer, 1993). Utilisation of care simultaneously takes into consideration concerns about physical and financial accessibility and accessibility to services of differing quality of care into a single indicator. Utilisation reflects the actual demand for health care in which individual preferences for care has been incorporated and in which physical and financial barriers to care have been overcome. Thus assessment of actual utilisation of various health care services across individuals or groups of individuals in a population can give an indication of the fairness in the delivery of health care services in the same population. The interpretation of fair delivery of health care as utilisation of care according to needs has been adopted in empirical studies on health equity (Lu et al., 2007, Cisse et al., 2007, van Doorslaer et al., 2000, Wagstaff et al., 1991).

2.3.2 Understanding Health Needs

The fair delivery of health care requires assessment of the use of health care in relation to the individual's need for that care. The difficulty then is in deciding when health care is actually needed (Culyer and Wagstaff, 1993).

It can be argued that an ill person has need for care and by extension a more ill person has a higher need than one who is less ill. But it will also be obvious that not all who are ill can be said to need health care⁴ especially if the technology to effect improvement in health for the illness suffered or the severity of illness suffered does not exist. Moreover, persons who are not ill can also require health care to maintain their health and to prevent illnesses. Vaccinations are crucial to prevent occurrence of certain serious childhood diseases. Regular mammograms for older but otherwise healthy women can help detection of early breast cancers. Therefore, existence of an illness per se is not necessarily an indication of need and neither is the lack of an illness necessarily an indication of the lack of need. This has led to arguments that instead of occurrence of illness, need should be examined from the perspective of a person's capacity to benefit from health care in order to achieve the goal of health improvement (Culyer and Wagstaff, 1993). The inclusion of the condition that persons receiving health care must be able to benefit from care also accords well with Daniels' understanding of needs in his theory of distributive justice in which need for health care is understood to mean effective care to achieve normal human functioning (Daniels, 2008).

⁴ Health care in this instance excludes palliative care which refers to care in the terminal stages of illness aimed not at cure but at reduction in pain and physical suffering.

The equity interpretation of health needs as having the capacity to benefit from health care has led to the examination of utilisation rates of various health care services between more and less advantaged social groups (Balarajan et al., 2011). The underlying assumption in these efforts has been that those who are in the less advantaged social groups would have higher capacity to benefit from health care since they are generally assumed to have lower levels of health than those in more advantaged social groups.

2.4 FAIR FINANCING OF HEALTH CARE

Fair financing of health care is concerned with two main issues. The first is that payments for health care should be delinked from utilisation of care and should be related purely to the individual's ATP. While it is generally accepted that richer individuals should pay more than poorer individuals, it is still contentious whether richer individuals should pay more in absolute terms or pay more in terms of larger shares of their ATP. Thus the crux of the matter then is the nature of the relationship between health payments and ATP. The second issue in fair financing is that payments for health care should not be so large such that they compromise the welfare of individuals to the extent that they are plunged into a financial catastrophe or to the extent that they are impoverished. In other words, when health care is fairly financed, all individuals should be provided with adequate financial risk protection in health.

2.4.1 **Progressivity of Health Payments**

At the core of the current debate is the question of whether the relationship between health payments and ATP in a fairly financed health system should be one of proportionality or progressivity since most would agree that a regressive system is not ideal. A proportional health financing system is one in which households contribute the same proportion of their ATP to finance health care in the country⁵. A progressive system is one in which the household contributions increase as a proportion of ATP as ATP increases. On the other hand, a regressive system is one in which the contribution decreases as a proportion of ATP as ATP increases. Applying Aristotle's principle of justice, households with differing ATPs should contribute appropriately dissimilar payments for health care. In other words, health payments should be assessed on a basis of vertical equity. However, the ongoing debate demonstrates that there is no consensus surrounding the meaning of 'appropriately dissimilar payments'.

In both proportional and progressive financing systems, households pay more in absolute terms towards the financing of health care with increasing ATPs. However, Murray et al (2001) argued that the 'maximally fair distribution of financial contribution to the health system' is one in which every household pays the same proportion of their ATP towards health care. This means that a fair distribution of health payments is a proportional system. Accordingly, progressive and regressive systems will be considered equally unfair. The rationale for choosing a proportional payment system as the 'maximally fair distribution' was said to be based on public opinion, specifically on the outcome of a survey of 1,000 individuals either working in

⁵ Households make payments for health care in many forms. Direct household OOP payments are just one manner of health payments. Households also pay taxes and health insurance premiums, all of which make up part of a country's financing of health.

the WHO or interested persons who responded to an online call to participate in the survey. The notion of proportionality as fairness was then developed into an index of fair financing which was then used to assess the performance of the health financing systems of 191 WHO member countries (World Health Organisation, 2000). This index in essence measures the degree to which each country's health financing system departs from proportionality and which equally faults progressive as well as regressive systems.

Wagstaff (2002) in his critique of the manner in assessing fairness in health financing as adopted by WHO, pointed out that a proportional health financing system may not be the logical policy choice of governments. He began defence of his stand by stating that the idea of linking health payments to ATP will find favour with policy makers based on the premise that policy makers are naturally concerned that health payments may deter people from seeking care. However, policy makers are also likely to be concerned with the adverse effects of health payments on the distribution of disposal income, i.e. the redistributive effects of health care payments on income, due to the concern that health payments may reduce available household resources for other essential goods and services such as for food and housing and thus reduce welfare. As the redistribution of income is dependent in large part by the progressivity of health payments, Wagstaff argued that a progressive system should then be fairer than a proportional one.

The notion that a progressive rather than a proportional health financing system should be the yardstick to assess fairness in the distribution of health payments has been widely adopted in countries both rich and poor (Wagstaff et al., 1989, Wagstaff and van Doorslaer, 1992, Yu et al., 2006, Akazili et al., 2011, O'Donnell et al., 2008a).

2.4.2 Financial Risk Protection for Health

A further extension of the ethical principle that health care be financed according to ATP suggests that households should not be unduly burdened by health payments to the extent that their welfare is catastrophically reduced (Murray et al., 2001, World Health Organisation, 2000, Daniels, 2008). This has led to a body of literature concerning financial risk protection in health which looks at the household levels of catastrophic health payments and medical impoverishment (Ataguba, 2011, Kawabata et al., 2002, Somkotra and Lagrada, 2008, van Doorslaer et al., 2007, Wagstaff, 2008, Xu et al., 2007).

Financial risk protection for health is concerned with ensuring that households do not suffer excessive financial hardships because of the need to pay for health care and because of this, work on the understanding of financial risk protection for health almost exclusively focuses on direct household OOP payments. Occurrences of illnesses and thus the need for health payments are generally unpredictable (Arrow, 1963). Some sources of health financing, such as taxation and health insurance, provide a measure of insurance against the financial risk of ill health. However, such protective insurance mechanisms are lacking in OOP payments where payment is required at the point in which a person falls ill whenever this occurs. Moreover many LMIC have been forced by economic circumstances to rely on OOP payments as the main source of funds for financing health. These poor countries do not have sufficiently large tax bases or economic wealth to be able to finance health care adequately from the public purse. As a result, user fees are imposed on persons requiring health care and these fees are usually paid for using OOP payments. In general, the lower the economic development

in a country, the higher the OOP payment shares of total health expenditures in the same country (Figure 2.1).



Figure 2.1. The OOP payments shares of total health financing in WHO member states, 2008

Source: (World Health Organisation, 2011).

Information on the OOP health payment shares of total financing in a country do not tell the complete picture of the extent that such payments can compromise household welfare. In order to do this, assessment has to be made at the level of the households. Intuitively, distributions of OOP health payments which fall disproportionately on poorer households may provide an indication of higher welfare impact and thus examination of OOP payments distributions contribute to the understanding of risk protection. In addition, empirical work measuring financial risk protection for health have also related household health payments to specified payment thresholds defined in relation to the household ATP (Wagstaff, 2008). Depending on the nature of these thresholds, these studies have measured levels of catastrophic health impact or levels of medical impoverishment.

A household is said to have incurred catastrophic health expenditures if its OOP payments for health exceed a pre-defined fraction of household resources. Various catastrophic payment thresholds have been cited in the literature ranging from 2.5 per cent of total household income (Wagstaff and van Doorslaer, 2003) to 40 per cent of capacity to pay which is essentially household non-food consumption (Xu et al., 2003). However the basic concern underlying the concept of the catastrophic health payment threshold is that OOP payments in excess of this level are "*likely to force household members to cut consumption of other minimum needs, trigger productive asset sales or high levels of debt, or lead to impoverishment*" (Russell, 2004).

Health systems that are fairly financed should also protect households from being pushed into poverty because of OOP health payments (Liu et al., 2003, Wagstaff and van Doorslaer, 2003, Wagstaff, 2008). One of the standard methods of measuring poverty usually compares total household income to a poverty line defined by the income required to buy basic needs for a typical household. A household may be forced by circumstances to use most of its resources to pay for health care to the extent that insufficient resources are left over to cover other basic necessities. However, under the conventional method of assessing poverty, this household will not be counted as impoverished. The medical impoverishment approach compares household income or other measures of household ATP to the poverty line before and after health payments. A household with pre-payment resources above the poverty line but with post-payment

resources below the poverty line will then be considered to have been impoverished by health payments. It may not necessarily take large OOP payments to impoverish poor households especially if they were just above the poverty line to begin with. Thus, this manner of assessment is sensitive to poorer households which are more likely to incur hardships even if the quantum of OOP payments is much smaller than richer households.

Thus an evaluation of the extent of financial risk protection for health in a country can be obtained by assessing the distribution of OOP health payments, levels of catastrophic impact and medical impoverishment caused by such payments.

2.5 HEALTH SYSTEMS AND HEALTH EQUITY

2.5.1 Importance of Health Systems

Health systems, ranging from the rudimentary, under-resourced, fragmented and poorly coordinated groups of health care providers in war-torn regions of Africa to the highly technically sophisticated, complex but integrated provider systems of many countries within the Organisation for Economic Cooperation and Development (OECD) grouping, can be found in all nations. Health systems owe their universal existence to the fundamental value that individuals place on being healthy. Individuals make up a community and communities make up a nation. Just as health is valued by individuals, health is also equally valued at the level of communities and nations. Healthy communities enhance economic productivity which in turn enriches entire nations. This is starkly and amply illustrated by the ongoing epidemic of HIV and AIDS in Africa.

Swaziland, one of the poorest nations on earth, has to a large extent been made so by having the highest prevalence of HIV in the world (International Federation of Red Cross and Red Crescent Societies, 2008). It is a country where one in four adults or 26 per cent of the population have been infected with the virus. Because of the HIV epidemic, life expectancy in Swaziland has fallen from 60 years in 1997 to just 31 years in 2004. Despite great scientific advances since the causative agent, HIV, was isolated in 1984, AIDS remains an incurable disease to this day. In the early years, the disease was invariably fatal. Today, death from HIV can be held at bay almost to the extent of the sufferer's normal life span by the administration of a cocktail of drugs to suppress viral replication and thus viral load in the body. The economic fallout of the HIV epidemic in Swaziland has been compounded by the fact that a large proportion of people living with the disease are the young and potentially economically active portion of the population. In view of the discovery of effective anti-viral drugs, the economic fallout of the HIV epidemic in Swaziland could have been lessened had the drugs been made available to all in need in a systematic manner. This should have been the role of the health system in Swaziland. However, like many other poor African nations, the health system suffers from shortages of personnel and facilities for the estimated 1.7 million people and shortage of financial resources to procure needed drugs⁶. The HIV epidemic played a major role in the economic decline of the country but the virus was The lack of an effective health system prevented not the only party at fault. containment of the disease and early return to productivity of its victims. The story of HIV and AIDS in Swaziland is illustrative of the importance of health systems for the health of any nation.

⁶ Information available from <u>http://www.columbia-icap.org/wherewework/swaziland/index.html</u>.

In view of the impact of health systems on levels of health status, trends in health system performance have been traditionally followed up over time using health outcome measures such as mortality and morbidity rates, and life expectancies (World Health Organisation, 2011). These measures reflect the average state of health of the entire population in a country. Increasingly from the last decades of the 20th century, there have been concerted efforts to document not just overall trends in health improvement, or decline, within a country but also the distributional aspects of such improvement, or lack thereof. This came about when it was realised that an estimate of the average level of health outcome in a population, for example mortality rates, can hide significant inequalities in the distributions of health in the population. In some instances, such as when there are adverse health outcomes favouring disadvantaged social groups, these inequalities may be viewed by society to be unfair or unjust - a situation which should sit heavily on society's collective conscience and which should incite collective remedial actions.

2.5.2 The Fair Health System and Universal Health Coverage

Equity in health must first be recognised as a societal goal. Thereafter, it must also be recognised that the achievement of equity cannot be possible in any society without an organised structure to finance and distribute health care in a manner that places due recognition on the greater health needs of socially disadvantaged groups and the possibility that these same groups would be financially incapable of supporting such needs on their own. This organisation, which is the health system, is crucial to the attainment of equity in health. At its most basic level, a health system is concerned with the delivery of health care and the financing of this care. These two health system

components are closely interrelated. Inadequacies and weaknesses in financing of care will affect the capability of a health system to deliver care. Similarly, the manner of delivery of health care will affect the organisation of health financing. Needless to say, the design of both the delivery and financing of health care will affect the distribution of health and consequently equity in health.

The role of the health system as a social determinant of health has been widely accepted (Commission on the Social Determinants of Health, 2008). Social systems to distribute and encourage appropriate use of health care can improve health. The role of the health system as a social determinant of health equity should also be as equally recognised (Gilson et al., 2007). Health systems can help diminish the adverse health effects of social stratification that has led to the creation of groups of people facing social and economic discriminations in their own societies. This can be done by fulfilling the health needs of disadvantaged groups without requiring them to fully pay for the health care services needed and consumed. In order to accomplish this task, the delivery and financing components of the health system must be carefully designed. Sufficient funding must be mobilised based upon the principle that the rich should cross-subsidise the poor to the extent that adequate financial risk protection for health can be provided for all. The end product of which should be a system where regardless of the person's social standing, health care is provided upon evidence of the need for such care, in short, a system which provides universal health coverage.

Universal health coverage has been defined as a situation, "where the whole population of a country has access to good quality services according to needs and preferences, regardless of income levels, social status, or residency" and "which incorporates policy objectives of equity in payments where the rich pays more than the poor, financial protection where the poor should not become poor as a result of using health care and equity in access or utilisation where the distribution is according to need rather than ability to pay" (Gilson et al., 2007, pp. 27).

There are several issues within the context of universal health coverage that need to be highlighted (World Health Organisation, 2010). The first concerns the scope of coverage. Universal health coverage dictates that health care should be provided to the entire population of a country regardless of their social standing or where they may reside. In practice, this means that there should be no geographical, financial or other social barriers, including discriminations, for any individual to obtain health care. The only just criterion for the receipt of care remains the individual's need for care.

The second important issue concerns the scope and quality of health care services to be provided under the context of universal health coverage. This is an important issue on many fronts. The ideal situation would be one in which the health system provides for all health care required by a person throughout his life span. In other words, universal health coverage should provide all care needed from cradle to grave as envisaged by William Beveridge, in his influential 1942 report on social insurance and allied services, and which became the underlying philosophy in the creation of the welfare-based National Health Service (NHS) in the United Kingdom in 1948. However, the cost of providing such care would be phenomenal particularly in the current era of rapidly advancing scientific knowledge. Thus although unpalatable, practical considerations of

fiscal sustainability have at times⁷ required that inclusion of health care services into the package of health care to be delivered should incorporate assessments comparing costs of the services to their clinical effectiveness with inclusion into the package of services provided indicated by affordable cost-effectiveness thresholds (Tantivess and Walt, 2006). In this respect richer nations may be able to afford health systems that provide a larger scope of services that goes beyond the basic health care affordable to poorer nations. In the real world, many a time it has not been the case that specific health needs lead to inclusion or expansion of health care services provided but rather that the determining factor be available financial resources. Thus a truly comprehensive health package may not be accessible to those living in poor nations, as was shown in the situation of Swaziland described in Section 2.2 in this chapter.

As discussed, the idealistic notion of providing a comprehensive health package to all is often constrained by availability of funds. Thus the third and potentially the most important issue with universal health coverage is health financing.

2.5.3 The Fairly Financed Health System

The fairly financed health system as envisaged under the concept of universal health coverage is one in which the rich pays more than the $poor^8$ and where adequate financial

⁷ It must be borne in mind that total reliance on economic evaluations as the basis for the determination of benefit packages can have negative repercussions on health equity. The costs of providing services for some socially disadvantaged groups, especially those who reside in less geographically accessible regions may be very high. Decisions to deny provision of care to these groups based on economic considerations may further compromise their health and thus further increase any existing inequities.

⁸ In this study, this will be interpreted as progressivity in payment based on arguments presented in Section 2.4.1.

risk protection for health is made available to all. How then can a health financing system achieve these goals?

One of the main functions of a health financing system is to collect sufficient funds to procure health care (Kutzin, 2001). As have been the experience of low income countries insufficient funds severely hamper efforts to provide adequate health care to service the needs of their populations (International Federation of Red Cross and Red Crescent Societies, 2008). Funds for health care can be collected from many sources and conventionally these have been categorised into public (e.g. taxes, social health insurance⁹) and private sources (e.g. direct household OOP payments, private health insurance) (Organisation for Economic Cooperation and Development, 2000). However, for purposes of this equity focused narrative it is more appropriate to categorise funding sources into pre-payment schemes (e.g. taxes, private and social health insurance) and schemes where payment is made at the point of service (mainly direct household OOP payments). Pre-payment of health care, in which payment is made in advance of the need for care, circumvents the problem of uncertainties in the occurrence of ill health (Arrow, 1963). Not knowing when one may fall ill, how severe the illness and how responsive is the illness to health care, it is difficult for the average person to save enough money to pay for health care to cover all eventualities. Prepayment schemes thus protect people from being denied care because they did not have the money at the time care was needed. Pre-payment for health care will thus also

⁹ Social health insurance is a mechanism for financing and managing health care through pooling of health risks of its members on the one hand; and the financial contribution of enterprises, households and the government, on the other. Social health insurance scheme generally share features such as mandatory memberships and contributions based on community risk-rating. The objective of the insurance scheme is to meet the community's health needs rather than the individual's demand for health care.

confer a measure of financial risk protection since the ill person need not pay in full at the time when care is needed. It will be obvious that such protective features are absent from financing schemes which rely on payment at the point of service.

Another important equity function of health financing is pooling of funds (Kutzin, 2001). Fund pooling describes how collected funds are pooled before payments are made to providers. The primary purpose of pooling is to distribute the financial risks of ill health such that they can be shared among a pool of people which will reduce the negative financial impact on singular persons. This will provide a measure of protection against the negative welfare impact of excessively large health payments or in other words, provide financial risk protection. Pre-payment schemes for the funding of health care are doubly attractive because they can also incorporate fund pooling in their makeup. Both private and social health insurance pool premiums received from the insured but the benefit from pooling of funds may vary according to the number and size of the funds and the characteristics of persons insured. Fund pooling among larger and more health diverse groups of people will ensure that there will be cross subsidisation between richer, healthier persons and poorer, sicker persons. Mandatory social insurance schemes are more likely to have these features. Financing health care through taxation also allows for fund pooling, the benefits of which are greater if taxation had been structured to be progressive. Direct household OOP payments for health lack such beneficial fund pooling features.

Direct household OOP health payments thus lack the two identified features of health financing which can offer some protection against severe welfare loss from health payments, namely pre-payment of care and fund pooling of health payments.

2.5.4 Equity impact of Public and Private Health Financing Sources

The equity enhancing advantages of pre-payment and fund pooling reach a zenith in publicly financed health systems, namely systems financed via taxation or social health insurance (Xu et al., 2007, van Doorslaer et al., 2007). Unlike privately financed systems, namely systems financed through private health insurance or OOP health payments, inclusion into and receipt of benefits for publicly funded health care theoretically should not be dependent on the person's social standing or ATP. It is also possible to structure public financing such that it incorporate features of progressive health payments¹⁰ and financial risk protection for health¹¹, in other words to ensure public financing of health conform to the features of a fairly financed health system.

At this juncture it needs to be stated that progressive health payments are not the sole prerogative of publicly financed systems. Health systems containing significant elements of private sources of financing may also be progressive. Private health insurance, because of its costlier premiums, is usually purchased by richer households. Thus systems financed predominantly by private health insurance can theoretically be progressive. Similarly, if it is the richer and not the poorer households which made most of the OOP health payments, the financing of health care can also be progressive. Although privately financed health systems can be progressive, they are less likely to be able to provide adequate financial risk protection or adequate health care to all as

¹⁰ For example in health systems financed through general taxation in which tax schedules have been structure to be progressive.

¹¹ For example health systems that provide for health without the need to pay at the point of use. This can be accomplished either by having fee exemptions for the poor or doing without any user fees at all.

provision of health care in such systems are usually based on a person's ATP. A poor person is less likely to be able to afford all needed care and more likely to suffer the financial consequences of paying for care consumed.

As is apparent, fair financing of health, incorporating features of progressivity and financial risk protection, is a necessary condition for universal health coverage but countries having fairly financed health systems cannot be said to have achieved universal coverage unless and until, their entire populations have access to and utilise needed care. Progressivity of health payments and financial risk protection speaks of the equity enhancing features of financing alone. Determination of universal health coverage also needs to be complemented with an examination of actual utilisation of services as progressivity of health financing and financial risk protection, theoretically, can also be achieved in a health system in which only the rich pays for and uses health care. Needless to say, this last situation cannot bring about equity in health. It will require both health payments and utilisation of health care to be fairly distributed in a health system to help bring about health equity.

In this narrative, care has been taken to avoid giving the impression that public funding of care is applicable solely to public sector providers or that private funds are the sole prerogative of private sector providers. Many countries, especially countries where social health insurance play a major role in the financing of care, have predominantly private sector providers but who are financed using public funds, social health insurance (Lu and Chiang, 2011, Wagstaff, 2007b, Yang et al., 2001). Likewise, user fees have been levied by many public sector providers usually as an avenue to increase funding and in many instances these fees have been met through use of OOP payments
(McIntyre et al., 2006, Dao et al., 2008). Public or private provider ownership has less of an impact on health equity than public or private sources of health funds.

2.6 SUMMARY

Work on pathways to achieve equity in health reveals that the more important determinants of health equity are not those that reside within the individual himself, e.g. biological and genetic factors but within the social systems that they live in (Starfield, 2007, Whitehead, 1990). Economic, social and health policies resultant from decisions made by relevant decision making entities can have a major impact on health equity. Policies to alleviate poverty can concomitantly reduce health inequity. Similarly, policies improving educational opportunities especially for women can also reduce health inequity. Moreover, the confluence of public policies acting upon the health sector will determine the make-up of a health system which in turn will determine how health care is to be distributed and utilised by individuals in society. At the individual level, appropriate use of health care can improve health. Aggregation of these individual-level effects then determines the distribution of health in society. Therefore the fair distribution of health in a society is intimately linked to the fair distribution of health care in the same society.

Using moral and ethical arguments, equity in health or a fair distribution in health has been shown to be a worthy societal goal. It is contended that a fair health system, one which provides for universal health coverage, can concomitantly bring about a fair distribution of health. The twin moral principles underlying such a system is the notion that delivery of health care be based on the person's need for care and that the financing of health care be based on the person's ATP for care. The functional components of the fair health system, namely fair delivery and fair financing of care, are collectively integral to achievement of equity in health.

The fairly financed health system incorporates several characteristics aimed at protecting household welfare. It is argued that the financing of health care in a country should be such that the burden of OOP payments should fall disproportionately on the rich sparing the poor and that households need not be forced to pay excessively large amounts of OOP payments in order to obtain health care, payments which are deemed large enough to reduce available household resources for other basic needs. Thus a fairly financed system should provide for adequate financial risk protection incorporating avoidance of household catastrophic health payments and prevention of medical impoverishments. Of the many sources of health financing, direct household OOP health payments have been identified as the one source that has the highest potential to reduce household welfare through the lack of pre-payment and fund pooling mechanisms. Pre-payment for health care allows households to pay in advance of illness episodes so that they need not be required to have sufficient money to pay at the time when illness strikes. It has been pointed out that these features are especially important for the poor, due to uncertainties concerning timing and severity of illness and also response to medical treatment. Because of this, savings may be inadequate. Fund pooling for health care allows the sharing of financial risks for health care and can be a vehicle to permit cross subsidies between the rich and poor and the ill and healthy.

In addition to financial risk protection, the fairly financed health system also incorporates features of a progressive distribution of health payments in which richer households pay a higher proportion of their ATP towards the financing of health care in the country compared to poorer households. It is argued, that having a progressive health financing system will also protect poorer households from the welfare reducing effect of health payments.

Fair financing of health is affected by the public private financing mix in a country. In particular, it is noted that public financing by use of taxation or social health insurance has the potential to enhance fair financing, whilst private financing using direct household OOP payments has the opposite effect. These ideas provide the basis for evaluating whether the prominent role of private financing sources, particularly the OOP health payment component, brought about by the expanding private health sector in Malaysia, have had effects on the fairness of financing in the country. The subsequent chapters examine changes across time in the levels of catastrophic health payments, medical impoverishment and progressivity in health payments, to help gauge whether the Malaysian health system has been fairly financed over time.

CHAPTER 3 FINANCING HEALTH CARE IN MALAYSIA

3.1 INTRODUCTION

Socioeconomic development in Malaysia, especially in recent decades, has brought about rapid improvement in the general health status of the population. Through consistent political commitment, national wealth has been invested in social infrastructure such as schools and health facilities throughout the land. In particular, the country's underdeveloped public health system at the time of independence from British rule 60 years ago has been gradually improved upon. The modern public health system is vastly superior to its predecessor both in terms of geographical coverage and scope of services offered. Despite the progress made, demand for private health care has increased over the years, partially brought about by the same improvement in socioeconomic circumstance that resulted in development of the public health system. The changing balance in public and private provision of health care can have impact on the distribution of health care financing in Malaysia which in turn would lead to questions concerning the existence of fair financing of health care in the country and its extent.

This chapter begins with Section 3.2 which describes the evolution of the health care delivery system in Malaysia, especially the rapid expansion of the private health sector over the past decades. Section 3.3 will provide an analysis of the country's health financing system to examine trends in health financing for the years 1997 to 2009. This

section will also contain a review of existing evidence for fair financing of health in the country. The chapter concludes with Section 3.4 which provides a summary of important health system changes relevant to this study of fair financing in Malaysia.

3.2 EVOLUTION OF THE MALAYSIAN HEALTHCARE DELIVERY SYSTEM

The Federation of Malaya was formed in 1957 when the 11 states in the Malay Peninsula achieved independence from British rule. Malaya became Malaysia in 1963 with the inclusion of the island of Singapore to the south and the states of Sabah and Sarawak located across the South China Sea on the island of Borneo. Subsequently, Singapore left the federation in 1965 to form her own independent sovereign state.

Gradual improvement in the socio-economic environment was achieved even as the country's borders expanded to the east and the south and with that came gradual improvement to the health of the average person in Malaysia (Table 3.1). In 1957, the average life expectancy at birth for a male was 56 years and for a female was 58 years (Ghani and Yadav, 2008). By 2005, a newborn baby in Malaysia could reasonably expect to live beyond his or her seventieth birthday (Department of Statistics Malaysia, 2009).

Indicator	1957	1980	1985	1990	1995	2000	2005
Life Expectancy at Birth (years)							
Males	56.0	66.4	67.7	68.9	69.5	70.0	71.4
Females	58.0	70.5	72.4	73.5	74.3	74.7	76.2
Infant Mortality Rate	75 5	23.8	16.4	13.1	10.3	65	6.6
(per 1,000 live birth)	75.5	25.0	10.4	13.1	10.5	0.5	0.0
Maternal Mortality Rate	32	0.6	03	0.2	0.2	03	03
(per 1,000 live births)	5.2	0.0	0.5	0.2	0.2	0.5	0.5
Per capita GDP ¹ (RM)	NA	6,838	7,672	9,542	13,128	15,169	17,194

Table 3.1.Selected health indicators, Malaysia, 1957 - 2005

Note: ¹In constant 2000 prices. NA=not available.

Source: (Ghani and Yadav, 2008, Department of Statistics Malaysia, 2009)

By 2000, Malaysia, a middle income country, had achieved levels of life expectancies comparable with countries of similar economic development (World Health Organisation, 2011), while certain indicators such as infant and maternal mortality statistics were closer to countries with higher economic development (Table 3.2).

	Life Expecta	ncy at birth	Infant Mortality	Maternal Mortality Ratio	
Country/Dogion	(yea	urs)	Rate		
	Famalaa	Malaa	(per 1,000 live	(per 100,000 live	
	remaies	wrates	births)	births)	
Malaysia ¹	75	70	6.5	30	
Low income ²	55	52	91	740	
Lower middle income ²	66	63	55	320	
Upper middle income ²	73	65	28	100	
High income ²	81	75	7	13	
African Region ²	52	48	98	780	
Region of the Americas²	77	71	22	81	
South-East Asia Region ²	64	61	62	380	
European Region ²	76	68	19	29	
Eastern Mediterranean	65	62	65	390	
Region²					
Western Pacific Region ²	74	70	28	75	

Table 3.2.Selected health indicators, WHO member states, 2000

Source: ¹(Department of Statistics Malaysia, 2009), ²(World Health Organisation, 2011)

The pattern of diseases occurring in Malaysia has also been changing from one dominated by communicable diseases of which malaria and tuberculosis were significant scourges to one in which non-communicable diseases, such as diabetes mellitus and ischaemic heart diseases, are becoming more prominent. However, the country has not quite emerged from this epidemiologic transition and both communicable and non-communicable diseases still plague the populace (Abu Bakar and Jegathesan, n.d.).

Part of the observed improvement in health status in Malaysia can be attributed to improving health care. The science of medicine has been rapidly advancing in recent decades and many incurable or debilitating diseases of old are now no longer so. New or improved technology currently exist to diagnose and cure or if this is not possible, to prolong and improve quality of live. All these advancements combined with increasing affluence and a more informed society required that the Malaysian health system made necessary changes in response to the changing health needs and demands of the population.

3.2.1 Development of Western and Traditional Medical Care Systems in Malaysia

In common with many other Asian countries, the people of Malaysia have options of both traditional and western medicine. The main economic activities under British colonial rule in the 19th and 20th centuries, which were tin mining and rubber cultivation, attracted migrants from China and India to the country. Since then, the Chinese and Indians have become an integral, albeit a minority, part of Malaysian society which in 2010 numbered 27.6 million people (Department of Statistics Malaysia, 2010a). Malays form the largest ethnic group comprising of about 50 per cent of the population, while the Chinese, Indians and *'orang asli'*¹² (the indigenous tribes) make up 23 per cent, seven per cent and 11 per cent respectively (Department of Statistics Malaysia, 2010b). The rest of the population are mainly non-citizens.

¹² The 'orang asli' or indigenous tribes in Malaysia include diverse groupings of peoples residing in the Peninsular as well as in the states of Sabah and Sarawak on the island of Borneo. These peoples have been accorded similar social and economic privileges as the Malays in the country's development plans in an effort to improve their socio-economic status to be on par with the rest of the ethnic groups in the country. Together with the Malays, these indigenous peoples are referred to as '*bumiputeras*' or princes of the earth. However, in terms of culture, economic activities and living standards, the indigenous peoples are different from the Malays, with the Malays generally enjoying a higher living standard than the others. In recognition of this, subsequent chapters in this report will make reference to Malays and Non-malay Bumiputeras separately.

Traditional medicine is based on cultural beliefs and because of this ethnic diversity, a mix of Malay, Chinese, Indian and indigenous medical practices currently exist side by side with western medical practice (Figure 3.1). Findings from a national household health survey conducted in 1996 indicated that 3.8 per cent of respondents who had been ill in the two weeks prior to the survey had obtained health services from both western and traditional medical practitioners (Institute for Public Health, 1997). However, the mode of delivery of traditional medicine in the country may not necessarily require a visit to a medical practitioner. Herbal remedies commonly used in traditional medicines are freely available in retail outlets throughout the country. The market for these herbal products is said to be large and in 2009 it was estimated at RM10 billion (New Sarawak Tribune, 28th February 2011). Prior to 2007, traditional medical care was mostly paid for using OOP payments as people who wished to obtain traditional care could only do so from private sector providers. However, the MOH has since provided limited traditional care services¹³ in three public hospitals, namely the Kepala Batas Hospital in Penang, Putrajaya Hospital and Hospital Sultan Ismail in Johor (The Star, 16th June 2008). These services are subsidised using public funds.

¹³ Chinese acupuncture, Malay massage and Chinese herbal oncology services.





Western medicine was introduced into the country by European colonial powers. The Portuguese established two hospitals in Malacca in the 16th century (Ghani and Yadav, 2008). The Dutch built another hospital and a clinic in the same town in the 17th century. However, it was the British who had the strongest influence in shaping the health system that is in existence in Malaysia today.

In 1786, the British established a permanent trading post in Penang and from then to the middle of the 20th century British influence gradually expanded to cover the administration of the entire country (Ghani and Yadav, 2008). The development of the health system kept pace with expansion in British control (Tate et al., 2005). Early hospitals and clinics were set up in urban centres where the British were concentrated. The British passed laws to compel plantation owners to provide basic medical care for their workers, mainly the Indians. Chinese migrants who prospered under British rule established hospitals mainly to cater to their countrymen. These were mainly charity hospitals and some are still functioning today. But most significantly, the British brought in modern scientific ideas of sanitation, public health measures, medical care and social values that were then incorporated into the foundation of the country's health system. Foremost amongst these was the belief that free health care should be made available for all citizens in need.

3.2.2 Development of the Public Health Sector in Malaysia

Efforts to achieve universal health coverage in Britain started in 1911 with the enactment of the National Health Insurance Act to provide compulsory health coverage for low income manual workers and culminated in the establishment of the NHS in 1948 which extended comprehensive health coverage to all citizens (Roemer, 1991). The NHS was based on a set of recommendations laid down in the 1942 Report on Social Insurance and Allied Services which was authored by a committee led by William Beveridge. The report recommended that the state be responsible to provide for a minimum standard of living for all which included provision of employment, education and health care. Comprehensive health care was to be provided to all citizens based on need and regardless of his ATP for services. As a consequence of this, the NHS established a network of public providers, organised into four regions of England, Wales, Scotland and Northern Ireland, which was funded from general taxation. Since its formation, the NHS has undergone many changes which may have reduced the scope of care to individuals but the basic structure of public provision and financing has remained to this day.

At the point of independence from British rule in 1957, Malaya inherited a health care system which shared many features with the Beveridge model existing in the United Kingdom at the time (Phua, 1989). Like the NHS, the public health care system in Malaya was tax financed and delivered services from a network of publicly owned health facilities. Although deemed affordable because of the low fees, geographical accessibility was an issue at the time because the health care facilities were initially few in number and mainly urban-centric. The Rural Health Services was initiated by the government in the 1950's and this eventually brought much needed care to the majority of the population in the country who were living far from towns and existing health facilities at the time (Jayesuria, 1967). The rural health services were initially based on a three-tiered structure in which a midwife clinic would be provided for every 2,000 rural population, a sub-district health centre staffed by one nurse and one medical

assistant for every 10,000 population and a district health centre staffed by doctors and other para-medical staff for every 50,000 population. In later years, the scope of rural health services was expanded from purely primary care to include secondary care delivered from district hospitals. The MOH also established hospitals in urban areas to provide secondary and tertiary care. A national referral system has been established to link facilities providing different levels of care and to enable patients to be referred from the clinics to the level of care that they require. Thus, the public health system in Malaysia has been structured to provide comprehensive health care, from primary to tertiary levels, to individuals in need.

Upon independence in 1957, various ministries and central agencies were created to take over the administration of the country. The health of the nation was placed under the stewardship of the MOH and since then this ministry has been the largest provider of health care in the country. However, public provision of health care is not the responsibility of the MOH alone. In addition to the MOH, several other governmental agencies also provide health care to the population (Figure 3.1). Health care services are provided by the Ministry of Defence and the Ministry of National Unity and Community Development to the military personnel and their dependents, in the former, and the indigenous peoples of the land, in the latter. The Ministry of Higher Education funds and manages a total of three teaching hospitals affiliated to the three medical faculties of the University of Malaya, National University of Malaysia and the University of Science Malaysia, the three main public universities in the country. Several local authorities and town councils, which are under the purview of the Ministry of Local Government and Housing, also provide some health care services in the larger towns.

3.2.3 Development of the Private Health Sector

In the early days, the private health sector did not feature prominently in the health landscape and consisted mainly of small clinics in the larger towns. However, both the public and private health sectors have since expanded in response to the general economic development of the country and increasing public demand, although the two sectors recorded differential growth rates.

In his review of the Malaysian health system of 1984, Roemer (1991) noted that the public health care system, of which MOH facilities made up the largest component, was the backbone of health care delivery in this country in terms of geographic coverage and health infrastructure¹⁴. However rapid development of the private health sector started in the 1980's and this was more apparent in the hospital sector (Chee, 2008). Private hospitals in the country are generally smaller than public hospitals. In 2005, there were 222 private hospitals¹⁵ with 10,700 beds as compared to a total of 128 public acute care hospitals (122 MOH hospitals and 6 non-MOH public hospitals) and six special care institutions¹⁶ with over 35,000 beds (Ministry of Health Malaysia, 2005). As a consequence, examination of the numbers of hospital beds rather than numbers of hospitals. Figure 3.2 shows the distribution of acute hospital beds in the country from 1990 to 2005. In 1990, private hospital beds made up only 16.4 per cent of the total acute hospital beds in the country. Since then, the numbers of private hospital beds

¹⁴ Roemer reported that the public sector has a total of over 28,000 acute care and long-term care hospital beds compared to only about 3,500 private hospital beds in the country at the time.

¹⁵ All of which are acute care hospitals.

¹⁶ These hospitals are mainly for the care of patients requiring long-term hospitalisation such as for persons with severe psychiatric conditions. All such hospitals are in the public sector. There are no comparative private hospitals in this category.

have increased at a faster pace than public hospital beds such that by 2005, the share of private hospital beds had gone up to 32.8 per cent. In addition, private hospitals had also been noted to be equipped with more advanced medical equipment. In 1999, 23 out of the 27 magnetic resonance imaging (MRI) machines in the country were functioning in private hospitals as were 67 out of the 87 computerised tomography (CT) scan machines in the country (Malaysia, 2001).

Figure 3.2. Distribution of acute hospital beds, Malaysia 1990 – 2005.



Source: (Ministry of Health Malaysia, 1991, Ministry of Health Malaysia, 1996, Ministry of Health Malaysia, 2000, Ministry of Health Malaysia, 2005)

Distribution wise, public hospitals have wide geographical coverage but private facilities favour the more densely populated states of Penang and Malacca and the

Federal Territory of Kuala Lumpur (Table 3.3). In 2006, these states and territory had more than 100 private hospital beds to each 100,000 population. In contrast, there were less than 20 beds per 100,000 population in the east coast states of Pahang, Terengganu, Kelantan and states of Sabah and Sarawak on the island of Borneo. The smallest state in the country, Perlis had only one two-bedded private hospital.

There are also differences in urban rural distribution of public and private hospitals as shown by findings from the third National Health and Morbidity Survey (NHMS III) carried out in 2006 (Institute for Public Health, 2008a). The average distance between a rural household and a government hospital was 23.7 km. This was less than a third of the average distance between a rural household and a private hospital (89.5 km). Distances between urban households and hospitals are much smaller but public private differences still exist. The average distance between an urban household and a public hospital was 10.5 km but between an urban household and a private hospital was 32.2 km.

	Population	No. of Public	No. of Public	Public hospital beds:	No. of Private	No. of Private	Private hospital beds:
	Estimates ('000)	Hospitals	Hospital Beds	100,000 population	Hospitals	Hospital Beds	100,000 population
Perlis	232	1	404	174.21	1	2	0.86
Kedah	1,919	9	2,214	115.39	12	463	24.13
Penang	1,519	6	1,930	127.10	25	1,921	126.51
Perak	2,315	16	6,202	267.95	15	818	35.34
Selangor	4,962	14	5,356	107.95	52	2,807	56.57
K. Lumpur	1,604	3	3,255	202.88	43	2,523	157.26
N. Sembilan	978	6	1,527	156.10	6	304	31.08
Malacca	739	4	1044	141.31	5	801	108.42
Johore	3,241	12	4,917	151.72	35	1,007	31.07
Pahang	1,484	10	1,841	124.09	9	209	14.09
Terengganu	1,068	6	1,334	124.92	3	31	2.90
Kelantan	1,561	10	2,402	153.93	3	114	7.31
Sabah	3,150	24	4,162	132.13	9	291	9.24
Sarawak	2,404	21	3,613	150.28	11	431	17.93
Malaysia	27,174	142	40,201	147.94	229	11,722	41.17

Table 3.3.Distribution of private and public hospital beds. Malaysia, 2006

Source: derived from information obtained from the Department of Statistics and the Ministry of Health.

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Health care facilities, other than hospitals and hospital beds, are not entirely comparable between public and private sectors. In the case of clinics, for instance, public sector clinics range in scope from small rural clinics where services are provided by a single community nurse to large polyclinics where a wide range of services including medical and dental services are provided by a team of diverse health care professionals including doctors, dentists, pharmacists and nurses. Private clinics are more homogenous consisting of single doctor/dentist clinics or clinics operated by just a few doctors or dentists. Accurate statistics concerning the numbers of private medical or dental clinics in the early years are not available. However, indirect evidence seems to point to the growing numbers of private clinics in the country. In 1996, the average distance between a household and a private clinic in Malaysia was 8.6 km (Institute for Public Health, 1997). By 2006, private clinics were situated nearer to households, the average distance had dropped to 5.9 km (Institute for Public Health, 2008a). However, private clinics like their hospital counterparts were still concentrated in urban areas with the average urban households situated only 2.5 km from a private clinic compared to 13.0 km for an average rural household.

Another important component of health care resources is that of skilled health care personnel. As a pre-condition to practice in the country, doctors, dentists and pharmacists are required to obtain annual certification from their respective regulating bodies¹⁷, all of which operate under the purview of the MOH. Available data from 1990 to 2005 from these regulating bodies show that these health care professionals were predominantly practising in the private sector (Ministry of Health Malaysia, 1991,

¹⁷ The Malaysia Medical Council in the case of medical doctors, the Malaysia Dental Council in the case of dentists and the Malaysia Pharmacy Board in the case of pharmacists.

Ministry of Health Malaysia, 1996, Ministry of Health Malaysia, 2001, Ministry of Health Malaysia, 2006a). From 1990 to 2005, the total numbers of actively practicing doctors in the country had more than doubled but more than half of the doctors were in the private sector (Figure 3.3). A point to note is that the differences in public private shares of doctors lie not just in the numbers but also in the distribution of medical specialists in the two sectors. In 1999, 67 per cent of the country's physicians, 66 per cent of the surgeons and 80 per cent of the obstetricians and gynaecologists had been practicing in the private sector (Malaysia, 2001).





Source: (Ministry of Health Malaysia, 1991, Ministry of Health Malaysia, 1996, Ministry of Health Malaysia, 2000, Ministry of Health Malaysia, 2005)

The public private distribution of dentists and pharmacists were similar to that for doctors where during the period 1990 to 2000, more than half of all dentists and pharmacists in the country had been practising in the private sector (Table 3.4).

Table 3.4.Shares of dentists and pharmacists in the private health sector, Malaysia,1990 - 2000

Year		Dentists	Pharmacists		
	total	% in private sector	total	% in private sector	
1990	1,471	53.03	1,239	67.80	
1995	1,501	52.90	1,214	65.16	
2000	1,562	53.65	1,351	68.69	

Source: (Ministry of Health Malaysia, 1991, Ministry of Health Malaysia, 1996, Ministry of Health Malaysia, 2001)

Growth of the private health sector is not just evident from the numbers and distribution of hospitals, clinics and health personnel alone but is also evident from the diversity of health care facilities that have recently surfaced. Data on the numbers and distribution of private hospitals are available because licensing requirements mandatory under the Private Hospitals Act 1971. This law imposes basic standards for the operation of private hospitals in the country and empowers the MOH to inspect and license these facilities (Nik Rosnah, 2007). Under the law only private hospitals, private maternity homes and private nursing homes have to be licensed on an annual basis. Partially due to the expansion in the numbers and nature of health care facilities in the country, a new legislation to regulate all categories of private health care facilities, the Private Health Care Facilities and Services Act (PHFSA), was enacted in 1998. The new law provides for the licensing of 12 distinct categories of health care facilities namely hospitals, psychiatric hospitals, ambulatory care centres, nursing homes, psychiatric nursing homes, maternity homes, blood banks, haemodialysis centres, hospices, community mental health centres, medical and dental clinics. Licensing of these facilities started in 2006 and thus information on the numbers of private health facilities other than private hospitals has only been available after 2006. Table 3.5 shows the numbers and types of private health care facilities licensed from 2007 to 2010. The purpose in providing this information is not to make comparisons between the public and private sector facilities¹⁸ but to show the complexity and variety of private health care entities that have developed in Malaysia in recent years.

Facility	2007	2008	2009	2010	
Medical Clinics	2,992	6,371	6,307	6,442	
Dental Clinics	937	1,435	1,484	1,512	
Hospital (beds)	195 (11,291)	209 (11,689)	209 (12,216)	217 (13,186)	
Maternity Home (beds)	21 (175)	22 (174)	21 (102)	22 (97)	
Nursing Home (beds)	10 (228)	12 (274)	12 (273)	12 (263)	
Hospice (beds)	3 (28)	3 (28)	3 (28)	3 (30)	
Ambulatory Care Centre	ΝA	ΝA	21(108)	36 (125)	
(beds)		11A	21 (100)	50 (125)	
Blood Bank	NA	NA	5	5	
Haemodialysis Centre	ΝA	NA	75 (848)	101 (2 105)	
(chairs)	NA	MA	73 (848)	191 (2,193)	
Community Mental Health	ΝA	NA	1 (0)	1 (0)	
Centre (beds)	INA	INA	1 (9)	1 (9)	

Table 3.5.Licensed private healthcare facilities, Malaysia 2007 - 2010

Note: NA = not available.

Source: (Ministry of Health Malaysia, 2007, Ministry of Health Malaysia, 2008a, Ministry of Health Malaysia, 2009b, Ministry of Health Malaysia, 2010)

¹⁸ Other than hospitals and clinics, the public health sector does not operate health care facilities equivalent to those shown in Table 3.5.

The PHFSA also mandates that private health facilities submit regular information on their workloads. During the years in which information was available, private hospital admissions shares made up a quarter of all admissions in the country (Table 3.6). This corresponds to the proportions of private hospital beds which were 24.38 per cent in 2008, 25.02 per cent in 2009 and 26.33 in 2010. Similar information comparing utilisation of other categories of health care between the public and private sector are not available to date.

Table 3.6.Hospital admissions, Malaysia, 2008 - 2010

Type of hospitals	Number of Admissions (%)						
Type of nospitals	2008	2009	2010				
MOH Hospitals	2,062,925 (70.07)	2,130,784 (69.00)	2,121,923 (67.93)				
Non-MOH Hospitals	126,677 (4.30)	128,726 (4.17)	132,010 (4.23)				
Private Hospitals	754,378 (25.61)	828,399 (26.83)	869,833 (27.85)				
Total	2,943,980 (100.00)	3,087,909 (100.00)	3,123,766 (100.00)				

Source: (Ministry of Health Malaysia, 2008a, Ministry of Health Malaysia, 2009b, Ministry of Health Malaysia, 2010)

Thus, since 1990, there is evidence indicating the growing presence of the private health sector in Malaysia. This can be seen in the increasing private shares of hospital beds, smaller distances between households and private clinics, larger proportion of health care professionals especially specialist doctors in private practice and the growing diversity of private health care facilities.

3.2.4 Changing Government Stance towards Private Provision of Health Care Services

The British welfare philosophy in health care, which placed emphasis on public provision and funding of care for all, guided the early development of the health system in Malaysia to the exclusion of active enhancement of private sector growth (Barraclough, 1999, Chee and Barraclough, 2007, Rasiah et al., 2011). Until the 1980's, the focus of the government had been mainly to expand provision of public health services especially to the underserved rural areas in the country where the majority of the people then resided (Abu Bakar and Jegathesan, n.d.). Private hospitals and clinics had been largely left alone to develop at their own pace during this time. While matters concerning the professional conduct of private health care professionals were dealt with by their respective regulatory bodies, the operations of private health facilities were only given perfunctory regulatory attention. The MOH licensed private hospitals, maternity homes and nursing homes under the Private Hospitals Act 1971 but these facilities only needed to fulfil mainly basic physical requirements necessary for provision of care to patients.

However, the 1980's saw a dramatic change in the government's perception towards the role of the private sector in the economy of the country. Under the leadership of the then Prime Minister, Mahathir Mohamad, the government unveiled its privatisation policy to actively increase private sector participation in the development of the country's economy among others to reduce the presence of the government in the

economy and also to lower the level and scope of public spending¹⁹. One of the main activities under this policy involved the transfer of publicly owned service providers to private hands. At this juncture, the health sector was not the main target of government actions (Chee and Barraclough, 2007) and within the ambit of the public health sector, privatisation activities only affected the drug procurement and distribution services, hospital laundry services, disposal of clinical wastes, cleaning services, maintenance services of biomedical equipment and general facility engineering maintenance services which were transferred to private companies in stages from 1995 (Malaysia, 1996).

It has been argued that this rather hesitant privatisation of the provision of public health care services was a result of political reluctance to cause potential harm to the predominant Malay electoral, mainly rural dwellers, in a country ruled by a coalition government made up of ethnic based political parties (Barraclough, 1999). Although privatisation of existing public health entities may be perceived to be politically detrimental to the health of the government, it has also been argued that government encouragement of private sector expansion would be deemed less controversial to voters and thus an easier path for the government to take (Chee and Barraclough, 2007). Indeed statements to the effect that the private health sector should be encouraged to develop so that it can complement public provision of health care services as contained in the Sixth, Seventh, Eighth and Ninth Malaysia Plans, spanning the years from 1990 to 2010, seemed to support this line of thought (Malaysia, 1990, Malaysia, 1996, Malaysia, 2001, Malaysia, 2006). What is more significant is that such statements had been absent from earlier national development plans.

¹⁹ Information obtained from

http://www.epu.gov.my/privatizationpolicy?p_p_id=56_INSTANCE_SyuX&p_p_lifecycle=0&p_p_state =normal&p_p_mode=view&p_p_col_id=column-4&p_p_col_count=1&page=1

The change in government views towards private sector provision of services in general has proved to be fertile grounds for development of private hospitals and clinics. Early post-independence economic dependence on natural resources such as rubber and tin had by the 1990's given way to a wider scope of economic activities such as manufacturing. During the Sixth Malaysia Plan period, from 1991 to 1995, the country achieved an average annual growth rate of 8.7 per cent GDP, the highest since independence (United Nations Country Team Malaysia, 2005). Other social indicators also showed high levels of achievement. In particular, the literacy rates among people aged between 15 to 24 years in 1991 were at a high of 95.6 per cent, a marked improvement from the 75.0 per cent just two decades before. It is against this backdrop of increasing consumer purchasing powers and the beginning of consumer empowerment that the development of the private health sector started to take off.

As was shown in Section 3.2.3, the private health sector expanded from the 1990's, particularly in the hospital sector. What could have driven the demand for private health care during this time? Chee and Barraclough (2007) have argued that the main reason for this demand was because of improving consumer purchasing powers which has allowed at least the rich to purchase the more expensive, yet at the same time perceived to be of higher quality, private care. Unlike the primary care gate-keeping mechanism in operation in the public sector, patients can access any level of private health care that they desire and have the means to pay for. The practice of private health care in the country allows a patient to choose his doctor and to be assured clinical management by his chosen doctor unlike the less personal practice of clinical team management in most public health settings. Private health facilities especially those

in rural areas. Another important reason for choice of private care appears to be that of a shorter waiting time. In a 1996 national household survey, more than half of the respondents did not seek care from the nearest health facility to their homes and 61.3 per cent of these by-passed public health facilities in favour of a private clinic or private hospital²⁰ (Institute for Public Health, 1997). The most common reason given for this was because of long waiting times at the public health facilities. Due to this public demand, operating private hospitals has come to be seen as a lucrative business venture (Rasiah et al., 2009, Rasiah et al., 2011).

The lure of profits encouraged not only private investors to develop private hospitals in Malaysia but also government-linked agencies. The largest chain of private hospitals in the country, the Kumpulan Perubatan Johor (KPJ) hospitals, is owned by the Johor State Economic Development Corporation, the investment arm of the Johor State Government (Chee and Barraclough, 2007, Rasiah et al., 2011). Other state governments involved in the provision of private health care include the Malacca, Sabah and Sarawak state governments. Provision of private health care by government-linked agencies indicates the extent of the reversal in government attitude towards provision of health care. Early post-independence effort focused on expanding publicly funded health care to the whole country especially the underserved rural areas which is a welfare motivated ideal, have by the 1990's given way to the view that private provision of health care can be a socially acceptable manner of distributing health care, especially to the rich, as well as an acceptable manner of government revenue generation. To aid public's ability to purchase expensive private care, the government restructured the main social security agency for private sector workers, the EPF, in 1994 to allow for a

²⁰ The rest mainly by-passed one category of public facilities for another.

medical savings account mechanism to enable EPF members to withdraw their savings for purchase of health care (Ng, 2005). The government also provided tax deductions for medical expenses and for purchase of private health insurance (Chee and Barraclough, 2007). The Seventh Malaysia Plan document stated the government's intention to reduce its role in the provision of health care services and instead to concentrate efforts on regulating the health sector (Malaysia, 1996). The mechanism by which this is to be carried out is by corporatising or privatising public hospitals. To date only the National Heart Institute, a tertiary cardiothoracic hospital, has been corporatised²¹. Privatisation of other MOH health facilities have been put on hold partly due to opposition from the public (Chee, 2008)

By the middle of the 1990's, the private provision of health care, aided by consumer demand and permissive government attitude, had become an established way of life in the country and a profitable business venture for investors. At this juncture, the impact of the 1997 Asian financial crisis on the hitherto vibrant and thriving industry was particularly devastating (Chee, 2007, Chee and Barraclough, 2007). During this time the economy of Malaysia shrank. Many people lost their jobs and with unemployment lost their medical benefits. Some who were not made redundant had their benefits reduced. In this environment, there was a demand shift from costly private care to the public system. On the supply side, investors suffered financially when the local currency was devalued leading to problems servicing foreign currency loans and purchase of imported medical goods (Chee, 2008). In order to survive the crisis, private

²¹ The National Heart Institute, a tertiary level cardiothoracic care hospital, started operations as a corporatised entity in 1992. Corporatisation here does not connote full privatisation as ownership of the hospital remained with the government but management wise, it need not adhere to restrictive government requirements such as those for the hiring and firing of staff.

hospitals had to turn from the diminishing pool of local patients who were no longer able to afford private care to foreign patients for whom favourable currency exchange made it financially attractive to enter the country for health care. Health tourism in Malaysia was viewed as a possible panacea to the problems of the ailing private hospitals.

It has been argued that because many of the investors had strong political or personal linkages with the ruling coalition government, their dire financial straits during this period led to active government assistance to the private hospital industry (Chee, 2007, Rasiah et al., 2011, Rasiah et al., 2009). One of the first few government reactions to the woes of the private hospitals was the setting up of the National Committee for the Promotion of Medical and Health Tourism by the MOH in 1998 to develop strategies to attract foreign patients (Chee, 2007). In addition to the MOH, other government agencies have also been involved in promoting health tourism included the Malaysia External Trade Development Association and Tourism Malaysia. Government support included a package of tax incentives²², relaxation of strict medical advertisement guidelines²³ and international promotion campaigns²⁴. The country's economic recovery from the effects of the 1997 financial crisis does not seem to dim government efforts in promoting health tourism. The Eighth Malaysia Plan included statements to the effect that private hospitals are to be encouraged to expand its services and that the development of tertiary health care in these hospitals would serve to promote health

²² Ranging from building allowances, exemptions from service taxes to tax deductions for preemployment training expenses.

²³ Private hospitals allowed bigger scope to advertise services in various media with specific objective of attracting patients, in direct contradiction to previous motive of just informing the public of available services.

²⁴ Private hospitals were invited participants of international promotions organised by the government.

tourism (Malaysia, 2001). Thus towards the close of the twentieth century and beyond, health tourism, and especially the contribution of private hospitals, was no longer being viewed as merely being a saviour to financially ailing private hospitals hit by the 1997 crisis but as a significant contributor to the country's economy in its own right (The Star, 9th November 2009). It has been reported that in the 10-year period from 1998 to 2008, revenue from foreign patients grew from RM 14.1 million to RM 299.1 million, an average annual growth rate of 35.7 per cent (The Star, 10th June 2009). The private hospital industry's return to profitability has led to the next phase of its development. Pursuit of profits in Malaysia coupled with trade liberalisation in the region has facilitated the entry of regional health care companies into Malaysia. Among them, Parkway Holdings, a Singapore listed company, currently owns hospitals in several countries in Asia including Malaysia (Chee, 2008). Thus, it would seem that private health care will continue to be a fixture in the Malaysian health care scene for years to come.

However, it must be noted that the large private hospital presence in the country has ripple effects on the performance of the public health sector. One of the most debated is that of the public-private migration of health care professionals, especially experienced doctors who can obtain much higher financial rewards in private practice as compared to working in the public sector (Chan, 2007, Rasiah et al., 2011). This has raised concerns that the quality of care in public facilities may be compromised and since private care is characterised by high fees and limited geographical distribution, the concern is then that equity in the distribution of health care may be similarly compromised (The Star, 11th June 2009). However, the official stance remains that the national economic benefits than can be accrued from health tourism far outweigh other

concerns, though the government will do its utmost to ensure health care remains accessible to all (The Star, 23rd June 2009).

Thus, it can be seen that over time, the government has changed its attitude towards the private provision of health care in the country. Prior to the 1990's, the official stance was relatively laissez-faire, passively allowing private health facilities to develop at their own pace. The improving consumer purchasing powers combined with increasing appreciation of the quality of private care and a changing government attitude towards private provision of services drove the development of private hospitals during the early years of the 1990's. The 1997 Asian financial crises saw the government abandoning its hitherto passive role to take on a more active role in pushing the development of the private hospitals especially in the promotion of health tourism. With a proven track record of being able to bring in foreign funds, it would appear that the government would continue to support further development of private hospitals and thus ensuring that these facilities will remain a significant feature of the future Malaysian health care landscape.

3.3 HEALTH CARE FINANCING IN MALAYSIA

3.3.1 Sources of Health Care Financing in Malaysia

As was explained in previous section, there is a two-tier system to deliver health care in Malaysia, the public sector and the private sector. These two parallel systems receive the bulk of their funding from mostly dissimilar sources.

Provision of public health care is mainly financed from general taxation (Rozita, 2000). The annual budget for the MOH, which is the main public sector health care provider has been growing gradually from 1990 to 2005 (Figure 3.4) in actual quantum as well as in shares of national budget or gross national product (GNP). It must be noted that the budget allocated annually to the MOH is not the actual annual expenditure of the ministry. The ministry can make additional requests for budgetary shortfalls and this is usually done in the second half of each year ²⁵. Other minor funding sources for public health care are direct household OOP payments, employer sponsored care, private health insurance, EPF²⁶ and SOCSO²⁷. The main reason why these sources play a less significant role in financing public health care is because public funds from taxation had been used to keep user fees low for most services provided in public health facilities which then protects patients from needing to pay at the time care is needed. The

²⁷ SOCSO provides benefits through two social insurance schemes. These schemes cover private sector employees who earn a monthly wage of RM 3,000 or less. Government servants, self-employed persons and foreign workers are exempted from coverage under SOCSO. Essentially the Employment Injury Insurance Scheme provides short-term health and cash benefits to employees in cases of accidents related to work or when employees develop occupation related diseases. The main feature of the Invalidity Pension Scheme on the other hand, is the provision of long term financial assistance, in the form of monthly pensions, to members or their beneficiaries (after the deaths of the members) who were made invalids during the course of their working lives. There are provisions for health benefits in both schemes. The Employment Injury Insurance Scheme provides for medical treatment, rehabilitation and medical aids (such as wheelchairs) for injured or ill members. The medical benefits under the Invalidity Pension Scheme are mainly provision of dialysis treatment to pensioners who develop end-stage renal failure.

²⁵ From author's own experience working in the MOH.

²⁶ The EPF operates through a provident fund scheme in which both the employee and his employer make pre-determined monthly contributions to the employee's EPF account. The scheme covers all private sector employees and non-pensionable public sector employees. The self-employed, domestic helpers, pensionable public sector employees and foreign workers can opt to contribute to EPF voluntarily. From 1994 to 2007, the EPF provided a medical savings account scheme within the structure of the provident fund by earmarking a portion of the employee's account to pay for health care for a specified list of serious medical conditions suffered by the account holder or his close family members. A medical savings account is essentially a dedicated individual savings account for purposes of purchasing health care. In addition from 2000, the EPF allowed members to withdraw their funds to purchase EPF approved private catastrophic health insurance.

government maintains a legislated set of fee schedule for public facilities which covers care provided in all MOH facilities (Government of Malaysia, 1982)²⁸. Since 1982, there had been only three amendments made to this general fee schedule. In 1994, additions of new surgical procedures were made to the existing lists (Government of Malaysia, 1994), in 2003 the fees for foreigners were set at a higher level than for citizens (Government of Malaysia, 2003) and in 2007 the government provided the fee schedules for full paying patients, an upgraded service made available in Putrajaya and Selayang Hospitals (Government of Malaysia, 2007). Moreover, many who do use public services do not pay at all. In 1996, it was reported that 92.5 per cent of people who used services provided by public clinics made no payments at all (Institute for Public Health, 1997). Rohaizat (2004) estimated that revenue collected from patients only contributes about three to five per cent of the MOH's annual budget.

²⁸ A patient needs to pay only RM1 for an episode of outpatient care (inclusive of consultation, investigations and medications) at any MOH general outpatient clinic. Many services provided at these clinics are also free and these include childhood vaccination services. Fees for inpatient care in MOH hospitals are also controlled and set at lower than cost. The daily ward charges in a MOH hospital would range from RM80 a day for a single bedded air-conditioned room (First Class) to RM3 a day in a dormitory-like Third Class ward. Fees for surgical treatment depended on the complexity of procedures and ranges from RM3,000 for a 'Type A' procedure (e.g. renal transplant) for a First Class patient to RM10 for a 'Type F' procedure (e.g. circumcision) for a Third Class patient.



Figure 3.4. MOH Budget Allocations, 1990 - 2005

Source: (Ministry of Health Malaysia, 1991, Ministry of Health Malaysia, 1996, Ministry of Health Malaysia, 2000, Ministry of Health Malaysia, 2006a)

In contrast to the public health sector, private health care providers do not receive direct government funding to provide health care services to the public. In consequence fees in the private sector are set at cost plus profits are thus higher than that in the public sector. An indication of fees in the private sector can be obtained from an examination of the fee schedule for private medical practitioners developed pursuant to Section 106 of the PHFSA. The fee schedule only covers professional fees and excludes ward charges, which includes items like accommodation and food. However an examination of the schedule indicates that fees set by private hospitals and clinics would be higher than those set by the MOH²⁹.

²⁹ The PHFSA fee schedule states that the professional charges for a caesarean delivery be set at RM1,650 for the obstetrician and RM715 for the anaesthetist. These figures exclude other hospital charges such as usage of operation theatres, ward charges, medication charges etc. By comparison, the public hospital fee

Payment of fees for consumption of private health care services comes from a variety of sources. The health care for employees may be paid for in full or partially by their employers as part of their employment benefit packages. The health care for persons who have purchased health insurance may be paid for in full or partially by their health insurers. Some EPF³⁰ members may withdraw funds to pay for their health care. Direct household OOP payments also play a major role in funding of private health care services.

for a similar procedure would range from RM800 for a First Class patient to RM100 for a Third Class patient. There are no professional charges involved but the fees exclude treatment charges (RM10 a day for a First Class patient and free for a Third Class patient) and daily ward charges (RM80 a day for a First Class patient and RM3 for a Third Class patient). Private outpatient charges are similarly higher than that in the public sector. The PHFSA sets a fee ranging from RM10 to RM35 for each visit to a private general practitioner, depending on the complexity of the medical problem. This fee generally includes medication for common medical conditions (e.g. colds and fever) but excludes fees for procedures or investigations for which there would be additional fees. In comparison, a uniform fee of RM1 is charged for an MOH clinic consultation.

³⁰ SOCSO members are only allowed to obtain health care from public sector facilities.

3.3.2 Estimates of Total Health Financing in Malaysia

Prior to 1997, there was a scarcity of comprehensive estimates of the total health expenditures in Malaysia covering both public and private sources of funding. The Health Services Financing Study (HSFS) estimated that in 1983, Malaysia spent only RM 1.8 billion or 2.85 per cent of GNP on health (Westinghouse Health Systems, 1985). The HSFS noted that 76.6 per cent of this amount was spent for the delivery of public health care services and these funds came from government revenues, mainly from general taxation. Of the 23.4 per cent of total health expenditures spent for private health care, the bulk came from direct household OOP payments which made up 18.8 per cent of the total health expenditures.

In recent times, the authoritative source of information on health expenditures in the country is the Malaysia National Health Accounts (MNHA) produced by the MOH (Ministry of Health Malaysia, 2006b, Ministry of Health Malaysia, 2008b, Ministry of Health Malaysia, 2009c, Ministry of Health Malaysia, 2011). Health expenditures in these estimates have been systematically compiled according to internationally recognised standards and are thus comparable across countries and over time in Malaysia (Ministry of Health Malaysia, 2006c, Organisation for Economic Cooperation and Development, 2000).

The MNHA categorises sources of health expenditures by the institutions involved in the funding of health care (Ministry of Health Malaysia, 2006c). These are generally divided into public sources, comprising various governmental and social security agencies, and private sources, comprising mainly private households, private health insurers, and private corporations. The three main governmental agencies financing (and providing) health care in the country are the Ministries of Health, Higher Education and Defence. The health care services provided by these ministries are mainly funded from government revenues which are in turn derived mainly from general taxation. The two main social security organisations in Malaysia are the EPF and SOCSO which provide benefits, including health care, to select population groups in the country (Ng, 2005). Households may make OOP payments to health care providers for the care their members consumed. Private health insurers pay providers for the care consumed by those insured under their insurance schemes. Private corporations may pay for health care consumed by their employees as part of their employment benefit plans.

From 2006 to 2009, the MNHA produced annual national health expenditures covering the period 1997 to 2008 (Ministry of Health Malaysia, 2006b, Ministry of Health Malaysia, 2008b, Ministry of Health Malaysia, 2009c). These official MOH figures showed that prior to 2004, financing of health care in the country came predominantly from public sources made up mainly of funds from the government and much smaller contributions from two social security organisations, EPF and SOCSO (Figure 3.5). In 2004, the quantum of private health funds overtook funds from public sources and thereafter, private sources of health financing predominated. The largest private financing source was that of household OOP payments for health care which on average made up more than 30 per cent of the total health expenditures of the country, ranging from the lowest 30.6 per cent in 2007 to 41.9 per cent in 2005. This change in publicprivate financing mix, especially the large contributions coming from OOP health payments had raised concerns concerning adequacy of financial risk protection for health care in the country and which was also cited as supporting evidence for the need to reform the existing health financing system in Malaysia (Ministry of Health Malaysia, 2009a). In particular, the MOH raised concerns over the high OOP health 80
payment shares of total health expenditures in the country and the its potential impact on access to health care (The Star, 4th March 2012).



Figure 3.5. Public and private health financing sources, Malaysia, 1997 – 2008

Source: (Ministry of Health Malaysia, 2009c)

At the end of 2011, the MOH released a set of revised national health expenditure figures for 1997 to 2008 and new estimates for 2009 (Ministry of Health Malaysia, 2011). These revised and new expenditure information showed that that health expenditures as shares of GDP in Malaysia increased gradually from 2.85 per cent in 1997 to 4.96 per cent in 2009. But the main observation is that although funding from private sources increased gradually from 1997 to 2009, public funding sources still predominated over the entire period (Figure 3.6). The average annual growth rate of

private health expenditures from 1997 to 2009 was slightly higher, 9.15 per cent per annum, compared to the growth of public expenditures, 9.01 per cent per annum.



Figure 3.6. Revised public and private health financing sources, Malaysia, 1997 - 2009

Source: (Ministry of Health Malaysia, 2011)

The predominant private financing source in Malaysia from 1997 to 2009 remained private household OOP payments (Figure 3.7). These payments for health refer to payments borne directly by a patient net of payments by any third party payers (e.g. insurance or employers) and can include insurance co-payments or informal payments to providers (Organisation for Economic Cooperation and Development, 2000). Household OOP health payments made up on average 75.67 per cent of the annual private health expenditures from 1997 to 2009 or 33.73 per cent of the annual total health expenditures. During the same period, OOP payments grew at an average rate of 9.75 per cent per annum. Other private sources made much lower contributions towards financing of health care in the country. Funds from private health insurers have been increasing gradually from 4.26 per cent of total health financing in 1997 to 6.04 per cent in 2009. Health care for many private sector employees is covered under their employment benefit packages. However, this component of health financing has been decreasing over the years from 6.04 per cent of total health financing in 1997 to 2.67 per cent in 2009.



Figure 3.7. Revised private health financing sources, Malaysia, 1997 - 2009

Source: (Ministry of Health Malaysia, 2011)

The private health sector has developed rapidly in the past few decades. This rapid increase could provide a partial answer to observed trends in the public private financing, especially the prominence of OOP payment shares. This has also been acknowledged by the MOH (The Star, 13th November 2012). Fees for public sector services have been kept low using high government subsidies. Moreover, these fees have essentially remained unchanged since the 1980's. Fee waivers are also available for those who claim to be unable to afford even these low fees. On the other hand, fees charged by private health facilities have been increasing over the years as indicated by rising Medical Consumer Price Index (MCPI) for years 1997 to 2009 (Table 3.7). Thus, the increasing private funding of health care, including that of OOP payments, must have been mainly for purchase of private health care.

Year	СРІ	МСРІ
1997	83.5	81.1
1998	87.8	86.1
1999	90.3	88.8
2000	91.7	90.6
2001	92.9	93.2
2002	94.6	95.5
2003	95.7	97.0
2004	97.1	98.3
2005	100.0	100.0
2006	103.6	102.1
2007	105.7	103.7
2008	111.4	106.0
2009	112.1	108.4

 Table 3.7.
 General and Medical Consumer Price Indices, Malaysia, 1997-2009

Source: (Department of Statistics Malaysia, 2009)

3.3.3 Evidence of Fair Financing of Health in Malaysia

There have been several studies which examined the extent of fair financing in Malaysia (van Doorslaer et al., 2006, Yu et al., 2006, Yu et al., 2008, van Doorslaer et al., 2007, Ministry of Health Malaysia, 2003, Rozita, 2000).

Yu et al (2006) found that the distribution of OOP health payments in Malaysia in 1998/99 was mildly progressive. In contrast, Rozita (2000) examined the OOP payment shares of total household income by household income quintiles using data from the Second National Health and Morbidity Survey (NHMS II) survey conducted in 1996. This study found that OOP payment distributions for hospital inpatient care had been progressive but could not determine with certainty the nature of the OOP payment distribution for outpatient care.

Two other studies found that the OOP health payments in Malaysia had low catastrophic and impoverishing impact in relation to many countries in the Asia Pacific region. Van Doorslaer et al (2006) examined the levels of medical impoverishment caused by OOP health payments in 11 LMIC in Asia namely Bangladesh, China, India, Indonesia, Kyrgyz Republic, Malaysia, Nepal, Philippines, Sri Lanka, Thailand and Vietnam. These countries collectively accounted for 78 per cent of the population in Asia and 48 per cent of the world population. In this study, OOP health payments were found to have impoverished some households in Malaysia in 1998 but the levels of impoverishment were low. It was estimated that 0.1 per cent of Malaysian households or 10,562 individuals had been impoverished because of OOP health payments when assessed using the World Bank's absolute poverty line of US\$1.08 per person per day. This level of impoverishment was the lowest among all the countries examined in the study. The results of another international comparative study contributed to the overall

impression of a fair health financing system in Malaysia. This was a study of the catastrophic payment levels in 14 Asia Pacific countries which included the 11 LMIC mentioned earlier as well as the high income countries of Hong Kong, Taiwan and South Korea (van Doorslaer et al., 2007). Among these countries, Malaysia was found to have the lowest level of catastrophic health payment in 1998 where 2.01 per cent of households had payments exceeding the catastrophic payment threshold used which was the threshold of 10 per cent of total household consumption. Households which exceeded this catastrophic threshold were also found to be concentrated among the rich. In the same study, Bangladesh had the highest catastrophic payment level where 15.57 per cent of households exceeded the catastrophic threshold.

However as was explained in Section 2.4 of Chapter 2, assessment of fair financing should not be restricted to the examination of OOP health payments alone especially in a country like Malaysia where other sources of health financing also play important roles in supporting the health system. The assessment of fair financing, in addition to looking at financial risk protection from OOP health payments, requires the application of the moral principle of payment according to the household's ATP and it has been argued that the practical application of this principle would mean that health payments should have a progressive rather than a proportional distribution when assessed against household ATP (Wagstaff, 2002).

Although a policy preference for a progressive payment system has not been explicitly stated for Malaysia, there are indirect indications that this is the preferred policy stand of the MOH. The country's support of a progressive health financing system can be deduced from the reaction of the MOH after the 2000 World Health Report was released. In the report, the accepted goal of a fairly financed health system was that of a ⁸⁶

proportional system (World Health Organisation, 2000). The WHO developed an index of fair financing to measure countries' deviation from this preferred goal of a proportional financing system. This index was used to rank all 191 WHO member countries in terms of the fairness of health financing. Malaysia achieved a ranking of 122 out of 191 countries, behind countries with poorer health outcomes like India (ranked 42nd), Indonesia (ranked 73rd) and Afghanistan (ranked 103rd). Columbia was ranked the first and Sierra Leone the last.

The MOH disputed the findings of the report claiming that the analysis had been conducted on an outdated 1982 household survey (Ministry of Health Malaysia, 2003). The ministry then undertook to repeat the analysis using the same methodology but with a later household survey conducted in 1998/99. This study found that Malaysia fared much better than was reported in the 2000 WHO report in terms of the value of the fair financing index. The index of fair financing for Malaysia was estimated to be 0.917 in the original 2000 WHO report where the value of one indicates a perfectly proportional system. The MOH study re-estimated the index to be 0.982. Based on this new estimate, Malaysia would have been ranked second behind Columbia (index of 0.992) and far ahead of many good performing countries such as Japan (ranked 8th with an index of 0.977). The relevance of these developments to the current discussion is that the MOH did not outwardly question the appropriateness of basing fairness in financing on the extent that health payments should be proportional to ATP as was applied in the World Health Report 2000. However, in its own study, the MOH reported that the index was lower (denoting lower level of proportionality) for the higher income groups compared to the lower income groups and erroneously interpreted this to be that, "health expenditure in Malaysia was quite progressive and that the financial contribution was relatively fair." (Ministry of Health Malaysia, 2003, pp. i). This

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conclusion is flawed as the WHO index of fair financing was not designed to measure progressivity. It was meant to assess the extent of departure from proportionality. A higher degree of proportionality in health payments among the poor compared to the rich does not make for a progressive distribution. However inaccurate, this MOH statement shows that the ministry supports the notion that a progressive health payment system to be a fair one.

Using the same 1998/99 dataset as in the earlier MOH study, Yu et al (2008) examined the progressivity of the entire Malaysian health financing system. The study concluded that the system was equitable because the overall financing of health care in the country was progressive. This finding was the combined result of four progressive financing sources namely direct taxes, private health insurance, household OOP health payments and social security contributions from EPF and SOCSO. The sole regressive financing source was that of sales taxes.

3.4 SUMMARY

Since achieving independence in 1957, Malaysians have enjoyed remarkable improvement in health status. This is in large part due to the gradual expansion of publicly financed and delivered comprehensive health care services. The government's early commitment and focus on achieving universal health coverage through the use of the public health sector, especially to the then underserved rural areas, perhaps serves as an explanation as to its rather laissez-faire attitude towards the development of the private health sector during these early years.

By the 1990's, improving economic circumstances in the country had led to the development of a pool of informed consumers with sufficient purchasing power to be appreciative of the higher quality of care purportedly provided in the private health sector. This combined with the government taking on a more supportive view of private sector participation in provision of social services led to the development of a highly lucrative private health sector, centred on provision of private hospital services. The period 1990 to 1995 saw increases in shares of private hospital beds in the country buoyed by the interests of local investors. When the 1997 Asian financial crisis struck the country, these investors were badly affected by patients shifting from expensive private care to subsidised public care and by the devaluation of the local currency on loan repayments and purchase of imported medical goods. In the immediate aftermath of the crisis, the government had to shake off its passive stance and take on a more active role to assist financially ailing private hospitals. The main strategy at the time was to target foreign patients and to attract them to come to the country for health care. Thus, the local health tourism industry was born. Health tourism was initially viewed as the means by which private hospitals could withstand the effects of the 1997 financial crisis. But by the early years of the twenty first century the government no longer subscribed to this rather limited perception of the benefits of health tourism. Health tourism has been officially commended for its ability to contribute to the development of the country's economy and thus befitting of government assistance to further its development.

With the current prevailing government viewpoint, the expansion of the private health sector is likely to continue. Private health care is predominantly financed from private sources of financing of which OOP payments form a large component. The expanding private health sector has caused concomitant increase in the health funds from private

financing sources. Although the government has a stated policy to encourage the public to share the cost of providing health care in Malaysia (Malaysia, 2001), some policy concerns have been raised over the distribution of private health payments in society. The fear is that large OOP payments may jeopardise access to needed health care especially for the poor. The existence of a large private health sector has to a certain extent impacted upon the quality of care provided in the parallel public sector in Malaysia and because of this even poorer members of society may be tempted to purchase expensive private care which hitherto had been the choice of the rich. Private health care may prove to be an increasingly attractive proposition to the poor as the quality of care in the public sector is being perceived to be deteriorating as a direct result of the increasingly vibrant private health sector.

What is known of fair financing at the moment tells us that despite the economic instability prevailing at the time, studies showed that health care in Malaysia was fairly financed in 1998, that the financing system was progressive and people enjoyed good financial risk protection for health (van Doorslaer et al., 2007, Yu et al., 2008, van Doorslaer et al., 2006). It was known that during the financial crisis, the much cheaper public health sector proved to be the safety net for those no longer able to afford private care. Preference for cheaper public care could have carried on even after the immediate aftermath of the crisis due to the public's extended financial prudence. Thus the good equity performance of the financing system in 1998 may not be reflective of the extent that the expanding private health sector has on fair financing of health in Malaysia. To do this it would be necessary to extend examination of fair financing before and after the 1998 period.

The subsequent chapters will thus examine the situation of fair financing of health in Malaysia to cover the period from 1993 to 2005 straddling the time of the 1997 Asia financial crisis.

CHAPTER 4 DATA AND MEASUREMENT

4.1 INTRODUCTION

The empirical assessment of fair financing of health requires use of nationally representative datasets providing sufficient information from which to derive household health payments and sufficient information from which to derive household ATP. Analysis of changes in fair financing across time also requires similar datasets which need to be comparable. This study on the extent of fairness in health financing in Malaysia was carried out using data from the Household Expenditure Surveys (HES), a series of nationwide household surveys conducted by the main government statistical agency, the Department of Statistics, Malaysia (DOS). The primary purpose of these surveys was to collect information to enable determination of the Consumer Price Index (CPI) for Malaysia but in so doing collected adequate information for the needs of this equity analysis. The analysis was carried out using the 1993/94, 1998/99 and 2004/05 HES datasets.

This chapter begins in Section 4.2 with a description of the HES highlighting the similarities in data collection and classification of expenditures across the three HES used in the study which enabled valid comparisons of expenditures across datasets. Section 4.3 discusses the choice of household ATP adopted in this analysis which is based not just on theoretical arguments but also on practical and logistic issues related to the surveys. The chapter concludes with Section 4.4 which summarises all important data issues in this study.

4.2 HOUSEHOLD EXPENDITURE SURVEYS

4.2.1 Description of Surveys

The HES have been carried out since 1957 but in the earlier rounds, Peninsular Malaysia, Sabah and Sarawak had been surveyed separately and in different years. (Department of Statistics Malaysia, 2006). However, from the 1993/94 survey, the HES have been carried out at regular intervals of five years and with national representative coverage.

The HES were designed to collect information on the level and pattern of household consumption expenditures of goods and services to serve as the basis for updating the CPI weights in Malaysia. These surveys covered only private households in the country. Institutional households³¹ as well as households deemed inaccessible such as some households in the interior areas of Sabah and Sarawak as well as some '*orang asli*' settlements in Peninsular Malaysia had been excluded. It was estimated that three per cent of the total Malaysian population were excluded from the coverage of the HES 1993/94 (Department of Statistics Malaysia, 1995). On the same basis, one per cent of the total households in the country were excluded in the HES 1998/99 as well as the HES 2004/05 (Department of Statistics Malaysia, 2000, Department of Statistics Malaysia, 2006).

The surveys used a stratified two-stage sample design with two levels of stratification. The primary stratum was made up of the 13 states and three Federal Territories in

³¹ Such as hotels, hostels, hospitals and prisons.

Malaysia³² and the secondary stratum made up of urban and rural areas within the primary stratum. Samples were drawn independently within each level of the secondary stratum. In the first stage, clusters of households, referred to as Enumeration Blocks (EBs), were selected randomly from each secondary stratum. In the second stage, living quarters (LQs) were sampled randomly within each selected EB. All households within the selected LQ were included in the survey.

The sampling frame of EBs came from that developed for the preceding Population and Housing Census. The HES 1993/94 and 1998/99 used the sampling frame of the 1991 census and the HES 2004/05 used that of the 2000 census. Each EB is a geographically contiguous area with identifiable boundaries, each containing between 80 and 120 LQs and about 600 persons. The EBs are classified into urban and rural areas based on population cut-offs. Urban areas are gazetted areas with their adjoining built-up areas, which have a combined population of 10,000 or more at the time of the preceding census. Rural areas are areas with less than 10,000 population. The LQ is defined as any structurally separate and independent enclosure which had been constructed as, or converted to, quarters intended for living purposes and each LQ may contain one or Households are defined as "arrangements made by persons, more households. individually or in groups, for food and other essentials for living within the same LQ." Only household members who have stayed in the selected household for 16 days or more during the survey month were included in the HES. However, members whose nature of employment required them to move from one place to another such as deep sea fishermen, express bus drivers, long-haul lorry drivers, timber loggers and sale

³² The Federal Territories consist of Kuala Lumpur (established on 1st February 1974), Labuan (16th April 1984) and Putrajaya (1st February 2001). Putrajaya appeared as a separate entity only in HES 2004/05.

personnel, were also included in the surveys even though they had stayed for less than the required 16 days.

The HES were carried out over a period of 12 months³³ (Department of Statistics Malaysia, 1995, Department of Statistics Malaysia, 2000, Department of Statistics Malaysia, 2006) to capture seasonal consumption variations. The EBs selected for each survey were distributed systematically and equally into 12 monthly survey rounds, each comprising about 1,000 households. The selected households were surveyed for the whole month. Table 4.1 shows the distribution of sampled households by regions, urban/rural location and ethnicity of head of households for all the three surveys.

Characteristics of Households	HES 1993/94	HES 1998/99	HES 2004/05
Total number of households	14,631	9,198	14,084
By regions			
Peninsular Malaysia	10,955	7,442	10,800
Sabah	1,787	859	1,574
Sarawak	1,889	897	1,710
By location			
Urban	8,227	5,232	9,467
Rural	6,404	3,966	4,617
By ethnicity of head of household			
Malays	6,888	4,601	7,966
Non-Malay Bumiputera	1,556	774	1,441
Chinese	4,201	2,636	3,200
Indians	1,011	650	810
Others	975	537	667

Table 4.1. Distribution of households for HES 1993/94, 1998/99 and 2004/05

Source: information obtained from HES 1993/94, 1998/99 and 2004/05 datasets.

³³ The surveys were carried out from April 1993 to March 1994 for HES 1993/94, from July 1998 to June 1999 for HES 1998/99 and June 2004 to May 2005 for HES 2004/05.

Household consumption expenditures were collected mainly using the acquisition approach, where all household members recorded expenditures when the purchases were made. In the case of goods produced by the households for their own consumption, the consumption approach was used in which households recorded the market value of the goods consumed. Imputed rental values of owner-occupied houses were also included as part of household expenditures. Households were told to record expenditures daily in a record book for a period of one month. For infrequently consumed goods and services, households were asked to recall purchases over the previous 12 months inclusive of the survey month.

The household expenditure items for HES 1993/94 and 1998/99 were then classified into nine main expenditure groups based on the Systems of National Accounts 1968 (Department of Statistics Malaysia, 2000). These groups are listed in Table 4.2. There were minor changes between the expenditure classification used in HES 1993/94 and 1998/99. The expenditures for non-alcoholic beverages which had been included in Group 1 (Beverages and Tobacco) in the HES 1993/94 had been transferred to Group 0 (Food) in the HES 1998/99 to allow for separation of the expenditures of alcoholic from non-alcoholic beverages.

In contrast to the earlier surveys, the HES 2004/05 adopted the Classification of Individual Consumption According to Purpose (COICOP) based on the Systems of National Accounts 1993 (Department of Statistics Malaysia, 2006, United Nations, 2000). The nine major expenditure groups used in the previous HES were re-classified into 12 groups to further redefine the purpose for which the goods or services had been purchased by households. This reclassification either created separate groups for items earlier classified together³⁴ or created separately named items within each group which had not been identified individually earlier³⁵. The expenditure groups for HES 2004/05 are also listed in Table 4.2.

Table 4.2.Main household consumption expenditures groups in HES 1993/94,1998/99 and 2004/05

HES 1993/94 and 1998/99		HES 2004/05		
Group 0^1 -	Food	Group 01 -	Food and non-alcoholic beverages	
Group 1 ² -	Beverages and tobacco	Group 02 -	Alcoholic beverages and tobacco	
Group 2 -	Clothing and footwear	Group 03 -	Clothing and footwear	
Group 3 -	Gross rent, fuel and power	Group 04 -	Housing, water, electricity, gas and	
			other fuels	
Group 4 -	Furniture, furnishings and	Group 05 -	Furnishings, household equipment	
	household equipment and operation		and routine household maintenance	
Group 5 -	Medical care and health expenses	Group 06 -	Health	
Group 6 -	Transport and communication	Group 07 -	Transport	
Group 7 -	Recreation, entertainment,	Group 08 -	Communication	
	education and cultural services			
Group 8 -	Miscellaneous goods and services	Group 09 -	Recreation services and culture	
		Group 10 -	Education	
		Group 11 -	Restaurants and hotels	
		Group 12 -	Miscellaneous goods and services	

Note: ¹Includes expenditures for non-alcoholic beverages in HES 1998/99.

²Contains expenditures for all beverages in HES 1993/94 but only alcoholic beverages in HES 1998/99.

Souce: (Department of Statistics Malaysia, 1995, Department of Statistics Malaysia,

2000, Department of Statistics Malaysia, 2006)

³⁴ For example, Group 07 (Transport) and Group 08 (Communications) in the HES 2004/05 came from Group 6 (Transport and Communications) in HES 1993/94 and 1998/99.

³⁵ For example, track suits identified separately as an individual expenditure item in Group 03 (Clothing and Footwear) in HES 2004/05 had previously been put under the miscellaneous group 'others' in Group 2 (Clothing and Footwear) in HES 1993/94 and 1998/99.

Figure 4.1 shows the average monthly household consumption expenditures shares by various expenditure categories for the three HES used in this analysis. In each of the surveys, the household expenditures were mainly for the following goods and services:

- i. food and non-alcoholic beverages,
- ii. housing, water, electricity, gas and other fuels,
- iii. transport, and
- iv. restaurants and hotels.

Household expenditures for health care goods and services made up only a small share, less than two per cent, of average monthly household consumption expenditures in each survey.

Figure 4.1. Shares of average monthly household expenditures by expenditure groups



Note: Expenditures for 1993/94 and 1998/99 have been adjusted to the 2004/05 survey expenditure classification.

Source: (Department of Statistics Malaysia, 2006)

4.2.2 Classification of Household Health Care Expenditures in the HES

Direct household expenditures for health care goods and services remained a separate main expenditure group in all the three HES surveys analysed in this study. There were some minor differences in classifying specific health care expenditure items within the main health care expenditure group in each of the surveys. More health care items had been identified individually in the HES 2004/05 compared to the practice of aggregating many items together in the two earlier surveys³⁶. In doing so, the number of separate expenditure items listed in Group 06 (Health) in the HES 2004/05 totalled 77, while there were only 48 individual items under Group 5 (Medical Care and Health Expenses) in HES 1993/94 and 1998/99. However, the expanded list of health care items in HES 2004/05 would not have a major impact on this study as the aim of this equity analysis is not to evaluate the expenditure distribution of individual health care items but groupings of items and it was possible to form standardised expenditure groupings for all three surveys.

There are two main expenditure groupings of interest. The first expenditure group is defined by the ownership of the health care facility from which health care goods and services had been purchased, namely public sector health facilities or private sector health facilities. Household expenditures incurred in the public or private health sector are of interest as this information can help indicate household preferences for health care providers. The second expenditure group is defined by the broad functional use of the health care items and in this analysis the categories within this group are

³⁶ For instance, in the HES 2004/05 it was possible to separate pharmaceutical products into medicines requiring a doctor's prescription (e.g. anti-hypertensive medications), medicines without prescriptions,(e.g. cough mixtures) and over-the-counter medications (e.g. vitamins). This was not possible in the HES 1993/94 and 1998/99.

expenditures incurred for hospital-based services, non-hospital based services, purchase of pharmaceuticals and purchase of medical appliances or goods. Information on the distribution of household expenditures for these health care services may help focus policy discussion on specific assistance required for vulnerable groups in the country based on their demand for different services. There were sufficient details captured to permit comparability of these expenditure groups of interest across all three surveys. However, some assumptions had to be made in order to place the individual health care expenditure items into the identified expenditure groups.

The manner in which health care expenditure items had been captured in all three surveys generally allowed for the tracking of expenditures incurred by households at public or private sector health care facilities³⁷. Specifically, all three surveys captured separately expenditures for services obtained in public and private hospitals as well as public and private dental clinics. The HES 1993/94 and 1998/99 identified expenditures incurred in private medical clinics but did not separately capture expenditures incurred in public medical clinics. Expenditures incurred in public medical clinics. Expenditures incurred in public medical clinics had been aggregated with expenditures for services obtained in public hospitals. In contrast to the HES 1993/94 and 1998/99, household expenditures incurred in public medical clinics had been listed as a separate expenditure item in HES 2004/05. It may be argued that the expenditure classification in the HES 1993/94 and 1998/99 would cause an

³⁷ In general, public sector health facilities refer to facilities providing health care goods and services which are solely owned by the Government of Malaysia. Private sector health facilities refer to facilities which are owned by non-governmental corporations or individuals. However, health care facilities owned by governmental agencies but operate purely on a for-profit basis are also considered in this analysis to be private sector health facilities. Examples of this latter group are the KPJ hospitals which are owned by the investment arm of the Johore State Government but which are operated on a for-profit basis and do not receive any subsidies from the Government.

underestimate of health expenditures for care obtained in public clinics and an overestimate of health expenditures for care obtained in public hospitals. However, it must be borne in mind that the fee for a visit to a public medical clinic is highly subsidised and throughout the period of the three surveys had not changed from RM 1 per visit inclusive of laboratory tests and medications. Moreover, many patients received free treatment either because the services were free, such as childhood immunisations, or if they claimed to be unable to pay. It was noted that in 1996, 92.5 per cent of persons who received care in public clinics did not pay for such services (Institute for Public Health, 1997). In contrast, the average payment for an episode of inpatient care in a MOH hospital was RM 50. Therefore, the consequences of the different expenditure classification in the HES 1993/94 and 1998/99 are likely to be minimised by the high frequency of non-payment of public clinic services and the much higher quantum of expenditures for public hospital services. Moreover, aggregation of expenditures for public medical clinic services to that for public hospital services would not affect estimates of household expenditures incurred in public or private sector health facilities.

Health care services provided in the hospital setting are diverse and range from services provided to inpatients (patients staying in the hospital) and outpatients (patients who do not stay but visit the hospital for services). Because of higher resource use, inpatient services are generally more expensive than outpatient services. However, the available data in the three HES surveys do not permit disaggregation of expenditures for inpatient and outpatient hospital care. Thus in this analysis, expenditures for all types of health care received from hospitals were captured in the category of hospital-based services.

The HES surveys captured household expenditures not just for health care obtained from Western-trained health care practitioners but also for care provided by traditional and alternative health care practitioners. These health care practitioners, including *sinsehs* and *bomohs*³⁸, do not usually practice in a hospital-setting. Thus household expenditures for Western-based health care obtained in clinics and health care obtained from traditional and alternative health care practitioners have been grouped together in the category of non-hospital based care. Traditional and alternative health care practicing in the private sector³⁹ and thus household expenditures for their services have been included as private sector health expenditures.

Although it is possible that some patients would attend hospitals or clinics solely for laboratory tests or radiological examinations, these procedures are normally performed in relation with an inpatient or outpatient treatment episode and would have the related expenditures aggregated with the expenditures for such services in these facilities. Therefore, it is assumed that separate listing of expenditures for laboratory tests and radiological examinations in the HES had been incurred in private laboratories or radiological centres as such stand-alone facilities are not available in the public sector. It is also assumed that services not normally provided in public facilities, e.g. chiropractor treatment, were purchased from private facilities. Thus in this analysis, it

³⁸ *Sinsehs* are Chinese traditional health care practitioner and *bomohs* are Malay traditional health care practitioners.

³⁹ In 2008, the MOH started providing a limited range of traditional health care services in a small number of public hospitals. The services provided included acupuncture, Malay massage services and Chinese herbal treatments. However, the implementation of these services was after the conduct of the HES 2004/05 and thus will not be considered in this analysis.

is assumed that all listed expenditures for laboratory tests, radiological examinations and other health care services not normally provided in public facilities had been incurred in private health facilities and these expenditures had also been categorised as expenditures of non-hospital based care.

The HES surveys also captured expenditures for a list of pharmaceutical products. It is assumed that the expenditures for these pharmaceutical products had been made in private retail outlets, most likely private pharmacies. In the HES surveys, expenditures for pharmaceutical products dispensed as the result of a visit to a clinic or hospital were included in the overall treatment expenditures for the visit and as such could not be teased out from the expenditures for the rest of the health care services obtained during Thus these pharmaceutical expenditures were included in either the same visit. hospital-based health care expenditures or non-hospital based health care expenditures depending on whether services had been obtained in a hospital, in the former, or a clinic, in the latter. In the instances in which patients had been prescribed pharmaceutical products which were not available in the hospital or clinic, it is assumed that patients obtained these products from a private retail outlet. The basis for this assumption is that in general, public sector pharmacies in hospitals or clinics cater to the needs of their own patients. The public sector does not operate pharmacy outlets outside of hospital or clinic settings in Malaysia. The implication of the above is that the household pharmaceutical expenditure estimated in this analysis does not provide estimates of the total household pharmaceutical expenditures as these estimates excluded all expenditures for pharmaceutical products obtained by the household from hospitals or clinics.

All medical appliances, e.g. hearing aids, wheel chairs and spectacles, were also assumed to have been purchased from private retail outlets as the public sector in general does not provide for the sale of such items direct to patients.

Table 4.3 summarises the manner in which individual health care expenditure items in the HES have been categorised into the health expenditures incurred in public/private health facilities and into the different categories of health care services.

Table 4.3.Main groups for household health care expenditures adopted in this study

Expenditure Group	Expenditure items included			
Private health	• All expenditures which have been listed as having been incurred in			
facilities	private hospitals, private clinics, private dental clinics			
	• All expenditures for listed pharmaceutical products			
	• All expenditures for medical appliances/goods			
	• All expenditures for care provided by traditional and alternative health			
	care practitioners			
	• All expenditures for radiological and laboratory tests			
Public health	• All expenditures which have been listed as having been incurred in			
facilities	public hospitals, public medical clinics and public dental clinics			
Hospital-based care	All expenditures which have been listed as having been incurred in			
	hospitals and include services provided on an inpatient or outpatient			
	basis			
Non-hospital based	• All expenditures which have been listed as having been incurred in			
care	medical clinics and dental clinics			
	• All expenditures for care provided by traditional and alternative health			
	care practitioners			
	• All expenditures for radiological and laboratory tests			
Purchase of	• All expenditures for listed pharmaceutical products and exclude			
pharmaceuticals	expenditures for pharmaceuticals obtained as part of a hospital or clinic			
	visit.			
Purchase of medical	• All expenditures for medical appliances/goods including wheelchairs,			
appliances/goods	hearing aids, spectacles and contact lens			

Source: Author's own classification.

4.2.3 **Reference and Recall Periods for Health Care Expenditures**

The reference period for all household expenditures in the HES was one month and this allowed for the estimation of monthly household consumption expenditures.

Each of the HES was carried out over a period of one year. Households selected for the surveys were divided into 12 groups and one household group was surveyed each month during the one year survey period. The HES adopted a one day recall period for most expenditure items where respondents were asked to record expenditures made on the day of purchase or consumption of the item during the month in which their households were surveyed. Daily expenditures made during the survey month were then totalled to yield monthly expenditures. However, limiting data collection from the households to just one month would mean that infrequently bought items may not be recorded if they had not been bought during the survey month. Thus the HES required household members to record purchases of durable items such as electrical appliances (e.g. refrigerators, and televisions) made in the 12 months prior to the survey, inclusive of the survey month. Such annual expenditures for durable items were then rendered to monthly expenditures by the simple act of dividing the annual expenditures by 12 and adding this to the monthly expenditures of non-durable items to yield total household monthly expenditures.

With reference to health care expenditures, the recall period for durable health care goods, which are also likely to be infrequently bought, such as wheelchairs, spectacles and hearing aids, was set as one year (Table 4.4). The recall period for non-durable goods, which are also likely to be frequently bought, such as pharmaceuticals, was one day. However the recall periods for both hospital-based and non-hospital based care were one day in HES 1993/94 and 1998/99. In contrast, the recall periods for hospital-

based care as well as outpatient health care obtained in medical clinics were one year in HES 2004/05. The recall period for all other non-hospital based care such as dental care in the HES 2004/05 was one day.

Table 4.4.	Comparison of the recall periods of main health care expenditure groups
in HES 1993/9	94, 1998/99 and 2004/05

Expenditure Groups	Recall Periods			
Expenditure Groups	HES 1993/94 and 1998/99	HES 2004/05		
Hospital-based care	1 day	1 year		
Non-hospital based care				
Medical clinics	1 day	1 year		
Dental clinics	1 day	1 day		
Others	1 day	1 day		
Medical appliances/goods	1 year	1 year		
Pharmaceuticals	1 day	1 day		

Source: information obtained from the Department of Statistics Malaysia

Differences in recall periods for various expenditure groups may affect the accuracy of household expenditure estimates. Episodes of inpatient care in hospitals typically occur infrequently and have highly irregular occurrences as compared to episodes of outpatient care. In a 1996 study it was reported that only seven per cent of the Malaysian population had experienced inpatient hospital care in the one year prior to the survey as compared to 16 percent of the population who had at least one episode of outpatient care in the two weeks before the survey (Institute for Public Health, 1997). Therefore, the use of a one day recall period may lead to an underestimate of the household monthly hospital-based expenditures in the HES 1993/94 and 1998/99. On the other hand, the use of a one year recall period to record expenditures for frequently occurring outpatient medical clinic care in the HES 2004/05, may cause an

underestimate of non-hospital based care expenditures due to '*progressive amnesia*', a phenomenon in which longer recall periods tend to introduce more recall bias where survey respondents may not report accurately past expenditures because of a long recall period (Deaton, 1997). Due to the expected frequency of utilisations, it is the normal practice for health focused surveys to use a short, two weeks or one month, recall period for outpatient care and a longer, one year, recall period for inpatient hospital care. The NHMS II and National Household Health Expenditure Survey, both of which had been conducted in 1996, used a two week recall period for outpatient and a one year recall period for inpatient care (Department of Social and Preventive Medicine, 1999, Institute for Public Health, 1997) while the NHMS III conducted in 2006 used a one month recall period for outpatient care and both a one month as well as a one year recall period for inpatient care.

4.2.4 Household Health Care Expenditures captured in the HES and Household OOP Payments for Health Care

Household members in reporting expenditures for health care goods and services have been specifically instructed to report expenditures net of reimbursements by any third parties such as insurers or employers. Thus the health care expenditures captured in the HES reflect the OOP payments for health care incurred by households. As such, premiums paid for personal accident and health insurance listed in Group 5 (Medical Care and Health Expenses) in the HES 1993/94 and HES 1998/99, have not been included as health care expenditures in these surveys. In the HES 2004/05, insurance premiums had been included in Group 12 (Miscellaneous Goods and Services).

4.2.5 HES Response Rates

The response rate for HES 1998/99 was reported to be 82 per cent (van Doorslaer et al., 2007). The DOS provided the response rate for the HES 2004/05, 69.2 per cent, upon direct request⁴⁰. The department could not provide the response rates for the HES 1993/94 but estimates of the population obtained from the HES datasets indicated that there may also have been significant non-response in this survey.

As was explained earlier in this chapter, all three HES analysed in this study used a stratified two-stage sampling design in order to provide nationally representative estimates of monthly household consumption expenditures. The use of the stratified two-stage study design leads to different sampling probabilities for the sampling units and the data on expenditures obtained from any one household need not represent expenditures from the same number of households in the country. In order, to correct for the unequal sampling probabilities, DOS provided inflationary weights with the HES datasets which when used permit estimation of total number of households in the country. The use of these household weights together with data on household size, essentially number of people in each household, should then permit estimation of the total population of the country. DOS has indicated that the weights provided with the HES 2004/05 had been adjusted for non-response but not the weights for the earlier two surveys.

The total population as estimated from the HES using the provided weights were compared with the population projected from census data (Table 4.5). The difference

⁴⁰ Personal communication with Pn Nur Fadzilah Johari, Price, Income and Expenditure Division, DOS on 5th January 2009.

between population estimates obtained from the census and those estimated from HES was only two per cent in 2004/05 but the differences were substantially higher in the earlier two surveys, 22 per cent in 1998/99 and 14 per cent in 1993/94. With reference to the 2004/05 population estimates from HES, it must be borne in mind that the HES surveyed only private households which were accessible to the survey and excluded about one per cent of households. The HES 1993/94 excluded three per cent of the population and the HES 1998/99 excluded one per cent of households in the country. These small numbers cannot explain the larger observed differences between census and HES population estimates for those years. There is thus a possibility that these differences reflect the effect of not considering non-response.

It may be argued that it is possible to adjust the given weights so that total population estimates will then be reflective of census estimates for total population estimates as well as for proportions in regional, urban/rural and ethnic sub-populations. However, such corrections assume that the response rates differ purely by regional, urban/rural and ethnic factors and not by other factors such as income, which is an important factor to be considered in this equity analysis. For example, it may be that a higher number of richer households in the urban areas in the 1998/99 survey refused to participate. Inflating the number of participating urban households will then at the same time inflate the number of poorer urban households. Such an adjustment will then cause some bias to the results of this equity analysis.

Thus, this analysis will apply the weights as provided by DOS to all expenditure estimates without further adjustments for non-response. Moreover, in most of the analyses that will be detailed in subsequent chapters, the focus of the study is not so much on estimation of total expenditures as much as on estimation of expenditure

shares of household consumption in which case considerations of non-response will be of less importance. In addition, Table 4.5 also shows that in general, the proportions of the different population subgroups of interest, as defined by geographical regions, urban/rural strata and ethnicity of head of households, for all three years were comparable between estimates from the census and HES.

	1993/94		1998/99		2004/05	
	$DOS^1(\%)$	$\operatorname{HES}^{2}(\%)$	$\mathrm{DOS}^{1}(\%)$	$\operatorname{HES}^{2}(\%)$	$DOS^1(\%)$	$\operatorname{HES}^{2}(\%)$
Malaysia	19,871,600 (100.0)	17,020,080 (100.0)	22,621,500 (100.0)	17,558,431 (100.0)	25,854,300 (100.0)	25,361,809 (100.0)
By regions						
Peninsular Malaysia	15,973,550 (80.4)	14,095,584 (82.8)	18,077,800 (79.9)	14,487,660 (82.5)	20,586,900 (79.6)	20,266,870 (79.9)
Sabah	2,084,500 (10.5)	1,479,816 (8.7)	2,540,400 (11.2)	1,552,261 (8.8)	2,979,750 (11.5)	2,868,120 (11.3)
Sarawak	1,813,550 (9.1)	1,444,680 (8.5)	2,003,300 (8.9)	1,518,510 (8.6)	2,287,650 (8.8)	2,226,819 (8.8)
By urban/rural strata						
Urban	10,777,800 (54.2)	9,041,184 (53.1)	13,615,700 (60.2)	8,896,179 (50.7)	16,268,100 (62.9)	16,483,201 (65.0)
Rural	9,093,850 (45.8)	7,978,896 (46.9)	9,005,800 (39.8)	8,662,252 (49.3)	9,586,150 (37.1)	8,878,607 (35.0)
By ethnicity						
Malays	9,920,600 (49.9)	8,748,684 (51.4)	11,337,300 (50.1)	9,402,415 (53.5)	13,041,800 (50.4)	14,201,227 (56.0)
Non-Malay Bumiputeras	2,058,500 (10.4)	1,385,136 (8.1)	2,446,800 (10.8)	1,499,418 (8.5)	2,839,150 (11.0)	2,733,959 (10.8)
Chinese	5,222,900 (26.3)	4,629,780 (27.2)	5,631,800 (24.9)	4,436,287 (25.3)	6,114,750 (23.7)	5,393,170 (21.3)
Indians	1,485,900 (7.5)	1,381,212 (8.1)	1,644,050 (7.3)	1,375,286 (7.8)	1,820,800 (7.0)	1,938,058 (7.6)
Others	1,183,700 (6.0)	875,268 (5.1)	1,561,500 (6.9)	845,024 (4.8)	2,037,800 (7.9)	1,095,394 (4.3)

Table 4.5. Comparison between population estimates obtained from census and HES for years 1993/94, 1998/99 and 2004/05.

Note: ¹Mid-year population projections for years 1993, 1994, 1998, 1999, 2004 and 2005 were obtained from DOS. Projections for years 2004 and 2005 were from the 2000 Census while the earlier years were from the 1990 Census. To obtain the projections for 2004/05, the average of the projections for the two years was obtained. Similar method was applied for 1993/94 and 1998/99.

²Population estimates were obtained from the HES datasets provided by DOS using household weights and taking into account household size.

Source: Compiled from information obtained directly from DOS and HES datasets.

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4.2.6 Analysis of HES data

The analyses in this study have been performed using STATA version 10 taking into account the complex survey design of the HES. Though the analyses have been conducted using the HES 1993/94, 1998/99 and 2004/05 datasets, for simplicity reference would hereafter be made to analysis conducted during the years 1993, 1998 and 2004 respectively.

4.3 MEASURES OF HOUSEHOLD LIVING STANDARDS AND ATP

4.3.1 Household Income and Household Consumption

This study aims to describe the burden of health care payments across households of different ATP or living standards to assess whether poorer or richer households have higher payment burdens. Various indicators for living standards have been described in the literature (Deaton, 2003, Deaton and Zaidi, 2002). Household income and household consumption are two of the most commonly used direct measures of living standards. Income can be understood to mean the "amount of money received during a period of time in exchange for labour or services, from the sale of goods or property, or as a profit from financial investments" while consumption is the "final use of goods and services, excluding the intermediate use of some goods and services in the production of others" (O'Donnell et al., 2008b). In the HES, both household income as well as household consumption had been collected.

The concept of money metric utility, first described by Samuelson in 1974, was used by Deaton and Zaidi (2002) to support arguments of measuring living standards by the amounts of money needed to sustain individuals or households. It is assumed that these individuals or households would choose consumption of goods and services so as to

maximise their utility under budget constraints. Their indifference curves will then reflect their preferences for bundles of goods and services and thus are also reflective of their living standards. Money metric utility labels these indifference curves, and by default their living standards, by the amounts of money needed to reach them at a fixed set of prices. It can be seen from this explanation that either household income or consumption can be used in place of the money measure.

The theoretical basis for choosing consumption over income is provided by the Permanent Income Hypothesis (PIH) and the Life Cycle Hypothesis (LCH) (Deaton, 1997). Briefly, the PIH describes the behaviour of consumers whose consumption choices are determined not by their current income but by longer term expectations of income. This hypothesis sought to explain that consumers attempt to maintain constant living standards despite fluctuations in income over a few months or years. Thus, transitory changes in income would not affect the levels of consumption until and unless the consumer deems that such changes would become permanent. Even so there would be a lag time before changes in levels of consumption appear. The idea that consumers prefer constant living standards carries over to the LCH which was described by Modigliani and Brumberg in 1954. While the PIH explains how consumers smoothen their consumption over periods of months or years, the LCH introduces the idea of savings and accumulation of assets to enable smoothening of consumption over an individual's life-span. The smoothening is achieved by savings during the individual's working life and after retirement, the individual could fall back on his accumulated wealth to maintain his standard of living.

Both the PIH and LCH indicate that current income would not be an accurate measure of current household living standards. In the HES, these theoretical considerations are augmented by practical considerations as well. The household income component in the HES was collected by asking heads of household to report the household income⁴¹ for the survey month. Due to seasonal variations in income, especially for households engaged in agriculture and fishing, this monthly income may not correspond accurately to the household living standards. Thus, consumption may be a better measure of household living standards. The reference period for collection of consumption data was also one month. However, unlike income, consumption is unlikely to fluctuate over short periods of time and thus monthly capture will likely yield a more accurate estimate of the household's living standards. Another issue which may affect the accuracy of income data collected concerns the sensitive nature of these data. It is generally assumed that households would be more reluctant to share information concerning their income and assets than information concerning their levels of consumption (Deaton and Grosh, 2000). In such cases, income would be likely to be underreported especially in richer households.

A household's ATP is a measure of the amount of available resources that the household has which can be used to exchange for goods and services so as to improve household welfare or living standards. When used in the context of health care it can be understood to reflect the extent that health care is affordable to the household. Theoretical and practical issues aside, some have argued that a better reflection of a household's ATP for health care is not total household income or consumption but that portion which is remaining after deducting for spending for essential items or basic necessities (Murray et al., 2001, Xu et al., 2003, Wagstaff and van Doorslaer, 2003).

⁴¹ Income consisting of income from paid employment, self-employment, returns from investments and other financial transfers.

Murray et al (2001) have argued that a better measure of ATP should be the effective income (or consumption) available to the household which is income (or consumption) net of 'subsistence expenditures' or to use another term, 'capacity to pay' (CTP). In practice this has been taken to mean total household consumption net of expenditures for food (Xu et al., 2003, Wagstaff and van Doorslaer, 2003). In richer households, it will be obvious that not all food expenditures can be considered subsistence expenditures. Moreover, consumption of health care may actually influence the expenditure patterns of other goods and services in the household and thus expenditures net of essential goods may not be the appropriate yardstick to examine the distribution of health care payments. However, using the CTP concept is intuitively more reflective for the ATP of poorer households compared to the richer ones because poorer households are more likely to spend a larger portion of their resources on essential needs. Thus results of analyses using the CTP will be more sensitive to the welfare impact of health payments on the poor compared to the rich (O'Donnell et al., 2008b).

In view of the discussion above, the measure of ATP adopted in the analyses that follow is household consumption but taking into consideration that the CTP concept may be more sensitive to the welfare changes in poorer households, some components of the analyses, i.e. on assessing extent of household catastrophic expenditures presented in Chapter 6, will incorporate measures of CTP, specifically household consumption net of food expenditures.

4.3.2 Adjusting ATP for Cost of Living

Another issue in relation to measurement of living standards refers to the conversion of nominal consumption values to real values to take into account differences in cost of 116
living (Deaton, 1997, O'Donnell et al., 2008b). In this study, the CPIs for the different years of the surveys were used to adjust household consumption to take into account rates of inflation (Table 3.7). This will allow valid comparison of living standards over the years. However, in addition to differences in prices of goods and services over time, there could conceivably be differences in prices between different regions in the country within the same time period. Prices of goods and services may be different in the rural compared to urban areas and between areas in Peninsular Malaysia and Sabah and Sarawak. However, quantities of goods and services consumed by households were not included in the HES datasets provided by DOS. In the absence of such information, adjustment for differential pricing across regions in the country could not be undertaken for this study.

4.3.3 Adjusting ATP for Household Size and Composition of Adults and Children

The rationale for adopting household consumption as the measure of household ATP was discussed previously. However, household consumption is a reflection of the needs of the entire household and thus is affected by factors such as household size and composition of household members of different needs, such as adults and children.

Total household consumption does not provide a good indication of the actual living standards of households of differing sizes. As household size increases, it is logical to assume that total household consumption would increase as well. Since this increase is restrained by available household budget, the increase in household consumption may not be proportional to increasing household size. The living standards of individual members in a small household of two and a larger household of five, both with ¹¹⁷

equivalent consumption, would obviously be very different. Using total consumption as the measure of household living standards would then overestimate the wellbeing of members of larger households to a greater extent than for members of smaller households. Instead of using total household consumption, the use of household consumption adjusted for household size, i.e. by dividing total household consumption by the number of persons in the household to yield per capita consumption, would thus provide a better reflection of the household living standards.

However, in using measures of per capita household consumption, one would essentially be working under the assumption that household consumption would be equally distributed among all members of the household. This assumption may not necessary hold true as there may be instances in which some groups of household members consistently exhibit higher or lower consumption needs than others. Taking the example of children, it is logical to assume that for most goods and services, a child would consume less when compared to an adult due to differences in physical and biological needs. In poorer, agricultural based economies, consumption of food may also be biased towards productive adult household members at the expense of children. Deaton and Muellbauer (1986) in their analysis of household consumption patterns of Sri Lanka and Indonesia found that household consumption for each child in these countries was about 30-40 per cent what a parent would have spend on themselves.

One of the solutions to this problem would then be to weight the consumption of different households by a factor which would take into account not only household size but also household composition of adults and children. The derivation of this factor will be discussed in the next section in connection with adjustments needed to cater for economies of scale in the use of public goods within the household.

4.3.4 Adjusting ATP for Household Economies of Scale

Public goods are goods which possess two specific characteristics. A public good is non-rivalrous, in that the use of the good by one person does not decrease its availability to others, and non-excludable, in that people cannot be effectively prevented from using the same good. Some goods consumed in a household are pure private goods - a plate of rice can be eaten by only one person. Some goods have properties of public goods an expensive television can be enjoyed by one or more than one person at the same time. It should be noted that the cost of this television should be the same whether it is enjoyed by one or more persons. Thus, the existence of goods with some properties of public goods within the household, referred to simply here as public goods, can confer some savings which can then be directed to other uses to increase the wellbeing of the household members such as for food. Or in other words, economies of scale can exist in a household because of the presence of these so-called 'public goods'. Economies of scale from household public goods are likely to benefit larger households. Assuming all household members are adults, small and large households with equivalent per capita consumption would not be enjoying the same living standards. Economies of scale would free more resources in a large household which can be diverted to increased consumption of other goods and services.

A measure of living standards that would accurately reflect the wellbeing of individual members should take into account not only household size and composition of adults and children as was discussed previously, but also economies of scale from use of public goods within the household. One of the methods of doing this is to divide total household consumption by a factor known as equivalence scales. In general there are several approaches to estimating equivalence scales (Deaton and Zaidi, 2002). The first is the behavioural approach which uses actual consumption patterns of households to gauge the effect of economies of scale as well as consumption patterns of adults and children. The second is the subjective approach in which consumer direct feedback to questions of wellbeing and consumption are used to derive the equivalence scales for households of different sizes. However, there is no general consensus as to which is the better approach. In view of this, Deaton (2003) advocated the use of an arbitrary approach which sets the scale parameters using reasonable prior understanding of consumer behaviour in a country but in an arbitrary manner.

The general formula for setting the household equivalence scales as recommended by Deaton is:

$$e_i = (A_i + \alpha K_i)^{\theta}$$

where A_i is the number of adults and K_i the number of children aged below 15 years in the household *i*. The parameter α represents the cost of a child relative to that of an adult and the parameter θ , with values from 0 to 1, controls for economies of scale. Setting the parameter θ to 1 essentially states that economies of scale do not exist within the household and would appear to be true if most of the household consumption were concentrated on private goods such as food which may generally be the case for poor households. This was the basis for Deaton's recommendation that for poorer economies, the value of θ be set closer to one, while for richer economies θ should be lower. In poorer economies, he reasoned, it would also be appropriate to assume that larger shares of household consumption would be directed towards economically productive adults and that the cost of a child would be much lower than that of an adult. However in richer economies, maintenance of children (e.g. costs of education, clothing and entertainment) would presumably be much higher. Thus, Deaton has also recommended that the value of α be set at lower values for poor economies (e.g. 0.3 for very poor economies) and that α be set at close to one for richer economies, e.g. United States and Europe. Although this method of adjustment is arbitrary, Deaton maintained that the adjustment of living standards for household size, adult-child composition and economies of scale within the household is still a more realistic measurement of living standards than just using total household income/consumption or even per capita income/consumption (which ignores ages of household members and economies of scale).

The Organisation for Economic Co-operation and Development (OECD) has made available several equivalence scales for use by its high income member countries⁴². However, equivalence scales to adjust for household living standards are not commonly used in Malaysian studies. Instead, income inequality as measured by the Gini coefficient as well as poverty rates are routinely reported at the household levels (Malaysia, 2006).

Several recent empirical studies on equity in heath financing in the Asia Pacific region have used equivalence scales to adjust household living standards (Leung et al., 2009, O'Donnell et al., 2008a, Yu et al., 2008). In assessing the redistributive effects of public health subsidies on household income, Leung et al. (2009) used the equivalence scale, $e_i = (A_i + 0.5K_i)^{0.75}$, to adjust the household living standards of Hong Kong, a high income economy. The same equivalence scale was also used to adjust household living standards in a comparative study on the extent of progressivity in health financing in 13

⁴² Available at <u>http://www.oecd.org/dataoecd/61/52/35411111.pdf</u> accessed on 28th March 2012.

Asia Pacific countries ranging from the low income economies of Nepal and Bangladesh, middle income economies of Thailand and Philippines, to high income economies of Hong Kong, Taiwan and South Korea (O'Donnell et al., 2008a). Malaysia was not one of the countries studied.

In contrast, Yu et al (2008) used a scale of $e_i = (A_i + 0.5K_i)^1$ in their analysis of the progressivity in health financing for Malaysia. The authors based their analysis on the HES 1998/99 and found that health financing in Malaysia was progressive. The equivalence scale used in their study basically disregarded economies of scale within Malaysian households. While the authors provided no explanation for the use of this equivalence scale, they did carry out sensitivity analyses using different scales and found that their findings were robust. However an examination of the three HES datasets used in this current study, seemed to imply that economies of scale were at work in the Malaysian scenario. Total household consumption was found to increase with household size but not proportionally such that per capita consumption decreased with household size. In the HES 2004/05, the regression coefficient of the logarithm of household consumption on the logarithm of household size was 0.63 but the logarithm of per capita household consumption on the logarithm of household size was -0.37. Similar results were obtained for the HES 1998/99 (0.58 and -0.42) and HES 1993/94 (0.66 and -0.34). These estimates were obtained using households with adults only to control for differential allocation of consumption to adults and children.

In a similar line of thought, the available data also seemed to imply that children did receive smaller consumption shares than adults. In subsets of households with six members, the regression coefficient of the logarithm of household consumption on the logarithm of number of children was -0.15 in HES 2004/05, -0.18 in HES 1998/99 and 122

-0.25 in HES 1993/94. In view of these results, it would be prudent to accept that economies of scale as well as differential allocations between adults and children exist in the context of Malaysia.

In the absence of definitive work to develop equivalence scales specific for Malaysia, this study adopted the equivalence scale of $e_i = (A_i + 0.5K_i)^{0.75}$ to adjust household consumption, in which it is assumed that the consumption of a child aged below 15 years old is half that of an adult and that some economies of scale exists in the households studied.

4.3.5 Use of Adult Equivalence Scales in this study

The equivalence scale, $e_i = (A_i + 0.5K_i)^{0.75}$, has been used throughout this study to provide for a better indication of household ATP. The ATP of each household was computed by dividing household consumption by the household's equivalence scale which would essentially lead to estimates of monthly per capita adult equivalent consumption. This measure of household ATP would also be used in all measures of ATP related health payment inequality, such as the concentration index (CI) and the Kakwani Index (KI), which will be described in the next chapter. Since the equivalence scale is used to adjust household ATP, the choice of parameters in the scale may affect the measurement of these indices. However, Yu et al (2008) have shown that although the magnitude of these indices may differ, the general conclusions of whether such payment distributions were favouring the rich or poor remained. Similarly, Burniaux et al (1998) in their use of different equivalence scales obtained different levels of poverty in OECD countries but noted that poverty trends across time and the ranking of countries were much less affected by the use of the scales. In subsequent chapters, some attention will be paid to the distribution of estimates of health payments across quintiles of household ATP. These quintiles have been constructed using as the measure of ATP, monthly per capita adult equivalent consumption but the household sizes have been taken into consideration in the construction of each quintile such that each quintile contains a fifth of the population rather than a fifth of the households in each HES. Households differ in sizes and poorer households tend to be larger than richer ones. It is argued that policy wise, it would be more useful to know the shares of total population affected in each component of fair financing of health to be examined in subsequent chapters, than to know the shares of households. Table 4.6 shows the numbers of household and persons in each consumption quintile examined in the subsequent chapters.

Household Consumption		1993		1998	2004		
Quintiles ¹	Number of	Nhon of monsour	Number of	Number of newcong	Number of	Number of persons	
	households	Number of persons	households	households		Number of persons	
Poorest quintile	655,236	3,404,556	674,707	3,513,527	994,329	5,072,367	
2 nd quintile	661,212	3,404,088	720,015	3,512,041	1,093,961	5,075,277	
Middle quintile	728,460	3,404,808	771,583	3,511,563	1,138,312	5,071,566	
4 th quintile	799,956	3,403,188	882,711	3,514,206	1,266,164	5,073,475	
Richest quintile	902,988	3,403,440	975,789	3,507,094	1,371,048	5,069,123	
Overall	3,747,852	17,020,080	4,024,805	17,558,431	5,863,815	25,361,809	

 Table 4.6.
 Comparison between household and population sizes for household consumption quintiles

Note: ¹Refers to population quintiles of monthly per capita adult equivalent household consumption.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

The household health payments reported in the analyses on the distribution of OOP payments (Chapter 5), catastrophic impact of OOP payments (Chapter 6) and progressivity of health financing (Chapter 8), have also been adjusted using the same equivalence scale to give the monthly per capita adult equivalent household health payments. The analysis on the poverty impact of OOP payments presented in Chapter 7 did not use the equivalence scales, the main reasons being data limitations associated with the use of national poverty lines. The rationale for the use of the equivalence scale in the measure of ATP as well as household health payments is related to the argument that household size, adult-child composition as well as economies of scale from use of public goods within the household affect the amount of resources available to maintain the wellbeing of each household member.

Members of households with the same consumption but are of different sizes and having different adult-child compositions do not enjoy the same level of wellbeing. Households which are smaller and with more children have more resources per member and generally are better off. On the other hand, households which made the same quantum of health payments but with different household sizes and adult-child composition would not face the same reduction in wellbeing caused by health payments. Households which are larger and with fewer children will suffer less reduction in resources per household member and would therefore be better off (Wagstaff et al., 1999). Economies of scale from household size also need to be considered in both perspectives. Looking at consumption as a measure of ATP, larger households benefit from the viewpoint of wellbeing because of economies of scale. Using the same line of thinking, economies of scale reduce the loss in wellbeing from health payments in larger households. Thus in this analysis to provide a more accurate reflection of the situation, both household consumption and household health payments have been adjusted using

the same equivalence scale to account for household size, adult-child composition and economies of scale from use of public goods.

4.4 SUMMARY

This chapter highlighted similarities in the manner of data collection across the three HES used in this study which allowed for valid comparisons of health payments across the three surveys. Although the HES 2004/05 had a longer list of specific health care expenditure items compared to HES 1998/99 and 1993/94, it was possible to form standardised health expenditure groupings for all three surveys. The expenditure groups of interest were either defined by the ownership of the health care facility from which health care goods and services had been purchased, namely public sector health facility or private sector health facility, or defined by the broad functional use of the health care items and in this study the categories within this group are expenditures incurred for hospital-based services, non-hospital based services, purchase of pharmaceuticals and purchase of medical appliances or goods.

The HES utilised different recall periods for different categories of health care expenditures. Differences in recall periods for various health care expenditure items may affect estimates of expenditure data of which the two most pertinent ones are that the short one day recall period may affect expenditures estimates for hospital-based care in HES 1993/94 and 1998/99 and the long one year recall period which may affect expenditure estimates for non-hospital based care in HES 2004/05.

The choice of household ATP is an important consideration in this equity study. The PIH and LCH provided theoretical arguments for use of household consumption over

income as the measure of household living standards. These arguments were augmented by practical considerations as well including the possibility of underreporting of income by richer households and seasonal variations in income for households receiving income from agricultural, fishing and other seasonal activities. Arguments were also put forward for the need to further refine the use of household consumption as the measure of ATP by taking into account household size, household composition of adults and children, and economies of scale due to use of public goods within the household. The use of per capita household consumption is a better reflection of household living standards as compared to total household consumption. However, there are indications from the HES that the consumption levels of adults and children differed and that some degree of economies of scale possibly from use of public goods was at work in larger households. In order to adjust for these findings, the equivalence scale, $e_i = (A_i + 0.5K_i)^{0.75}$, would be used in this study to provide estimates of monthly per capita adult equivalent consumption as the measure of household ATP.

The arguments to adjust household consumption for adult-child composition and economies of scale are carried forward to provide the basis for adjustment of household health payments. Thus the same equivalence scale, $e_i = (A_i + 0.5K_i)^{0.75}$, have also been used in this study to adjust household health payments to provide a measure of monthly per capita adult equivalent health payments.

In some parts of the study, certain limitations have made such a correction inappropriate and thus necessitate the use of unadjusted household consumption or health payment figures. These situations have been specifically noted in the relevant chapters.

CHAPTER 5 DISTRIBUTION OF OUT-OF-POCKET PAYMENTS FOR HEALTH CARE IN MALAYSIA

5.1 INTRODUCTION

This chapter will examine the distribution of OOP payment burden across households of differing ATP, specifically whether the distribution of OOP payments fulfilled the equity yardstick described in Section 2.4.1 of Chapter 2 which is that the payments need to be progressive. As was discussed in Section 3.2.3 of Chapter 3, the Malaysian health care delivery system had evolved over time, specifically that there was increasing participation from private sector health care providers from the 1990's whose services were mainly paid for using OOP health payments. Thus the OOP payment distributions analysed in this chapter will be examined at three points in time over a 12-year period from 1993 to 2005 rather than one specific point in time.

The chapter begins with Section 5.2, which will describe the data sources and specifications used in the analysis. This section will also describe the estimation methods for measuring progressivity of OOP health payments. Section 5.3 contains the results of the analysis on the levels and distribution of OOP health payments in Malaysia and is organised into sections for results at the national and regional levels, by urban-rural strata and by ethnic groups. The three regions included in this analysis are the Peninsular Malaysia, Sabah and Sarawak. This section will also examine health payments by categories of health care services, namely hospital-based care, non-hospital based care, purchase of pharmaceuticals and medical appliances, both in the public as

well as the private sector. The chapter concludes with Section 5.4 which provides a summary of the findings.

5.2 DATA AND METHODS

5.2.1 Data sources and specifications

The data for the analysis in this chapter were obtained from the 1993/94, 1998/99 and 2004/05 rounds of the nationally representative HES. The design, conduct and extent of data captured in these surveys have been described in Section 4.2 of Chapter 4. The measure of household ATP used in this analysis is monthly per capita adult equivalent household consumption. The rationale for the use of this measure and its computation has been described in Section 4.3 of Chapter 4. The household OOP health payments reported in this analysis have also been adjusted using the same equivalence scale used in adjusting household consumption to yield monthly per capita adult equivalent household OOP health payments, the rationale for this measure was provided in Section 4.3.4 of Chapter 4.

Household consumption expenditures and OOP health payments will be presented in 2004 prices and thus changes across years are in real terms. Household consumption expenditures have been adjusted using general CPIs and the OOP health payments have been adjusted using medical CPIs. The CPIs used in these adjustments are listed in Table 3.7.

5.2.2 Methods

There are two main approaches used in empirical studies to assess progressivity of health care payments. The first approach assesses progressivity by examining the shares of health payments to ATP of groups of households with equivalent ATP. A progressive distribution will be found if the shares are higher in richer groups compared to poorer ones. In contrast, in a regressive distribution the shares will be higher in poorer groups compared to richer ones.

Table 5.1 has been compiled using information extracted from a comparative study of the catastrophic impact of OOP payments for health care in 14 Asia Pacific countries (van Doorslaer et al., 2007). The table shows that the distributions of OOP payments for health care are clearly progressive for all countries with the exception of Taiwan, Republic of Korea and China. The OOP payment shares of ATP in Taiwan and China are higher in the poorer household quintiles than the richer ones and are therefore regressive. However, in the case of the Republic of Korea, the situation is not as obvious for although the OOP share is highest in the poorest household quintile, the OOP payments shares gradually increased from the second poorest to the richest quintile. This observation demonstrates the weakness of this approach. Progressivity can be clearly shown if the health care payment shares of ATP increases consistently with groups of increasing ATP. However, if no clear pattern emerges, then it can be difficult to come to a conclusion as to the nature of the payment distribution as is shown with the case of the Republic of Korea. Moreover, this approach does not permit estimation of the degree of progressivity which will prevent comparisons of progressivity in health payment distributions between countries or over time within a country.

Quintiles of _				OOP payments for health care as shares of household consumption or expenditure (%)										
equivalent	loo)		00)	00	ia	ep.	(ep. 01)	ia 99)) ()	les	ka 97)	-	q	и
household	glade 9/200	hina (000)	g Ko 9/200	ndia 9/200	ones (001)	ea R (000)	yz R 0/200	laysi 8/199	epal 5/199	riqqi (666	Lanl 6/199	uiwan (000)	ailan (002)	etnar 998)
ATP	Bang (199	50	Hon (199	I (199	Ind (2	Kor (2	Kyrg (200	Ma (199	N (199	lihd (1	Sri (199	Ta (2	Th: (2	Vie (1
Poorest 20%	2.94	4.57	1.87	3.30	1.23	4.15	1.77	1.11	2.44	1.19	1.64	4.25	1.25	4.86
2 nd poorest	3.17	5.27	2.27	4.41	1.46	3.42	1.96	1.10	2.71	1.60	1.82	3.85	1.48	5.44
Middle	4.55	5.39	2.25	5.23	1.69	3.61	2.59	1.14	2.90	1.84	2.00	3.68	1.71	5.74
2 nd richest	5.98	4.59	2.15	6.16	2.11	3.89	2.93	1.48	2.86	2.18	2.21	3.52	2.02	5.85
Richest 20%	8.86	3.45	2.67	6.48	2.69	4.08	2.77	2.00	3.64	2.93	2.86	3.38	2.07	5.57
Mean	5.10	4.11	2.29	4.84	1.83	3.83	2.40	1.37	2.77	1.94	2.11	3.74	1.71	5.49

Table 5.1.OOP payments for health as shares of household ATP in 14 Asia Pacific countries

Source: (van Doorslaer et al., 2007)

The second main approach to assessing progressivity examines health care payments across the whole population and also provides a summary index of progressivity. The most commonly used progressivity index to assess distributions of health care payments is that proposed by Kakwani (1977) which was initially developed to measure progressivity in taxation but has since been used extensively to measure progressivity in health care payments in high as well as LMIC (Wagstaff and van Doorslaer, 1992, Cisse et al., 2007, O'Donnell et al., 2008a, Yu et al., 2008, Akazili et al., 2011).

The KI for health care payments is based on the Lorenz curve for household ATP and the concentration curve for health care payments. The Lorenz curve for ATP, plots the cumulative percentage of ATP on the y-axis against the cumulative percentage of the population, ranked by ATP beginning with the poorest to the richest on the x-axis. The Gini coefficient of ATP is twice the area between the Lorenz curve and the line of perfect equality where the ATP of all persons are equal. In contrast, the concentration curve for health payments plots the cumulative percentage of health payments on the yaxis against the cumulative percentage of population, ranked by ATP beginning with the poorest to the richest on the x-axis. A concentration curve for health payments which lies above the line of perfect equality indicates that health care payments are concentrated among the poorer persons. The position of the concentration curve for health payments is then said to dominate the line of equality. In contrast, a curve which lies below the line of equality indicates that the payments are concentrated among the richer persons. In this instance, the line of equality is said to dominate the concentration curve.

The corresponding CI for health payments is twice the area between the concentration curve and the line of perfect equality.

$$CI = 1 - 2 \int_{0}^{1} \left[L_{H(r)} \right] dr$$

where $L_{H(r)}$ is the concentration curve for health care payments.

This index takes on values ranging from -1 to 1. A negative value indicates that health payments are disproportionately concentrated among the poor whilst a positive value indicates concentration among the rich. The CI is computed directly from a convenient regression of a transformation of health payment on the fractional rank in the ATP distribution in the following form:

$$2\sigma_r^2 \left(\frac{h}{\mu}\right) = \alpha + \beta r + \varepsilon$$

where *r* is the person's fractional rank in the ATP distribution and σ_r^2 is the sample variance of the fractional rank, *h* is the health payment variable and μ its mean. The Ordinary Least Square estimate of β is the CI (O'Donnell et al., 2008b).

The concentration curve and index permit assessment of whether health payments are concentrated among the poor or rich but do not permit an assessment of progressivity or regressivity of payments, which is whether health payments rise or fall as a proportion of ATP as the ATP rises.

Assessment of progressivity or regressivity can be done by comparing the positions of the Lorenz curve for ATP and the concentration curve for heath payments. In a progressive distribution, the concentration curve of health payments will lie outside the Lorenz curve of household ATP. In other words, the Lorenz curve for ATP dominates the concentration curve for health payments. In a regressive distribution, the concentration curve for health payments will dominate the Lorenz curve. Graphical depiction of the health payment distributions against the household ATP distributions permits examination of progressivity across the whole spectrum of population. However, definite assessment of progressivity will be difficult if any of the curves is not clearly dominant over the other or if the curves cross. In this case overall progressivity can only be assessed using a summary measure such as the KI. This summary measure also allows for comparison of progressivity over different points in time or for distributions of different sub-populations.

The KI is defined as twice the area between the Lorenz curve for ATP and the concentration curve for health care payments or the difference between the concentration index for health payments and the Gini coefficient for ATP.

$$KI = 2 \int_{0}^{1} \left[L_{H(r)} - L_{X(r)} \right] dr = C_{H} - G_{X}$$

where $L_{X(r)}$ is the Lorenz curve for ATP, $L_{H(r)}$ is the concentration curve for health care payments, G_X is the Gini coefficient of ATP and C_H is the CI for health payments.

The KI takes on values from -2 in the most regressive distribution in which all ATP is in the hands of the richest person and all health payments are made by the poorest, to +1 in the most progressive system in which ATP is distributed equally for all persons and all health payments are made by the richest person. The KI is computed directly from a convenient regression of a transformation of ATP and health payment on the fractional rank in the ATP distribution in the following form:

$$2\sigma_r^2 \left(\frac{h}{\mu} - \frac{x}{\pi}\right) = \alpha + \beta r + \varepsilon$$

where *r* is the person's fractional rank in the ATP distribution and σ_r^2 is the sample variance of the fractional rank, *h* is the health payment variable and μ its mean, *x* is the

ATP and π its mean. The Ordinary Least Square estimate of β is the KI (O'Donnell et al., 2008b).

However, the KI is not the only available summary progressivity index. The Suits' index is another summary index developed to assess tax progressivity (Suits, 1977) and which has also been used in assessment of health payments (Wagstaff and van Doorslaer, 1992). The Suits index for health payments compares the relative concentration curves of ATP and health payments. The relative concentration curve for ATP plots the cumulative percentage of ATP on the y-axis against cumulative percentage of ATP on the x-axis starting from the bottom of the ATP distribution. This curve coincides with the 45° line and serves as a benchmark to assess progressivity. The relative concentration curve of health payments plots the cumulative percentage of ATP on the x-axis starting from the bottom of the ATP distribution as before against the cumulative proportion of health payments borne by persons in the relevant portion of ATP distribution on the y-axis. If the health payment system is progressive the relative concentration curve for health payments will lie below the 45° line. If the system is regressive, the health payment curve will lie above the 45° line. The Suits' Index of Progressivity is defined as twice the area between the 45° line and the relative concentration curves for health payments and its value ranges from -1, in which all health payments are made by the poorest person and +1, in which all payments are made by the richest.

Wagstaff and van Doorslaer (1992) compared the properties of the KI and Suits' Indices of Progressivity and found that the Suits Index gave greater weight to departures from proportionality that occur among richer persons than poorer ones. Both KI and Suits Index were used in their assessment of equity in the financing of 10 countries in Europe (Table 5.2). The study showed that there was not much difference in the absolute values of both indices for each country and moreover the final conclusion of the progressivity of each country's health payment system did not change regardless of the index used. Currently, the KI is the most commonly used index to assess progressivity in health care payments (Cisse et al., 2007, O'Donnell et al., 2008a, Yu et al., 2008, Akazili et al., 2011).

Progressivity of OOP payments in this analysis was mainly measured using the KI. Inequality in the OOP payment distribution in relation to household ATP was measured using the CI. The use of these summary indices facilitated comparison of changes across time, population groups of interest and categories of health care services. In addition, OOP health payment concentration curves were used to visually illustrate interesting distribution patterns.

		Country (year of assessment)											
Progressivity Index	Denmark (1981)	France (1985)	Ireland (1987)	Italy (1987)	Netherlands (1987)	Portugal (1980)	Spain (1980)	Switzerland (1981)	United Kingdom (1985)	United States of America (1981)			
Suits' Index	-0.021	-0.081	0.017	0.017	-0.046	0.073	-0.036	-0.112	0.031	-0.160			
Kakwani's Index	-0.015	-0.072	0.034	0.022	-0.034	0.063	-0.023	-0.117	0.032	-0.145			

Table 5.2.Progressivity of health payments in 10 European countries

Source: (Wagstaff and van Doorslaer, 1992)

5.3 **RESULTS**

5.3.1 Distribution of household OOP payments in Malaysia

Not every household incurred OOP health payments. Table 5.3 shows the population shares who reported having had to pay OOP health payments. In 1993, 59.25 per cent of the population reported payments. The population shares were higher in 1998 and 2004. However, the shares appeared to be lower among poorer household quintiles compared to the richer quintiles. This finding may mean either poorer households used health care but did not pay for them or that they did not use health care and therefore did not need to pay. It was not possible to distinguish between the two situations using data from HES. Table 5.3 also shows that over time more persons from the poorer quintiles incurred OOP payments. In 1993, 45.62 per cent of the population in the poorest quintile reported OOP payments. By 2004, this share had gone up to 62.87 per cent, an increase of 37.81 per cent. In contrast, 68.87 per cent and 75.56 per cent of the population in the richest quintile reported paying OOP health payments in 1993 and 2004 respectively, an increase of only 9.72 per cent.

Table 5.3.Population shares with reported OOP health payments, Malaysia, 1993 -2004

Household Consumption	Percentage population with reported OOP payments								
Quintiles ¹	1993	1998	2004						
Poorest quintile	45.62 (0.0113)	50.41 (0.0150)	62.87 (0.0141)						
2 nd quintile	55.73 (0.0112)	57.49 (0.0139)	64.16 (0.0139)						
Middle quintile	61.45 (0.0105)	61.14 (0.0135)	66.53 (0.0152)						
4 th quintile	64.62 (0.0098)	63.05 (0.0124)	71.91 (0.0139)						
Richest quintile	68.87(0.0088)	70.55 (0.0114)	75.56 (0.0150)						
Overall	59.25 (0.0047)	60.53 (0.0060)	68.21 (0.0064)						

Note: ¹Refers to population quintiles of monthly per capita adult equivalent household consumption.

Numbers in parenthesis refer to standard errors.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

Table 5.4 shows that the average per capita OOP health payments increased from poorest to richest household quintiles in each year, both in absolute amounts as well as in shares of household consumption. In all the years, the average payment shares did not exceed 1.0 per cent in the poorest quintile and 2.3 per cent in the richest. At the national level, the OOP payment shares of household consumption remained below 1.5 per cent but exhibited an increasing trend from 1993 to 1998 before decreasing from 1998 to 2004.

In 2004, the average per capita OOP health payments made by the richest household quintile were 12 times as much as that paid by those in the poorest quintile. The corresponding figures for 1998 and 1993 were higher at 13 and 18 times respectively. These increases in OOP payments between quintiles were not proportional to the increases in household consumption. In 2004/04, the difference in OOP payment shares of consumption between the poorest and richest quintiles was only 0.77 percentage points. The gaps though larger in earlier years were only 1.28 percentage points in 1998 and 1.36 percentage points in 1993. Thus although in all the years, OOP payments were concentrated among richer quintiles, the differentials in payment shares between the richest and poorest quintiles appeared to have reduced over time.

Hamakald		1993			1998		2004			
Consumption	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of	
Consumption	consumption ²	OOP	consumption	consumption ²	OOP	consumption	consumption ²	OOP	consumption	
Quintiles		payments ³			payments ³			payments ³		
Poorest quintile	203.80 (1.07)	1.75 (0.09)	0.81 (0.0004)	242.22 (1.69)	2.38 (0.15)	0.94 (0.0006)	255.08 (1.77)	2.14 (0.13)	0.85 (0.0006)	
2 nd quintile	324.46 (0.69)	3.65 (0.18)	1.08 (0.0006)	387.79 (1.04)	4.75 (0.23)	1.17 (0.0006)	416.78 (1.23)	3.73 (0.21)	0.90 (0.0005)	
Middle quintile	439.29 (0.83)	6.22 (0.26)	1.34 (0.0006)	525.97 (1.25)	7.11 (0.38)	1.31 (0.0007)	576.03 (1.48)	6.10 (0.46)	1.05 (0.0008)	
4 th quintile	618.37 (1.46)	10.71 (0.47)	1.64 (0.0007)	736.30 (2.15)	12.71 (1.12)	1.64 (0.0013)	808.44 (2.80)	9.87 (0.62)	1.21 (0.0007)	
	1290.04	22.55 (2.42)	2 17 (0 0011)	1541.72	24.21 (2.16)	31 (2.16) 2.22 (0.0013)	1648.94	27.00 (2.21)	1.62 (0.0015)	
Richest quintile	(13.36)	32.55 (2.42)	2.17 (0.0011)	(24.58)	34.31 (2.16)		(25.70)	21.09 (3.31)		
Overall	575.15 (4.06)	10.97 (0.51)	1.41 (0.0003)	686.53 (6.91)	12.24 (0.51)	1.46 (0.0004)	740.91 (8.26)	9.94 (0.69)	1.13 (0.0004)	

Table 5.4.Household consumption expenditures and OOP health payments by household consumption quintiles, Malaysia, 1993 - 2004

Note: ¹Refers to population quintiles of monthly per capita adult equivalent household consumption.

²Refers to monthly per capita adult equivalent household consumption in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

³Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 have been adjusted to 2004 prices.

Numbers in parenthesis refer to standard errors.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

Figure 5.1 examines in greater detail the OOP health payment shares of consumption by household consumption quintiles over the three years. In general, the OOP payment shares for each quintile increased from 1993 to 1998 before decreasing to 2004, with the 2004 level below that of 1993 with the exception of the poorest quintile. In this quintile, the OOP payment share in 2004 was higher than that in 1993. Overall, the reduction in OOP payment shares of consumption from 1993 to 2004 was greater for richer quintiles than poorer ones.

Figure 5.1. OOP health payment shares of household consumption by consumption quintiles, Malaysia, 1993 - 2004



Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

Graphical displays of the OOP health payment distributions, via concentration curves, allow for better assessment across the full spectrum of the population. The OOP concentration curves for the three years show that the OOP payment burdens were concentrated among the richer portions of the population as all three curves appear below the line of equality (Figure 5.2). The 1998 and 2004 OOP concentration curves also appear to lie above, or dominate, the 1993 curve especially in the middle portions of the consumption distribution. However, direct comparisons between the three curves are difficult as there are areas of overlap and areas where the curves cross especially at the two extreme ends of the consumption distribution. In view of this, CIs were estimated to quantify the magnitude of the inequality in OOP payment distribution and to make valid comparisons between the years (Table 5.5).





Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

The OOP health payment CIs were positive for all the years confirming that OOP payments were concentrated among richer households (Table 5.5). The size of the indices decreased from 0.5518 in 1993 to 0.5060 in 1998 and 0.5034 in 2004, implying that although the OOP payment burdens were concentrated among the rich, this inequality favouring the rich was reducing over time.

The finding of increasing OOP payment shares of household consumption from the poorest to the richest household quintile (Table 5.4) indicates that the OOP payment distributions for all the years were progressive. This is confirmed by the finding of positive KIs for the payment distribution in all the years (Table 5.5). However, the KI was the highest in 1993, indicating that OOP payments were the most progressive that year compared to later years. Progressivity in health payments appeared to be the same for 1998 and 2004 when the KI was 0.1328.

	Cumulative population shares										
Household Consumption	19	93	19	98	2004						
Quintiles ¹	Household	OOP Health	Household	OOP Health	Household	OOP Health					
	consumption	Payments	consumption	Payments	consumption	Payments					
Poorest quintile	7.09 (0.0600)	3.19 (0.1987)	7.06 (0.0760)	3.89 (0.2474)	6.89 (0.0591)	4.31 (0.2723)					
2 nd quintile	18.37 (0.1307)	9.85 (0.5373)	18.95 (0.1663)	11.64 (0.5635)	18.14 (0.1302)	11.81 (0.6616)					
Middle quintile	33.65 (0.2121)	21.18 (1.0743)	33.67 (0.2708)	23.26 (1.0103)	33.68 (0.2118)	24.09 (1.2666)					
4 th quintile	55.15 (0.2991)	40.69 (1.9454)	55.13 (0.3830)	44.03 (1.7119)	55.49 (0.2965)	43.93 (2.1121)					
Richest quintile	100.00	100.00	100.00	100.00	100.00	100.00					
Cini/Concentration Index	0.3724*	0.5518*	0.3731*	0.5060*	0.3706*	0.5034*					
Gim/Concentration Index	(0.0045)	(0.0426)	(0.0070)	(0.0331)	(0.0067)	(0.0627)					
17 - January 9 Tau Januar		0.1794*		0.1328*		0.1328#					
Kakwani index		(0.0416)		(0.0331)		(0.0622)					

Table 5.5.Concentration and Kakwani indices for OOP payments for health care, Malaysia, 1993 - 2004

Note: ¹Refers to population quintiles of monthly per capita adult equivalent household consumption.

Shares are expressed as per cent of total household consumption or household OOP health payments.

Indices are statistically significant from zero at *p<0.001 #p<0.05.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

5.3.2 Distribution of household OOP payments by regions in Malaysia

Of the three regions in Malaysia, the average monthly per capita household consumption in Sabah was the lowest (Table 5.6) and the household consumption distribution in Sabah exhibited the highest inequality as shown by its Gini coefficient which was the highest in the country for each year (Table 5.7).

Although in absolute terms, the monthly per capita OOP payments in Sabah was the smallest, health payments as shares of household consumption in Sabah were not necessarily the lowest in the country (Table 5.6). This was particularly so in 1998. The average monthly per capita consumption in that year was only about two thirds that in the Peninsular and Sarawak and yet the OOP payment shares were similar to the Peninsular and higher than that in Sarawak.

As with the rest of the regions, OOP payments in Sabah were concentrated among the richer households as the OOP payment CI in each year was positive (Table 5.7). However, OOP payments became markedly less concentrated among the rich over time when the CIs of OOP payments decreased from 0.5767 in 1993 to 0.4836 in 1998 and finally 0.3897 in 2004. The OOP payment CIs in the Peninsular also decreased over the years but not to the same degree. On the other hand, OOP payments showed increasing concentration among richer households in Sarawak. This combined with a more constant distribution of household consumption resulted in a progressive distribution in OOP payment for Sarawak. Moreover, the OOP payments in Sarawak showed increasing progressivity over the years as indicated by increasing KIs over the years with the 2004 index nearly twice that in 1993. On the other hand, progressivity of OOP payments declined over the years in the Peninsular. However, the most significant

pattern change occurred in Sabah where the OOP payment distribution which was originally progressive in 1993 but in the later years, proportionality could not be statistically excluded.

		1993			1998			2004	
Pagions	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of
Regions	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption
		payments ²			payments ²			payments ²	
Peninsular Malaysia	573.42 (4.59)	11.24 (0.58)	1.45 (0.0004)	703.74 (7.99)	12.78 (0.60)	1.48 (0.0005)	784.00 (10.00)	10.94 (0.86)	1.19 (0.0005)
Sabah	462.30 (9.23)	6.19 (0.70)	0.94 (0.0005)	472.80 (12.94)	8.26 (0.78)	1.46 (0.0012)	472.35 (11.42)	4.23 (0.32)	0.91 (0.0008)
Sarawak	707.60 (13.68)	13.24 (1.73)	1.47 (0.0009)	740.86 (19.16)	11.18 (0.93)	1.22 (0.0008)	694.60 (14.61)	8.19 (0.73)	0.85 (0.0006)
Overall	575.15 (4.06)	10.97 (0.51)	1.41 (0.0003)	686.53 (6.91)	12.24 (0.51)	1.46 (0.0004)	740.91 (8.26)	9.94 (0.69)	1.13 (0.0004)

Table 5.6.Household consumption expenditures and OOP health payments by regions, Malaysia, 1993 - 2004

Note: ¹Refers to monthly per capita adult equivalent household consumption in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

 2 Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

Numbers in parenthesis refer to standard errors.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

	19	93	19	98	2004		
Regions/Indices	Household	OOP Health	Household	OOP Health	Household	OOP Health	
	consumption	Payments	consumption	Payments	consumption	Payments	
PENINSULAR MALAYSIA							
Gini/Concentration Index	0.3668* (0.0051)	0.5503* (0.0477)	0.3686* (0.0080)	0.5059* (0.0376)	0.3609* (0.0075)	0.4859* (0.0704)	
Kakwani Index		0.1835* (0.0465)		0.1373* (0.0376)		0.1251@ (0.0698)	
SABAH							
Gini/Concentration Index	0.3975* (0.0111)	0.5767* (0.1057)	0.3786* (0.0164)	0.4836* (0.0675)	0.3829* (0.0134)	0.3897* (0.0565)	
Kakwani Index		0.1792@ (0.1040)		0.1050 (0.0670)		0.0068 (0.0570)	
SARAWAK							
Gini/Concentration Index	0.3676* (0.0119)	0.5034* (0.1196)	0.3656* (0.0140)	0.5064* (0.0605)	0.3561* (0.0107)	0.6030* (0.0690)	
Kakwani Index		0.1358 (0.1178)		0.1407# (0.0593)		0.2469* (0.0671)	

 Table 5.7.
 Concentration and Kakwani indices for OOP payments for health care by regions, Malaysia, 1993 - 2004

Note: Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

The contrasting trends in OOP payment progressivity for Sabah and Sarawak over the years can be better observed in Figures 5.3 and 5.4. In the case of Sabah, the household consumption Lorenz curve appear to lie above, or dominate, the OOP payment concentration curve for most of the payment distribution in 1993 (Figure 5.3a) implying a progressive OOP payment distribution. However, in the later years, the two curves overlap and intersect at many points throughout their distributions especially in 2004 such that it is not possible to determine from visual examination the nature of the OOP payment distribution.

In contrast, the household consumption Lorenz curves appear to dominate the OOP payment concentration curves for most of the payment distributions for Sarawak for all the years, again implying a progressive payment distribution (Figure 5.4). Moreover, the two curves became further apart over the years indicating that the payment distribution became more progressive over time.





Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.




Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

5.3.3 Distribution of household OOP payments by urban-rural strata in Malaysia

On average, the per capita monthly consumption for the rural areas in Malaysia was about 60 per cent of the consumption for urban areas (Table 5.8). The per capita monthly OOP health payments were about half the quantum of OOP payments of the urban areas. Consequently, the OOP shares of household consumption were higher in urban compared to rural areas with a pattern of highest OOP payment burdens in 1998 and lowest in 2004. The urban-rural OOP payment share gap was the largest in 1993 when the gap was 0.35 percentage points, and smallest in 2004 when the difference in OOP shares was 0.13 percentage points.

Table 5.9 shows that the CIs for both urban and rural OOP payments were positive over the years indicating that the payments were concentrated among richer households. However, OOP payments became less concentrated among the rich over time as indicated by the decreasing CIs from 1993 to 2004. In general, the OOP payments were more concentrated among richer households in urban areas with the exception of 1998 when there appeared to be little difference between urban and rural OOP distributions.

Overall, the OOP payments were found to be progressive both in the urban and rural areas over time. Generally, the progressive payments were more pronounced in urban areas as indicated by higher KIs with the exception of 1998 when this pattern was reversed. The health payments also became less progressive over time as in both the urban and rural areas the KIs in 2004 were lower than those in 1993.

	_	_			-	-			
		1993			1998			2004	
Strata	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of
Strata	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption
		payments ²			payments ²			payments ²	
Urban	715.75 (6.69)	15.12 (0.90)	1.57 (0.0005)	850.42 (12.05)	16.17 (0.83)	1.62 (0.0007)	876.84 (12.16)	12.23 (1.06)	1.17 (0.0006)
Rural	415.83 (4.16)	6.28 (0.35)	1.22 (0.0004)	518.22 (6.32)	8.21 (0.58)	1.29 (0.0005)	488.54 (5.82)	5.69 (0.28)	1.04 (0.0004)
Overall	575.15 (4.06)	10.97 (0.51)	1.41 (0.0003)	686.53 (6.91)	12.24 (0.51)	1.46 (0.0004)	740.91 (8.26)	9.94 (0.69)	1.13 (0.0004)

Table 5.8.Household consumption expenditures and OOP health payments by urban-rural strata, Malaysia, 1993 - 2004

Note: ¹Refers to monthly per capita adult equivalent household consumption in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

 2 Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

Numbers in parenthesis refer to standard errors.

	1993		1998		2004	
Regions/Indices	Household	OOP Health	Household	OOP Health	Household	OOP Health
	consumption	Payments	consumption	Payments	consumption	Payments
URBAN						
Gini/Concentration Index	0.3566* (0.0055)	0.5380* (0.0540)	0.3617* (0.0095)	0.4744* (0.0345)	0.3546* (0.0076)	0.4943* (0.0756)
Kakwani Index		0.1815* (0.0528)		0.1127* (0.0355)		0.1396@ (0.0751)
RURAL						
Gini/Concentration Index	0.3234* (0.0065)	0.4672* (0.0506)	0.3345* (0.0074)	0.4746* (0.0643)	0.3101* (0.0067)	0.4244* (0.0391)
Kakwani Index		0.1438* (0.0494)		0.1401# (0.0628)		0.1143* (0.0387)

Table 5.9.Concentration and Kakwani indices for OOP payments for health care by urban-rural strata, Malaysia, 1993 - 2004

Note: Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

5.3.4 Distribution of household OOP payments by ethnic groups in Malaysia

Among the main ethnic groups in Malaysia, the Chinese had the highest per capita consumption followed by the Indians, Malays and non-Malay Bumiputeras (Table 5.10). In general, the pattern of OOP health payments, both in absolute amounts and as shares of household consumption, also followed this pattern for all the three years.

Looking at trends across time, the OOP payment shares of consumption for the Chinese and non-Malay Bumiputeras were the highest in 1993 and for the Malays and Indians, they were the highest in 1998. For the Chinese, Indians and non-Malay Bumiputeras, the OOP payment shares were the lowest in 2004 and for the Malays, the lowest was in 1993 though this was only slightly less that the shares in 2004. But overall, the OOP payment shares of household consumption remained less than 2.50 per cent, the highest being 2.11 per cent for the Chinese in 1993. In 2004, these shares dropped below one per cent for the Indians and non-Malay Bumiputeras.

The distribution of OOP payments for health care in relation to household ATP over the years shows a relatively common pattern for the main ethnic groups in Malaysia (Table 5.11). The OOP payments were found to be concentrated among the richer households in each ethnic group though from 1993 to 2004 the concentration among the rich generally decreased for the Chinese and Indians and increased for the Malays and non-Malay Bumiputeras. The OOP payments for the Malays and the Chinese were progressive in 1993, more so for the Chinese than the Malays. On the other hand, a proportional distribution of OOP payments for the Indians and non-Malay Bumiputeras could not be excluded. However, by 2004 the distribution of health payments for all four ethnic groups could not be statistically distinguished from proportionality.

Households belonging to the 'other' ethnic groups are less homogenous since they include non-citizens of Malaysia from many different social-economic strata. Members of this diverse group had the highest disparity in living standards as evidenced by the highest Gini coefficients for household consumption among all the ethnic groups (Table 5.11). The OOP payment burdens for this group were also comparatively smaller compared to the rest. It is possible that the health care services of many within this group were being covered by their employers. This is especially applicable for the legal foreign workers who are also categorised as 'others'. It is also possible that the poorer within this group, including those who are not legally employed, would have forgone health care for wont of financial resources. In both these instances, OOP payments for health care would not constitute part of the household expenses. In 1993, OOP health payments for this group were highly concentrated among the richer households with a CI of 0.6623. However, in later years poorer households had to shoulder increasing OOP health payments and the CI in 2004 was 0.3874. It was not statistically possible to exclude a proportional OOP payment distribution for this group for all the years.

		1993			1998			2004	
Ethnia Channa	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of	Per capita	Per capita	OOP as % of
Ethnic Groups	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption	consumption ¹	OOP	consumption
		payments ²			payments ²			payments ²	
Malays	481.33 (4.74)	6.01 (0.28)	1.08 (0.0003)	595.72 (8.45)	9.49 (0.73)	1.28 (0.0006)	685.50 (10.39)	8.58 (0.79)	1.10 (0.0005)
Non-malay	451 74 (0 42)	4.05 (0.41)	0.05 (0.0006)	486 72 (12 12)	5 24 (0 40)	0.02 (0.0008)	406 28 (16 21)	4 10 (0 42)	0.78 (0.0008)
Bumiputeras	431.74 (9.43)	4.93 (0.41)	0.95 (0.0000)	480.72 (13.12)	3.24 (0.49)	0.93 (0.0008)	490.28 (10.21)	4.10 (0.43)	0.78 (0.0008)
Chinese	805.05 (10.25)	22.02 (1.62)	2.11 (0.0008)	982.85 (17.13)	20.42 (1.09)	1.83 (0.0008)	1,020.26 (20.98)	18.21 (2.46)	1.50 (0.0010)
Indian	592.79 (13.28)	13.64 (1.88)	1.82 (0.0015)	677.47 (21.37)	14.87 (2.06)	1.87 (0.0022)	812.88 (34.88)	8.65 (1.06)	0.99 (0.0012)
Others	464.30 (21.47)	7.51 (1.81)	1.02 (0.0010)	510.62 (44.81)	8.08 (1.06)	1.74 (0.0020)	567.08 (57.86)	3.76 (0.50)	0.81 (0.0009)
Overall	575.15 (4.06)	10.97 (0.51)	1.41 (0.0003)	686.53 (6.91)	12.24 (0.51)	1.46 (0.04)	740.91 (8.26)	9.94 (0.69)	1.13 (0.0004)

Table 5.10. Household consumption expenditures and OOP health payments by ethnic groups, Malaysia, 1993 - 2004

Note: ¹Refers to monthly per capita adult equivalent household consumption in RM. Real estimates for 1998 and 1993 had been adjusted to 2004

prices.

 2 Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

Numbers in parenthesis refer to standard errors.

	19	93	19	98	20	04
Ethnic Groups/Indices	Household	OOP Health	Household	OOP Health	Household	OOP Health
	consumption	Payments	consumption	Payments	consumption	Payments
MALAYS						
Gini/Concentration Index	0.3463* (0.0060)	0.4223* (0.0405)	0.3464* (0.0099)	0.4997* (0.0664)	0.3493* (0.0092)	0.4633* (0.0812)
Kakwani Index		0.0760@ (0.0393)		0.1533# (0.0652)		0.1139 (0.0808)
NON-MALAY BUMIPUTERAS						
Gini/Concentration Index	0.3548* (0.0116)	0.4158* (0.0564)	0.3619* (0.0123)	0.4470* (0.0739)	0.3487* (0.0223)	0.4218* (0.0882)
Kakwani Index		0.0610 (0.0563)		0.0850 (0.0722)		0.0731 (0.0765)
CHINESE						
Gini/Concentration Index	0.3415* (0.0076)	0.5059* (0.0674)	0.3301* (0.0110)	0.4273* (0.0362)	0.3273* (0.0101)	0.4663* (0.1220)
Kakwani Index		0.1644# (0.0655)		0.0971# (0.0384)		0.1390 (0.1203)
INDIANS						
Gini/Concentration Index	0.3346* (0.0120)	0.4875* (0.1204)	0.3386* (0.0159)	0.4535* (0.0905)	0.3479* (0.0257)	0.4041* (0.0850)
Kakwani Index		0.1530 (0.1193)		0.1149 (0.0920)		0.0562 (0.0786)
OTHERS						
Gini/Concentration Index	0.4260* (0.0373)	0.6623* (0.2241)	0.4350* (0.0783)	0.3719* (0.0806)	0.5072* (0.0696)	0.3874* (0.1033)
Kakwani Index		0.2363 (0.2168)		-0.0631 (0.1025)		-0.1198 (0.1316)

Table 5.11.	Concentration and Kakwani indices for OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Note: Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

The OOP payment concentration curves show more interesting features of the payment distributions by ethnic groups in Malaysia (Figure 5.5). The curves for the poorer half of the population lie close to each other but start to diverge for the richer half of the population. The most obvious are the health payment concentration curves for 1998. This seems to indicate that the distribution of OOP payments by living standards was quite similar for the poorer half of each ethnic group. However, this similarity did not hold for the richer half.

Figure 5.5. Concentration curves for OOP payments by ethnic groups, Malaysia, 1993 - 2004 a. 1993



b. 1998







Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

5.3.5 Distribution of household OOP payments for public and private health care in Malaysia

The OOP payments made for private care were much larger than payments made for public care, both in absolute amounts and in terms of shares of household consumption (Table 5.12). The OOP payment shares for private care in 2004 were lower than that in 1993 but the pattern was reversed in the case of public health care in which the shares in 2004 were higher than that in 1993.

Figure 5.6 shows that most of the OOP payment burden for each household consumption quintile was for private care. The payment burdens for public care were very much smaller and remained almost the same across all consumption quintiles. The

differences between the payment burdens for public and private health care also appeared to increase from the poorest to the richest quintile but these poor rich differential also appeared to decrease over time.

Figure 5.6. Public and private sector OOP payment shares of household consumption, Malaysia, 1993 - 2004



Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

The observation that poorer households may be shouldering higher private OOP payment burdens over the years is supported by the findings of decreasing CIs for private care from 1993 to 2004 (Table 5.13). In addition to this, though the OOP health payments for private care remained progressive over the years, the degree of

progressivity declined as indicated by decreasing KIs (Table 5.13) and the decreasing gaps between the Lorenz curve for consumption and the concentration curves for OOP payment for private care (Figure 5.7). One of the possible explanations for this finding is that the poorer households may be purchasing more private health care over time.

The findings for public health care OOP payment distributions are less easy to interpret. Positive health payment CIs show that OOP payments for public care were concentrated among richer households, more so in 2004 than in earlier years (Table 5.13). Figure 5.7 seems to imply a regressive OOP payment distribution in 1993, a proportional distribution in 1998 and a progressive distribution in 2004. However, statistically the KIs for OOP payment for public health care could not be differentiated from zero for all three years implying a proportional distribution (Table 5.13). Thus, the OOP payments to public care operators were more evenly distributed, in terms of payment shares, between richer and the poorer households than payments for private care. This does indicate that the rich were utilising and paying for health care in the public sector. However, although the rich and the poor appeared to contribute equal shares of consumption towards purchase of public care, the available information does not permit an interpretation on utilisation of public health care between the two. As prices of public care are fixed, the rich paying more in absolute terms may logically indicate higher utilisation of public health care. However, there are mechanisms to waive fees for public health care for the poor. Thus, the poor may have paid less for public care but this need not necessarily mean that they used lower quantities of public health care services.

	199	93	199	98	2004	
Health Sector	Per capita OOP	OOP as % of	Per capita OOP	OOP as % of	Per capita OOP	OOP as % of
	payments ¹	consumption	payments ¹	consumption	payments ¹	consumption
Public	0.35 (0.04)	0.07 (0.0001)	0.77 (0.19)	0.09 (0.0001)	1.16 (0.42)	0.11 (0.0001)
Private	10.63(0.50)	1.34 (0.0003)	11.47 (0.47)	1.37 (0.0004)	8.78 (0.52)	1.02 (0.0004)
Overall	10.97 (0.51)	1.41 (0.0003)	12.24 (0.51)	1.46 (0.0004)	9.94 (0.69)	1.13 (0.0004)

Table 5.12. Household consumption expenditures and OOP health payments for public and private health care, Malaysia, 1993 - 2004

Note: ¹Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

Numbers in parenthesis refer to standard errors.

	1993		1998		2004	
Health Sector/Indices	Household	OOP Health	Household	OOP Health	Household	OOP Health
	consumption	Payments	consumption	Payments	consumption	Payments
PUBLIC						
Gini/Concentration Index	0.3724* (0.0045)	0.2405* (0.0846)	0.3731* (0.0070)	0.5304# (0.2165)	0.3706* (0.0067)	0.6049@ (0.3537)
Kakwani Index		-0.1319 (0.1190)		0.1572 (0.2163)		0.2344 (0.3530)
PRIVATE						
Gini/Concentration Index	0.3724* (0.0045)	0.5620* (0.0439)	0.3731* (0.0070)	0.5043* (0.0323)	0.3706* (0.0067)	0.4899* (0.0499)
Kakwani Index		0.1896* (0.0429)		0.1312* (0.0324)		0.1193# (0.0497)

Table 5.13. Concentration and Kakwani indices for OOP payments for public and private health care, Malaysia, 1993 - 2004

Note: Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Figure 5.7. Concentration curves for OOP payments for care obtained in the public and private sector, Malaysia, 1993 - 2004



Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

5.3.6 Distribution of household OOP payments by categories of health care services in Malaysia

Table 5.14 shows that the OOP payments were mainly for non-hospital based care, hospital-based care and pharmaceuticals. Payments for the purchase of medical appliances and goods make up a much smaller portion of household OOP health payments. Payments for non-hospital based care predominated in 1993 and 1998 but in 2004, the largest payment component was for purchase of pharmaceuticals.

The OOP payments for pharmaceuticals need further elaboration. In Malaysia, there is no separation between prescribing and dispensing drugs and patients would usually obtain drugs at the time of a clinic consultation or at hospital discharge and in the HES, these would be recorded as part of the person's expenditures at those facilities. As was explained in Section 4.2.2 of Chapter 4, household expenditures for pharmaceuticals as recorded in the HES refers to purchase of pharmaceuticals bought mainly from standalone pharmacies which usually consists of over-the-counter medications⁴³ or drugs prescribed by a doctor during a medical consultation but were not available in the hospital or clinic at the time. Thus, the actual pharmaceutical shares of household consumption should be larger than that shown by this analysis as the findings here only reflect the expenditures at pharmacies alone. However, the HES data do not permit further refinement of actual pharmaceutical expenditures.

Figure 5.8 shows the payment shares for health care services by household consumption quintiles. Most of the health payments in all consumption quintiles had been made for non-hospital based health care and for purchase of pharmaceuticals. However, it is

⁴³ These are drugs which can be purchased without a doctor's prescription.

interesting to note that the payment shares for hospital-based services are prominent only in the richest quintile. This may reflect the preference for private hospital care among the rich and correspondingly higher OOP payments for this service.

Figure 5.8. OOP payment shares of household consumption by category of health care services, Malaysia, 1993 - 2004



Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

The higher likelihood for the rich to use and pay for hospital-based services is supported by the positive high value CIs and positive KIs for these payments (Table 5.15). The CIs for hospital-based services are higher than the indices for non-hospital based care and purchase of pharmaceuticals showing that these payments was more concentrated among richer households than the payments for the other services. Likewise, payments for hospital-based services were more progressive than for the other two services. Payments for non-hospital based care and purchase of pharmaceuticals were also concentrated among the rich in all the years. In 1993 and 1998, these payments were progressive but less so that the payments for hospital-base care. However, from 1993 to 2004 OOP payments for all three categories of services became less concentrated among the rich and though the OOP payment distributions for these categories started off as progressive in 1993, by 2004, a proportional payment distribution for all three categories of services could not be excluded.

Figure 5.9 shows clearly the higher concentration of OOP payments for hospital-based care among the rich. The concentration curves for hospital-based care lie much lower than the curves for all the other categories of services.

	1993		1998		2004	
Categories of health services	Per capita OOP	OOP as % of	Per capita OOP	OOP as % of	Per capita OOP	OOP as % of
	payments ¹	consumption	payments ¹	consumption	payments ¹	consumption
Hospital based care	2.84 (0.43)	0.25 (0.0002)	2.74 (0.34)	0.29 (0.0002)	2.32 (0.59)	0.19 (0.0003)
Non-hospital based care	4.37 (0.20)	0.61 (0.0002)	5.00 (0.31)	0.60 (0.0003)	2.10 (0.12)	0.27 (0.0001)
Pharmaceuticals ²	3.28 (0.10)	0.47 (0.0001)	3.94 (0.15)	0.50 (0.0002)	4.55 (0.32)	0.56 (0.0003)
Medical appliances and goods ³	0.48(0.03)	0.07 (0.0000)	0.56 (0.03)	0.07 (0.0000)	0.98 (0.05)	0.11 (0.0001)
Overall	10.97 (0.51)	1.41 (0.0003)	12.24 (0.51)	1.46 (0.0004)	9.94 (0.69)	1.13 (0.0004)

Table 5.14. Household consumption expenditures and OOP health payments by categories of health services, Malaysia, 1993 - 2004

Note: ¹Refers to monthly per capita adult equivalent household OOP payments for health care in RM. Real estimates for 1998 and 1993 had been adjusted to 2004 prices.

²Refers to pharmaceuticals obtained from pharmacies only. Excludes drugs obtained as part of outpatient doctor visits or hospital admissions.

³Refers to appliances and medical goods such as spectacles, wheel chairs, bandages etc.

Numbers in parenthesis refer to standard errors.

	19	93	19	98	2004		
Categories of health services/Indices	Household	OOP Health	Household	OOP Health	Household	OOP Health	
	consumption	Payments	consumption	Payments	consumption	Payments	
HOSPITAL-BASED CARE							
Gini/Concentration Index	0.3724* (0.0045)	0.7345* (0.1468)	0.3731* (0.0070)	0.5796* (0.1115)	0.3706* (0.0067)	0.7023* (0.2405)	
Kakwani Index		0.3621# (0.1459)		0.2064@ (0.1113)		0.3317 (0.2398)	
NON-HOSPITAL BASED CARE							
Gini/Concentration Index	0.3724* (0.0045)	0.4948* (0.0391)	0.3731* (0.0070)	0.5003* (0.0441)	0.3706* (0.0067)	0.4032* (0.0372)	
Kakwani Index		0.1224* (0.0387)		0.1272* (0.0443)		0.0326 (0.0369)	
PHARMACEUTICALS ¹							
Gini/Concentration Index	0.3724* (0.0045)	0.4766* (0.0244)	0.3731* (0.0070)	0.4656* (0.0293)	0.3706* (0.0067)	0.4528* (0.0585)	
Kakwani Index		0.1043* (0.0241)		0.0925* (0.0292)		0.0822 (0.0587)	
MEDICAL APPLIANCES/GOODS ²							
Gini/Concentration Index	0.3724* (0.0045)	0.5039* (0.0535)	0.3731* (0.0070)	0.4807* (0.0427)	0.3706* (0.0067)	0.4828* (0.0369)	
Kakwani Index		0.1316# (0.0530)		0.1076# (0.0428)		0.1123# (0.0375)	

Table 5.15. Concentration and Kakwani indices for OOP payments for health care by categories of health care services, Malaysia, 1993 - 2004

Note: ¹Refers to pharmaceuticals obtained from pharmacies only. Excludes drugs obtained as part of outpatient doctor visits or hospital admissions. ²Refers to appliances and medical goods such as spectacles, wheel chairs, bandages etc.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Figure 5.9. Concentration curves for OOP payments by categories of health care services, Malaysia, 1993 - 2004











Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

5.4 SUMMARY

There are five important findings in this analysis. The first is that a large proportion of the population in the country did not make any OOP health payments during each of the survey period with a decreasing gradient from poorest to richest household quintiles. But more significantly, the population shares who did report OOP health payments increased over time, with larger increases among those in the poorer quintiles compared to the richer ones. The second is that the average health payment share of household consumption was small. Overall, the average OOP payment shares of household consumption were found to be less than 1.5 per cent in each year and an increasing gradient was found with the smallest shares among those in the poorest household quintile and the largest in the richest quintile. These OOP payment shares generally

increased from 1993 to 1998 and decreased thereafter to 2004 where the shares were lower than those in 1993. The third is that regardless of the level of household living standards, most of the OOP health payments made were for purchase of private health care. The fourth is that these payments were concentrated among the richer households which led to progressive payment distributions. The fifth and perhaps, the most important finding is that the progressivity of payment distributions showed a declining pattern from 1993 to 2004 indicating that the burden of OOP health payments were increasingly taken up by poorer households.

The finding of progressive OOP health payment distributions is consistent with the conclusion of two previous studies on progressivity of OOP health payments for Malaysia. Using data from the HES 1998/99, Yu et al (2006) found that the OOP payment distribution was mildly progressive with a KI of 0.0093. The current analysis, which also used the same 1998/99 dataset, has found a more progressive OOP payment distribution as shown by the higher positive KI value of 0.1328. This difference in degree of progressivity could have been due to the different measure of household ATP used. Yu et al (2006) performed their analysis using total household income as the measure of household ATP. In contrast, this analysis used per capita adult equivalent household consumption. Yu et al (2008) repeated their assessment of progressivity of OOP health payments using as the measure of household ATP, household consumption adjusted for household size, adult-child composition and economies of scale using a variety of equivalence scales. The OOP payment distribution was consistently found to be progressive across all the scales used. Using the same equivalence scale as used in the current analysis, the OOP payment distribution was found to be progressive with a KI of 0.1034. Though the extent of progressivity is still lower than that estimated in this analysis, all three studies lend support to the conclusion of a progressive distribution in OOP payment distribution in Malaysia in 1998.

This analysis extends what is known about the OOP health payments by examining payments distributions by region, urban rural strata and ethnic groups at three points in time over a 12 year period.

Among the three regions examined in this analysis, Sabah had the lowest living standards and also the highest disparity in living standards. Despite this, OOP payment burdens in terms of payment shares of household consumption were generally comparable to the other two richer regions in the country. The nature of the OOP payment distribution differed for the three regions. In all three regions, the OOP payments were concentrated among richer households. However, for the Peninsular and Sabah, OOP payments became less concentrated among the rich over time, more so for Sabah than the Peninsular. The opposite trend was observed for Sarawak in which OOP payments became more concentrated among the rich over time. In Sarawak, health payments also became more progressive over time. In the Peninsular, it became less progressive over time but remained progressive over the entire period. But in Sabah, the OOP payment distribution which was progressive in 1993 became proportional in later years.

The OOP health payment distribution patterns for urban and rural strata were similar although the OOP payment shares of household consumption in rural areas were smaller than for urban areas. In both strata, the OOP payments were concentrated among richer households but the concentration among the rich appeared to decrease over time. The payment distributions in both strata were found to be progressive though this progressivity also appeared to have decreased over time.

The OOP payment shares of household consumption were the highest among the Chinese followed by the Indians, Malays and non-Malay Bumiputeras and these generally showed a decreasing pattern from 1993 to 2004 for each ethnic group. The OOP payments were concentrated among richer households for each ethnic group but over time this inequality favouring the rich increased for the Malays and non-Malay Bumiputeras but decreased for the Chinese and Indians. In 1993, the OOP payment distributions were progressive for the Chinese and Malays and proportional for the Indians and non-Malay Bumiputeras but by 2004, the payment distributions were proportional for all ethnic groups.

This analysis also examined distributions of household payments for different categories of care provided by private and public sector health care providers.

The most significant finding was that across all household consumption quintiles, almost all OOP payments had been made for the purchase of private health care. Payments for private care were concentrated among richer households and the payment patterns were progressive. However, the degree of concentration among the rich as well as progressivity of OOP payments for private care decreased over time, indicating that poorer households were shouldering higher OOP payment burdens for private care over the years. On the other hand, OOP payments for public care were also concentrated among the rich but this inequality among the rich increased over time. Distributions of OOP payments for public care were proportional throughout the period of time examined.

In 1993 and 1998, the largest component of OOP payment shares of household consumption were for purchase of non-hospital based care, followed by purchase of pharmaceuticals, hospital-based care and medical appliances. However, in 2004 purchase of pharmaceuticals made up the largest payment share. It must be borne in mind that the pharmaceutical payment shares estimated here refer to payments made at private pharmacies and exclude drugs obtained during hospital or clinic visits. While payments for all categories of health services were concentrated among the rich, payments were most concentrated among the rich for hospital-based care. In general, the inequality in payments favouring the rich decreased over time for each service category. The OOP payment distributions for all services were progressive in 1993 but over time the poor took up increasing burden of payment for each category such that by 2004 all payment distributions had become proportional with the exception of purchase of medical appliances and goods which remained progressive but less so than in 1993. It must be borne in mind that payment for this category of health care services made up a much smaller component of total payment compared to the other services.

The finding of a progressive OOP payment distribution for hospital-based care is similar to that found in another Malaysian study which used data from a household health survey, the NHMS II survey, conducted in 1996 (Rozita, 2000). The survey recorded household OOP payments made for hospital inpatient care incurred in the one year prior to the survey. The study found that the OOP payment shares to income by population income quintiles increased from poorer to richer quintiles and concluded that the OOP payment distribution for hospital inpatient care was progressive. The NHMS II survey also recorded household OOP payments for outpatient care incurred in the two weeks prior to the survey. However, no definite pattern emerged when OOP payment shares were examined against population income quintiles. Since the study did not include measures of summary progressivity indices, it was not possible to make any conclusion as to the nature of the payment distributions for outpatient care.

Overall, the most important findings in this analysis have been that the distribution of OOP payment for health in Malaysia has been found to be concentrated among the rich and that the payment distribution had been progressive at the three time points examined namely 1993, 1998 and 2004. Though these findings are laudable and contribute towards the overall picture of fair financing for health in Malaysia, this analysis has also unearthed some disturbing trends. Although the rich has been found to shoulder higher OOP health payment burdens than the poor, the concentration of payments among the rich appeared to have decreased from 1993 to 2004 and this decrease mainly happened between 1993 and 1998. Similarly, although the OOP payment has been found to be progressive, the degree of progressivity had decreased over time. Direct household OOP health payments in Malaysia were almost exclusively for purchase of private health care. Thus, the finding that the rich were paying more than the poor should not be surprising since the rich may prefer and are more likely to be able to afford private care which is perceived to be of higher quality. However, this analysis also showed that over time, the poor were increasingly paying more for private care which should raise some societal concern.

The subsequent two chapters will examine changes across time in the levels of catastrophic health payments and medical impoverishment to help gauge the adequacy of financial risk protection of health in Malaysia even with increasing OOP payment burdens among poorer households.

CHAPTER 6 CATASTROPHIC IMPACT OF OUT-OF-POCKET PAYMENTS FOR HEALTH CARE

6.1 INTRODUCTION

Adequate financial risk protection for health is an essential component of a fairly financed health system as this will help to ensure continuity of household wellbeing even when household members fall ill and are in need of health care. This chapter examines one of the two components of financial risk protection for health, namely that of catastrophic OOP health payments with the aim to assess the extent to which households had to make excessively large OOP health payments, payments which are large enough to be thought of as being a catastrophe to household welfare. The basic argument in support of providing adequate financial risk protection for health is because available household resources are expected to decline because of the need to make OOP health payments and if this decline is substantial, household welfare may be severely affected. It is logical to assume that the welfare reducing effect of having to make catastrophic health payments will differ between poorer and richer households. Poorer households may have to forgo consumption of essential goods and services. Richer households may make do with less luxury or other non-essential items. Thus, the impact of catastrophic health payments in this chapter will be assessed not just by an examination of the numbers of households incurring catastrophic health payments but also by their distributions across households of differing ATP.

The chapter begins with Section 6.2, which will provide definitions of the catastrophic measures and discuss the choice of catastrophic thresholds used in this analysis. Section 6.3 contains the results of the analysis. The chapter concludes with Section 6.4 which provides a summary of the findings.

6.2 DATA AND METHODS

6.2.1 Incidence of catastrophic health payments

The two main measures of catastrophic health payments examined in this chapter are measures of catastrophic incidence and catastrophic intensity. The incidence of catastrophic health payments estimates the proportion of households incurring catastrophic health payments and is assessed using the catastrophic headcount measure. The intensity of catastrophic health payments estimates the excess payments made by households above pre-determined catastrophic payment thresholds and provides an assessment as to the severity of catastrophic payments incurred. The intensity of catastrophic health payments is assessed using the catastrophic gap measure.

A household is said to have incurred catastrophic health payments if the amount of its OOP health payments exceeds a pre-defined proportion of household consumption. The incidence of catastrophic health payments or also referred to as the catastrophic headcount measure, estimates the proportions of households in the sample in which OOP payments exceeded the set threshold (z) and this is given by the following formula:

$$H = \frac{1}{N} \sum_{i=1}^{N} E_i$$

where *H* is the headcount, *N* is the sample size. If the ratio *T/x* refers to the ratio of household OOP payments to household consumption, $E_i=1$ if for household *i* the *T/x* > *z* and 0 if otherwise.

This catastrophic headcount measure does not take into consideration whether the catastrophic payments have been incurred by poorer or richer households. The headcount distribution across households of differing ATP is depicted by the CI for catastrophic headcount. The definition, estimation methods and interpretation of this index have been described in Section 5.2.2 of Chapter 5.

The catastrophic headcount measure and its CI can be combined to give a single summary headcount measure which takes into consideration not only the incidence of catastrophic headcounts but also the distribution across rich and poor households as given in the following:

$$H^W = H \left(1 - C_E \right)$$

where H^W is the rank weighted headcount measure and C_E is the CI for headcount (Wagstaff and van Doorslaer, 2003). If headcounts are concentrated among the rich (poor), the C_E will be positive (negative) and H^W will be lower (higher) than H. The rank weighted headcount measure is particularly useful in this analysis which seeks to examine changes in catastrophic headcounts across time and over different subpopulations. Comparison of H^W rather than H allows simultaneous interpretation of headcount incidence and distribution.

6.2.2 Intensity of catastrophic health payments

The intensity of catastrophic health payments or also referred to as the catastrophic overshoot measure, estimates the average degree by which OOP payments exceed the threshold (z) and is given by the following formula:

$$O = \frac{1}{N} \sum_{i=1}^{N} O_i$$

where *O* is the overshoot, *N* is the sample size and $O_i = E_i((T_i|x_i) - z)$. The overshoot is averaged over all households. The overshoot, which is conditional upon households incurring catastrophic payments, or the mean positive overshoot is given by:

$$MPO = \frac{O}{H}$$

Similar to incidence measures, the CI for catastrophic overshoot can be estimated to show the distribution of overshoot over households of differing ATP. The intensity and distribution of overshoot can be combined to give the following summary measure:

$$O^W = O(1 - C_0)$$

where O^W is the rank weighted overshoot measure and C_O is the CI for overshoot.

Although conceptually, catastrophic headcounts have been described in the sections above as proportions of households incurring catastrophic health payments, it is argued that policy-wise it would be more informative to be able to obtain population estimates of catastrophic health payments impact since household sizes differ. Moreover, poorer households are more likely to be larger than richer ones. Thus the measures of catastrophic health payments presented in this analysis have been adjusted to provide population estimates and not household estimates.

6.2.3 Establishing the catastrophic health payment threshold

The determination if a household has incurred catastrophic health payments requires the establishment of a threshold value above which the household is said to face financial catastrophe and below which it is said not to be so. The threshold is usually a pre-defined proportion of household resources and various thresholds have been used in empirical research (Table 6.1).

Measure of Household	Cotostrophia Throshold	Countries		
Resource	Catastrophic Threshold	Countries		
Household income	2.5, 5, 10 and 15 per cent	Vietnam ¹		
	5, 10 and 20 per cent	USA ²		
	10 per cent	Indonesia ³ , India ^{4, 5} , Sri Lanka ⁶		
Household consumption	5, 10, 15 and 25 per cent	14 Asian countries ⁷		
	5, 10 and 15 per cent	Thailand ⁸		
	10 per cent	Thailand ⁹ , Kenya ¹⁰ , India ¹¹ , China ¹²		
Household non-food consumption	10, 15, 20, 25, 30 and 40 per cent	Vietnam ¹		
	15, 25 and 40 per cent	14 Asian countries ⁷		
	20, 25 and 30 per cent	Thailand ⁸		
	20, 30, 40 and 60 per cent	Burkina Faso ¹³		
	10 man aant	Uganda ¹⁴ , Vietnam ¹⁵ , India ⁵ ,		
	40 per cent	49 countries ¹⁶		

 Table 6.1.
 Catastrophic payment threshold used in empirical research

Source: ¹(Wagstaff and van Doorslaer, 2003), ²(Wyszewianski, 1986), ³(Pradhan and Prescott, 2002), ⁴(Ranson, 2002), ⁵(Shahrawat and Rao, 2011), ⁶(Russell and Gilson, 2006), ⁷(van Doorslaer et al., 2007), ⁸(Somkotra and Lagrada, 2008), ⁹(Limwattananon et al., 2007), ¹⁰(Chuma et al., 2007), ¹¹(Bonu et al., 2009), ¹²(Zhang et al., 2010), ¹³(Su et al., 2006), ¹⁴(Xu et al., 2006), ¹⁵(Thuan et al., 2006), ¹⁶(Xu et al., 2003),

In his review of catastrophic thresholds, Ataguba (2011) noted that the catastrophic thresholds used are mainly arbitrarily determined. Thresholds that can reduce consumption of basic needs will logically differ for different households depending on many factors such as the existing levels of household resources and available assets that can be sold to pay for health care. Health payments exceeding a lower threshold may be catastrophic for poorer households but not for richer ones. In their study of low income households in Sri Lanka, Russell and Gilson (2006) found that

most of the OOP payment shares were below five per cent of household income. This was mainly attributed to the availability of free basic health care, which is provided through the public health sector. However, even payment shares as low as 2.5 per cent of household income caused severe welfare loss among some poor households leading to reduction in food intake, increase debts and sales of assets such as jewellery. It has been argued that the use of the non-food consumption as the measure of household resources in the catastrophic threshold rather than total consumption can improve identification of poor households incurring catastrophic health payments (Wagstaff and van Doorslaer, 2003, van Doorslaer et al., 2007). This is because expenditures for food items in these poor households usually make up a larger share of household consumption than in richer ones. Moreover, in poor households, food is likely to be a basic necessity and will probably not constitute luxury food items. Thus, consumption net of food payments can provide a better indication of the household's CTP for health and other needs than total consumption, and this forms the basis for its use in many catastrophic health payment thresholds (Table 6.1).

In view of the arbitrary nature of the catastrophic threshold, several studies have made use of a range of thresholds using as the measure of household resources both total household consumption as well as household non-food consumption (Table 6.1). The levels of catastrophic health payments are of policy relevance to gauge the success of programmes aimed at financial risk protection for health. Wagstaff (2008) has shown that though the use of different thresholds may change the magnitude of the catastrophic measures, the pattern of change over time will be less affected by the choice of threshold.
This analysis will be mainly based on the use of the 10 per cent share of household consumption threshold which is one of the most commonly used thresholds in studies of catastrophic health payments (Table 6.1). The rationale for choice of household consumption instead of household income as the measure of household resources or ATP has been given in Section 4.3 of Chapter 4. In line with the arguments presented in the section, the catastrophic threshold should be more accurately expressed as per capita adult equivalent OOP health payments over per capita adult equivalent household consumption. However, use of this ratio measure renders use of the equivalence scale redundant. In addition to the use of the total household consumption threshold, this analysis will also present results using the 10 per cent share of household non-food consumption threshold to improve identification of poorer households which incur catastrophic health payments. This is supported by findings that food expenditures make up larger shares of household consumption in poorer household quintiles in Malaysia (Table 6.2). In selected parts of the analysis, a range of thresholds will also be used to illustrate the sensitivity of catastrophic measures to different catastrophic thresholds.

Table 6.2.Average OOP payment shares of total household consumption and non-food consumption by household quintiles, Malaysia, 1993 -2004

Household		1993			1998		2004		
Consumption	Food as % of	OOP as % of	OOP as % of	Food as % of	OOP as % of	OOP as % of	Food as % of	OOP as % of	OOP as % of
Ovintilos ¹	roou as 70 or		non-food	roou as 70 or		non-food	roou as 70 or		non-food
Quintiles	consumption	consumption	consumption	consumption	consumption	consumption	consumption	consumption	consumption
Poorest quintile	48.62 (0.0025)	0.81 (0.0004)	1.61 (0.0008)	48.82 (0.0033)	0.94 (0.0006)	1.83 (0.0011)	47.16 (0.0037)	0.85 (0.0006)	1.86 (0.0009)
2 nd quintile	44.76 (0.0024)	1.08 (0.0006)	1.96 (0.0009)	44.65 (0.0028)	1.17 (0.0006)	2.15 (0.0010)	40.38 (0.0032)	0.90 (0.0005)	1.52 (0.0008)
Middle quintile	41.62 (0.0024)	1.34 (0.0006)	2.32 (0.0009)	41.76 (0.0028)	1.31 (0.0007)	2.26 (0.0012)	36.36 (0.0033)	1.05 (0.0008)	1.66 (0.0012)
4 th quintile	38.71 (0.0024)	1.64 (0.0007)	2.72 (0.0011)	38.55 (0.0029)	1.64 (0.0013)	2.64 (0.0017)	33.49 (0.0029)	1.21 (0.0007)	1.87 (0.0012)
Richest quintile	31.60 (0.0026)	2.17 (0.0011)	3.16 (0.0014)	30.57 (0.0032)	2.22 (0.0013)	3.18 (0.0017)	25.62 (0.0036)	1.62 (0.0015)	2.19 (0.0019)
Overall	41.06 (0.0012)	1.41 (0.0003)	2.36 (0.0005)	40.87 (0.0015)	1.46 (0.0004)	2.41 (0.0006)	36.60 (0.0018)	1.13 (0.0004)	1.82 (0.0006)

Note: ¹Refers to population quintiles of monthly per capita adult equivalent household consumption.

Numbers in parenthesis refer to standard errors.

6.2.4 Data sources

The data for this analysis were obtained from the 1993/94, 1998/99 and 2004/05 rounds of the nationally representative HES which have been described in Section 4.2 of Chapter 4.

6.3 **RESULTS**

6.3.1 Incidence and intensity of catastrophic OOP payments in Malaysia

Table 6.3 shows that in 1993 1.98 per cent of the population in the country made OOP payments exceeding 10 per cent share of their household consumption. The figures are slightly lower in the later years, 1.95 per cent in 1998 and 1.44 per cent in 2004. Those incurring these large OOP payments shares were concentrated among the rich as evidenced by positive CIs for catastrophic headcounts. The changes in headcount measures and CIs show an interesting trend over the years. While there appeared to be decreasing population shares incurring catastrophic health payments exceeding 10 per cent of their household consumption over the years, those who did exceed this threshold appeared to be less concentrated among the rich over the same period of time as evidenced by decreasing CIs. Consequently, the difference between the rank weighted headcount measures between 1993 and 2004 is not as great as the difference between the actual headcount measures.

Table 6.3 also shows that as the catastrophic thresholds increase from 5 per cent to 20 per cent share of household consumption, the proportion of the population that exceeded the threshold decreases, a pattern that was found for all three years. The interesting observation here is that as the thresholds increase, those who exceeded the threshold

became more concentrated among the rich as evidenced by CIs for headcounts which increased with increasing thresholds. Thus, those who incurred catastrophic health payments at lower thresholds tend to be poorer than those who incurred catastrophic payments at higher thresholds.

The population shares which exceeded thresholds with non-food consumption as the denominator were higher than those of the corresponding thresholds using total household consumption (Table 6.3). In 1993, 5.31 per cent of the population had OOP payment shares exceeding 10 per cent share of household non-food consumption compared to 1.98 per cent using threshold of 10 per cent share of total consumption. In addition to this, the lower CI also indicated that those who exceeded the 10 per cent share of non-food consumption were less concentrated among the rich than if the denominator had been the total consumption threshold. Similar to the incidence patters with total consumption thresholds, the population shares which exceeded the non-food consumption thresholds decreased with increasing thresholds and became more concentrated among the rich as shown by decreasing headcounts but increasing CIs with increasing thresholds.

A general pattern for catastrophic incidence from 1993 to 2004 emerges for each threshold in which the incidence appeared to have increased from 1993 to 1998 before decreasing to 2004 and at a level below that of 1993. This incidence pattern is shown in Figure 6.1 using the various non-food consumption catastrophic thresholds. A more interesting finding is that in general those who did incur catastrophic health payments were concentrated among the rich in 1993 but became less concentrated among the rich over time such that the differences between the rank weighted headcount measures of

1993 and 2004 were smaller than the differences between actual headcount measures over the same period.

Figure 6.1. Incidence of catastrophic health payments using various non-food consumption thresholds, Malaysia, 1993 - 2004



Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

Table 6.4 shows that in 1993 on average, each household exceeded the threshold of 10 per cent share of household consumption by only 0.18 per cent of household consumption. There was a slight decrease in the latter years, 0.17 per cent in 1998 and 0.13 per cent in 2004. However, among those which actually incurred catastrophic health payments at this threshold, the overshoot was many times higher, i.e. the mean positive overshoots were 8.84 per cent of household consumption in 1993, 8.79 per cent

in 1998 and 9.15 per cent in 2004. This meant that households which incurred catastrophic health expenditures as defined by the threshold of 10 per cent of household consumption in 1993 had on average OOP payment share of total consumption of 18.84 per cent. In 1998 and 2004 these were 18.79 per cent and 19.15 per cent respectively. Thus, though the average intensity of catastrophic health payment decreased from 1993 to 2004, the intensity among households with catastrophic payments increased. The overshoots were concentrated among the rich but with the passing years the overshoots became less concentrated among the rich as evidenced by decreasing CIs, such that the rank weighted overshoot measures for all three years differed little.

The average catastrophic overshoot decrease with increasing thresholds but among households which incurred catastrophic payments at various thresholds, the overshoots increase with increasing thresholds. The increasing overshoot CIs also indicate that with increasing thresholds the overshoots became more concentrated among the rich. The overshoot measures are generally higher and are less concentrated among the rich when measured against thresholds using non-food consumption as the denominator as compared to the corresponding threshold of total consumption.

Over time, the intensity of catastrophic payments generally decreased from 1993 to 2004 for each threshold but the intensity also became less concentrated among the rich. However, among households which incurred catastrophic health payments especially when assessed using the non-food consumption thresholds, the intensity increased over time from 1993 to 2004.

	Thresholds of	f OOP payments	as share of total	consumption	Threshol	ds of OOP paym	ents as share of	non-food
Year/Indices						consur	nption	
	5%	10%	15%	20%	10%	15%	20%	25%
1993								
Catastrophic Headcount H	6.61 (0.0023)	1.98 (0.0012)	0.83 (0.0008)	0.49 (0.0006)	5.31 (0.0021)	2.56 (0.0015)	1.45 (0.0011)	0.85 (0.0008)
Concentration Index of	0.1852*	0.3491*	0.5066*	0.5826*	0.1078*	0.2224*	0.3181*	0.4429*
Headcount C_E	(0.0205)	(0.0379)	(0.0632)	(0.0884)	(0.0234)	(0.0340)	(0.0455)	(0.0609)
Rank Weighted Headcount H ^W	5.38	1.29	0.41	0.21	4.73	1.99	0.99	0.47
1998								
Catastrophic Headcount H	6.92 (0.0030)	1.95 (0.0016)	0.92 (0.0011)	0.51 (0.0009)	5.25 (0.0026)	2.54 (0.0019)	1.41 (0.0014)	0.85 (0.0011)
Concentration Index of	0.1701*	0.3247*	0.4081*	0.4796*	0.1045*	0.1719*	0.2569*	0.2962*
Headcount C_E	(0.0254)	(0.0507)	(0.0802)	(0.1145)	(0.0288)	(0.0434)	(0.0589)	(0.0796)
Rank Weighted Headcount H ^W	5.74	1.32	0.54	0.26	4.70	2.10	1.05	0.60
2004								
Catastrophic Headcount H	4.31 (0.0026)	1.44 (0.0016)	0.74 (0.0012)	0.43 (0.0010)	3.04 (0.0022)	1.75 (0.0018)	0.99 (0.0013)	0.67 (0.0012)
Concentration Index of	0.1917*	0.2785*	0.4046#	0.4438#	0.1601#	0.1357@	0.2235	0.2273
Headcount C_E	(0.0400)	(0.0791)	(0.1186)	(0.1730)	(0.0512)	(0.0762)	(0.0945)	(0.1311)
Rank Weighted Headcount H ^W	3.49	1.04	0.44	0.24	2.56	1.51	0.77	0.52

Table 6.3.Incidence of catastrophic OOP payments for health care, Malaysia, 1993 - 2004

Note. Headcounts are expressed as per cent of population. Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Thresholds o	of OOP payments	s as share of tota	l consumption	Thresholds of OOP payments as share of non-food				
Year/Indices						consu	mption		
	5%	10%	15%	20%	10%	15%	20%	25%	
1993									
Catastrophic Overshoot O	0.36 (0.0002)	0.18 (0.0002)	0.11 (0.0002)	0.08 (0.0001)	0.47 (0.0003)	0.28 (0.0002)	0.18 (0.0002)	0.12 (0.0002)	
Concentration Index of	0.4015*	0.5560*	0.6421*	0.6869*	0.3154*	0.4235*	0.5119*	0.5749*	
Overshoot C ₀	(0.0497)	(0.0856)	(0.1184)	(0.1439)	(0.0457)	(0.0663)	(0.0885)	(0.1114)	
Mean Positive Overshoot MPO	5.40 (0.0031)	8.84 (0.0077)	12.23 (0.0137)	15.72 (0.0169)	8.78 (0.0046)	10.75 (0.0076)	12.40 (0.0110)	14.70 (0.0150)	
Rank Weighted Overshoot 0 ^W	0.21	0.08	0.04	0.02	0.32	0.16	0.09	0.05	
1998									
Catastrophic Overshoot O	0.36 (0.0003)	0.17 (0.0003)	0.11 (0.0002)	0.07 (0.0002)	0.45 (0.0004)	0.26 (0.0003)	0.17 (0.0003)	0.11 (0.0002)	
Concentration Index of	0.3554*	0.4926*	0.5660*	0.6497*	0.2497*	0.3299*	0.4014*	0.4636#	
Overshoot C ₀	(0.0615)	(0.1067)	(0.1453)	(0.1800)	(0.0562)	(0.0806)	(0.1088)	(0.1352)	
Mean Positive Overshoot MPO	5.17 (0.0041)	8.79 (0.0107)	11.57 (0.0169)	14.14 (0.0211)	8.59 (0.0059)	10.41 (0.0096)	11.77 (0.0135)	13.18 (0.0166)	
Rank Weighted Overshoot O ^W	0.23	0.09	0.05	0.03	0.34	0.18	0.10	0.06	

Table 6.4.Intensity of catastrophic OOP payments for health care, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over entire population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Thresholds of	f OOP payments	as share of total	consumption	Thresholds of OOP payments as share of non-food			
Year/Indices						consur	nption	
	5%	10%	15%	20%	10%	15%	20%	25%
2004								
Catastrophic Overshoot O	0.26 (0.0003)	0.13 (0.0002)	0.08 (0.0002)	0.05 (0.0001)	0.34 (0.0005)	0.22 (0.0004)	0.16 (0.0003)	0.11 (0.0003)
Concentration Index of	0.3227*	0.3948#	0.4441#	0.4428#	0.0834	0.0579	0.0294	-0.0387
Overshoot Co	(0.0865)	(0.1327)	(0.1765)	(0.2165)	(0.1124)	(0.1497)	(0.1915)	(0.2324)
Mean Positive Overshoot MPO	5.95 (0.0054)	9.15 (0.0110)	10.63 (0.0166)	11.72 (0.0224)	11.03 (0.0118)	12.74 (0.0178)	15.78 (0.0251)	17.16 (0.0338)
Rank Weighted Overshoot O ^W	0.17	0.08	0.04	0.03	0.31	0.21	0.15	0.12

Table 6.4 (cont'd). Intensity of catastrophic OOP payments for health care, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over entire population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

Table 6.5 shows the incidence and intensity of catastrophic health payments by household consumption quintiles using thresholds of 10 per cent shares of total household consumption and non-food consumption. There is an increasing gradient from the poorest household quintile to the richest for each catastrophic measure. However, the differentials in the various measures between the poorest and richest household quintiles decrease with time indicating that the incidence and intensity of catastrophic health payments becoming less concentrated among the rich over time. Figure 6.2 illustrates this using the mean positive overshoots assessed using the threshold of 10 per cent shares of total household consumption.





Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

Vear/Household	Threshold 10% OC	OP payments as share	of total consumption	Threshold 10% OOP	Threshold 10% OOP payments as share of non-food consumption				
$\frac{1}{2}$	Catastrophic	Catastrophic	Mean Positive	Catastrophic	Catastrophic	Mean Positive			
Consumption Quintiles	Headcount H	Overshoot O	Overshoot MPO	Headcount H	Overshoot O	Overshoot MPO			
1993									
Poorest quintile	0.63 (0.0016)	0.02 (0.0000)	2.51 (0.0038)	4.28 (0.0048)	0.21 (0.0003)	4.93 (0.0045)			
2 nd quintile	1.04 (0.0022)	0.07 (0.0003)	6.26 (0.0226)	4.31 (0.0044)	0.27 (0.0005)	6.33 (0.0106)			
Middle quintile	1.65 (0.0025)	0.10 (0.0002)	6.31 (0.0103)	4.93 (0.0047)	0.37 (0.0005)	7.50 (0.0074)			
4 th quintile	2.66 (0.0033)	0.17 (0.0003)	6.45 (0.0094)	6.24 (0.0052)	0.54 (0.0006)	8.63 (0.0077)			
Richest quintile	3.93 (0.0037)	0.52 (0.0008)	13.12 (0.0156)	6.77 (0.0047)	0.94 (0.0011)	13.86 (0.0125)			
1998									
Poorest quintile	0.92 (0.0026)	0.05 (0.0002)	4.90 (0.0141)	4.32 (0.0054)	0.29 (0.0005)	6.82 (0.0092)			
2 nd quintile	0.96 (0.0025)	0.04 (0.0001)	4.25 (0.0086)	4.76 (0.0056)	0.26 (0.0004)	5.53 (0.0060)			
Middle quintile	1.30 (0.0029)	0.10 (0.0003)	7.71 (0.0145)	4.27 (0.0056)	0.33 (0.0007)	7.81 (0.0128)			
4 th quintile	2.58 (0.0046)	0.22 (0.0009)	8.60 (0.0270)	6.02 (0.0063)	0.56 (0.0012)	9.24 (0.0156)			
Richest quintile	3.99 (0.0047)	0.45 (0.0009)	11.27 (0.0177)	6.90 (0.0062)	0.81 (0.0012)	11.74 (0.0137)			

Table 6.5. Incidence and intensity of catastrophic OOP payments for health care by quintiles of household consumption, Malaysia, 1993 - 2004

Note: ¹Refers to population quintiles of per capita adult equivalent household consumption.

Headcounts are expressed as per cent of quintile specific population. Overshoots have been averaged over quintile specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Numbers in parenthesis refer to standard errors.

Table 6.5 (cont'd). Incidence and intensity of catastrophic OOP payments for health care by quintiles of household consumption, Malaysia, 1993 -2004

Year/Household Consumption Quintiles ¹	Threshold 10% OG	OP payments as share	of total consumption	Threshold 10% OOP	Threshold 10% OOP payments as share of non-food consumption				
	Catastrophic	Catastrophic	Mean Positive	Catastrophic	Catastrophic	Mean Positive			
	Headcount H	Overshoot O	Overshoot MPO	Headcount H	Overshoot O	Overshoot MPO			
2004									
Poorest quintile	0.71 (0.0026)	0.04 (0.0002)	6.04 (0.0176)	2.41 (0.0047)	0.39 (0.0015)	16.26 (0.0511)			
2 nd quintile	0.79 (0.0023)	0.06 (0.0002)	7.76 (0.0262)	2.05 (0.0033)	0.17 (0.0004)	8.46 (0.0141)			
Middle quintile	1.40 (0.0031)	0.13 (0.0005)	9.53 (0.0220)	2.72 (0.0039)	0.30 (0.0008)	11.06 (0.0206)			
4 th quintile	1.76 (0.0035)	0.11 (0.0003)	6.49 (0.0096)	3.18 (0.0044)	0.30 (0.0007)	9.55 (0.0137)			
Richest quintile	2.56 (0.0056)	0.31 (0.0009)	12.06 (0.0243)	4.85 (0.0075)	0.51 (0.0013)	10.47 (0.0204)			

Note: ¹Refers to population quintiles of per capita adult equivalent household consumption.

Headcounts are expressed as per cent of quintile specific population. Overshoots have been averaged over quintile specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Numbers in parenthesis refer to standard errors.

6.3.2 Incidence and intensity of catastrophic OOP payments by regions in Malaysia

Figure 6.3 shows that within each region there was decreasing incidence of catastrophic health payments with increasing thresholds. The general trend also shows a decreasing incidence from 1993 to 2004 with the exception of Sabah where the highest incidence was for 1998.

In 1993, the highest incidence of catastrophic payments was recorded for the Peninsular Malaysia where 2.11 per cent of the population exceeded the threshold of 10 per cent of household consumption and 5.59 per cent exceeded a similar threshold of non-food consumption (Table 6.6). The incidence was lower for Sarawak, 1.89 per cent and 4.63 per cent for the respective thresholds. The incidence was the lowest for Sabah, 0.83 per cent and 3.25 per cent of the respective thresholds. Although in all three regions, those who incurred catastrophic payments were concentrated among the rich, they were least concentrated among the rich in the Peninsular compared to the other two regions as evidenced by the lowest positive CI for catastrophic incidence in the Peninsular.

An interesting pattern in incidence trends over the years among the three regions can be seen using the catastrophic threshold of 10 per cent share of total consumption. The incidence of catastrophic health payments decreased over time in the Peninsular as well as Sarawak. In both these regions, households which incurred catastrophic payments were more concentrated among the rich, i.e. all CIs for incidence were positive. However, although incidence decreased over time in the Peninsular, those who incurred catastrophic payments became less concentrated among the rich, i.e. a decreasing positive value of CIs. In contrast, incidence decreased over time in Sarawak but those which incurred catastrophic payments became more concentrated among the rich, i.e. increasing positive values for CIs. In Sabah, incidence levels for 1993 and 2004 did not differ much and were lower than the other two regions. However, those incurring catastrophic payments were concentrated among the rich in 1993 but by 2004 this was no longer the case because statistically it cannot be excluded that those incurring such payments had become evenly distributed in the population.

In 1993 the intensity of catastrophic health payments using the 10 per cent share threshold was the highest in the Peninsular where the average overshoot was 0.19 per cent of total household consumption and 0.51 per cent of non-food consumption (Table 6.7). The intensity was the lowest in Sabah where the average overshoot was only 0.05 per cent of total household consumption and 0.16 per cent of non-food consumption. In all three regions, these overshoots were concentrated among the rich, more so in Sabah than the other two regions. The intensity of catastrophic payments was naturally higher among those who did exceed the threshold in each region and again was the highest in Peninsular and lowest in Sabah. The mean positive overshoot in the Peninsular was 9.02 per cent of total consumption and 9.05 per cent of total consumption. In Sabah, the mean positive overshoot was 6.45 per cent of total consumption and 5.04 per cent of non-food consumption. Taking into consideration both overshoots were again the lowest in Sabah.

Over time, the intensity of catastrophic payments in the Peninsular declined. However, although the rich continued to shoulder more of the excess health payments above the threshold as shown by positive CIs in all the years, the overshoots became less concentrated on the rich over the years as indicated by decreasing positive CIs. In contrast, the intensity of catastrophic payments in Sarawak decreased over time and also became more concentrated among the rich. The pattern was again different for Sabah where intensity increased from 1993 to 1998 before decreasing in 2004. However, the main feature of the catastrophic payments in Sabah was that the overshoots which were highly concentrated among the rich in 1993 became evenly distributed in 1998 and 2004.

Figure 6.3. Incidence of catastrophic health payments by regions a. Thresholds as shares of total household consumption.





Threshold as shares of total household consumption

b. Thresholds as shares of non-food consumption.



Threshold as shares of non-food consumption

Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

	Threshold 10	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Regions/Indices		consumption			consumption		
-	1993	1998	2004	1993	1998	2004	
PENINSULAR MALAYSIA							
Catastrophic Headcount H	2.11 (0.0014)	2.07 (0.0018)	1.56 (0.0019)	5.59 (0.0025)	5.42 (0.0030)	3.18 (0.0026)	
Concentration Index of Headcount C_E	0.3339* (0.0415)	0.3240* (0.0548)	0.2544# (0.0838)	0.0965* (0.0261)	0.1151* (0.0314)	0.1655# (0.0542)	
Rank Weighted Headcount H ^W	1.41	1.40	1.16	5.05	4.79	2.66	
SABAH							
Catastrophic Headcount H	0.83 (0.0023)	1.61 (0.0048)	0.89 (0.0039)	3.25 (0.0048)	5.35 (0.0083)	2.56 (0.0069)	
Concentration Index of Headcount C_E	0.5112# (0.1781)	0.2668 (0.1901)	-0.1136 (0.4075)	0.1327@ (0.0737)	0.0752 (0.0743)	-0.1817 (0.1782)	
Rank Weighted Headcount H ^W	0.41	1.18	1.00	2.82	4.95	3.03	
SARAWAK							
Catastrophic Headcount H	1.89 (0.0035)	1.23 (0.0036)	1.10 (0.0033)	4.63 (0.0052)	3.58 (0.0071)	2.40 (0.0043)	
Concentration Index of Headcount C_E	0.3546# (0.1078)	0.4403# (0.1883)	0.6518* (0.1783)	0.1676# (0.0610)	0.1593 (0.1352)	0.4296* (0.1045)	
Rank Weighted Headcount <i>H^W</i>	1.22	0.69	0.38	3.85	3.01	1.37	

Table 6.6.Incidence of catastrophic OOP payments for health care by regions, Malaysia, 1993 - 2004

Note. Headcounts are expressed as per cent of region specific population.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Threshold 10	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Regions/Indices		consumption			consumption		
	1993	1998	2004	1993	1998	2004	
PENINSULAR MALAYSIA							
Catastrophic Overshoot O	0.19 (0.0002)	0.19 (0.0003)	0.15 (0.0003)	0.51 (0.0003)	0.48 (0.0005)	0.35 (0.0005)	
Concentration Index of Overshoot C_0	0.5586* (0.0914)	0.5174* (0.1163)	0.3692# (0.1434)	0.3110* (0.0495)	0.2597* (0.0619)	0.1148 (0.1266)	
Mean Positive Overshoot MPO	9.02 (0.0083)	8.99 (0.0121)	9.57 (0.0125)	9.05 (0.0050)	8.85 (0.0066)	11.00 (0.0135)	
Rank Weighted Overshoot 0 ^W	0.08	0.09	0.09	0.35	0.35	0.31	
SABAH							
Catastrophic Overshoot O	0.05 (0.0002)	0.15 (0.0006)	0.06 (0.0002)	0.16 (0.0003)	0.39 (0.0012)	0.35 (0.0012)	
Concentration Index of Overshoot C_0	0.5676# (0.2665)	0.2933 (0.2272)	0.0564 (0.3128)	0.3148# (0.1270)	0.1774 (0.1645)	-0.4214 (0.2907)	
Mean Positive Overshoot MPO	6.45 (0.0183)	9.30 (0.0179)	6.71 (0.0161)	5.04 (0.0087)	7.29 (0.0181)	13.59 (0.0344)	
Rank Weighted Overshoot 0 ^W	0.02	0.11	0.06	0.11	0.32	0.49	
SARAWAK							
Catastrophic Overshoot O	0.15 (0.0006)	0.06 (0.0002)	0.07 (0.0002)	0.39 (0.0009)	0.25 (0.0005)	0.19 (0.0005)	
Concentration Index of Overshoot C_0	0.4601 (0.3122)	0.5239# (0.2650)	0.7529# (0.2878)	0.2800@ (0.1489)	0.2625@ (0.1390)	0.5622# (0.1619)	
Mean Positive Overshoot MPO	8.00 (0.0262)	5.00 (0.0153)	6.22 (0.0193)	8.36 (0.0154)	6.91 (0.0103)	7.88 (0.0125)	
Rank Weighted Overshoot 0 ^W	0.08	0.03	0.02	0.28	0.18	0.08	

Table 6.7.Intensity of catastrophic OOP payments for health care by regions, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over region specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold. Indices are statistically significant from zero at $p<0.001 \ p<0.05 \ p<0.10$. Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity. Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

6.3.3 Incidence and intensity of catastrophic OOP payments by urban-rural strata in Malaysia

Figure 6.4 shows that the incidence of catastrophic health payment decreased with increasing thresholds within the rural and urban strata. Over the years, the incidence generally decreased.

In 1993, a higher proportion of the urban population incurred catastrophic health payments as compared to the rural population (Table 6.8). In the urban areas, 2.46 per cent of the population had OOP health payments which exceeded the threshold of 10 per cent share of total household consumption and 5.46 per cent of the population exceeded the 10 per cent share of non-food consumption threshold. Among the rural population, the incidence of catastrophic payments was lower at 1.45 per cent and 5.13 per cent of the total and non-food consumption thresholds respectively. The use of the 10 per cent share of non-food consumption threshold not only revealed higher incidence of catastrophic payments when compared to the 10 per cent share of total consumption threshold but was also more sensitive to identifying those who did exceed the thresholds among the poor. The non-food consumption threshold revealed less concentration of catastrophic incidence among the rich especially in the rural areas. Taking incidence and distribution into consideration, the rank weighted headcounts were still higher among the urban population using the 10 per cent share of total consumption threshold but showed a higher adjusted incidence among the rural population using the 10 per cent share of non-food consumption threshold.

Based on the threshold of 10 per cent non-food consumption, the incidence of catastrophic health payments generally decreased over time in both urban as well as

rural populations with a higher incidence among the urban population each year (Table 6.8). But the more interesting finding is that those in the urban areas who incurred catastrophic health payments became increasing concentrated among the rich over time but rural populations who incurred catastrophic payments were more evenly distributed among the rich and the poor.

In 1993, intensity of catastrophic health payments was higher among the urban population where the average overshoot was 0.25 per cent of total household consumption and 0.57 per cent of non-food consumption (Table 6.9). The corresponding figures for the rural population were 0.09 per cent and 0.35 per cent. But the intensity of catastrophic payments conditional on those who actually incurred catastrophic payments was much higher. Those in the urban areas exceeded the 10 per cent total consumption threshold by 10.17 per cent and in the rural areas by 6.29 per cent. Mean positive overshoots using the non-food thresholds were similarly large.

In general, the intensity of catastrophic health payments declined slightly over time for the urban as well as the rural populations (Table 6.9). These overshoots also became less concentrated among the rich over time especially when catastrophic payments were assessed using the 10 per cent share of non-food consumption threshold. Thus when the decline in intensity was considered simultaneously with the decrease in concentration among the rich, the rank weighted overshoot measures did not change much over the years among both the urban and rural population. Figure 6.4. Incidence of catastrophic health payments by urban-rural strata, Malaysia, 1993 - 2004



a. Thresholds as shares of total household consumption.

Threshold as shares of total household consumption

b. Thresholds as shares of non-food consumption.



Threshold as shares of non-food consumption

Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

	Threshold 109	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Strata/Indices		consumption		consumption			
-	1993	1998	2004	1993	1998	2004	
URBAN							
Catastrophic Headcount H	2.46 (0.0019)	2.20 (0.0023)	1.61 (0.0023)	5.46 (0.0029)	5.57 (0.0036)	3.15 (0.0030)	
Concentration Index of Headcount C_E	0.3140* (0.0441)	0.3692 (0.0597)	0.2480# (0.0948)	0.1661* (0.0276)	0.1212# (0.0361)	0.2021# (0.0619)	
Rank Weighted Headcount H ^W	1.69	1.39	1.21	4.55	4.90	2.52	
RURAL							
Catastrophic Headcount H	1.45 (0.0015)	1.70 (0.0022)	1.14 (0.0019)	5.13 (0.0032)	4.92 (0.0038)	2.84 (0.0032)	
Concentration Index of Headcount C_E	0.3117* (0.0671)	0.2486# (0.0842)	0.2960# (0.1351)	0.0344 (0.0361)	0.0737@ (0.0445)	0.0977 (0.0761)	
Rank Weighted Headcount <i>H^W</i>	1.00	1.28	0.80	4.96	4.56	2.56	

Table 6.8.Incidence of catastrophic OOP payments for health care by urban-rural strata, Malaysia, 1993 - 2004

Note. Headcounts are expressed as per cent of strata specific population.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Threshold 10	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Strata/Indices		consumption		consumption			
	1993	1998	2004	1993	1998	2004	
URBAN							
Catastrophic Overshoot O	0.25 (0.0003)	0.24 (0.0005)	0.16 (0.0003)	0.57 (0.0005)	0.52 (0.0007)	0.37 (0.0006)	
Concentration Index of Overshoot C_0	0.5014* (0.1015)	0.4641* (0.1118)	0.3414# (0.1575)	0.3306* (0.0610)	0.3060* (0.0680)	0.0835 (0.1452)	
Mean Positive Overshoot MPO	10.17 (0.0105)	10.73 (0.0163)	10.03 (0.0139)	10.39 (0.0072)	9.29 (0.0094)	11.70 (0.0162)	
Rank Weighted Overshoot 0 ^W	0.12	0.13	0.11	0.38	0.36	0.34	
RURAL							
Catastrophic Overshoot O	0.09 (0.0002)	0.11 (0.0002)	0.08 (0.0002)	0.35 (0.0003)	0.38 (0.0004)	0.27 (0.0005)	
Concentration Index of Overshoot C_0	0.5335* (0.1329)	0.3820# (0.1587)	0.4140# (0.1745)	0.2137* (0.0602)	0.1322@ (0.0730)	0.0312 (0.1461)	
Mean Positive Overshoot MPO	6.29 (0.0089)	6.22 (0.0100)	6.84 (0.0144)	6.85 (0.0048)	7.78 (0.0065)	9.66 (0.0130)	
Rank Weighted Overshoot 0 ^W	0.04	0.07	0.05	0.28	0.33	0.27	

Table 6.9.Intensity of catastrophic OOP payments for health care by urban-rural strata, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over strata specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

6.3.4 Incidence and intensity of catastrophic OOP payments by ethnic groups in Malaysia

Figure 6.5 shows that among the four main ethnic groups in the country, the Chinese had the highest incidence of catastrophic health payments followed by the Indians, Malays and non-Malay Bumiputeras.

In 1993, 3.95 per cent of the Chinese population had OOP payments exceeding 10 per cent share of total consumption and 8.80 per cent had shares exceeding 10 per cent of non-food consumption (Table 6.10). In both instances, those whose OOP payments exceeded the thresholds were more concentrated among the rich, more so using the total consumption threshold than with the non-food consumption threshold. In the same year, 2.63 per cent of Indians exceeded the 10 per cent total consumption threshold and they were also more concentrated among the rich. A higher proportion of Indians, 6.09 per cent, exceeded the 10 per cent non-food consumption threshold but they were evenly distributed among the poor and rich. The incidences of catastrophic payments were much lower among the Malays, 1.14 per cent exceeding the 10 per cent share of total consumption and 3.90 per cent exceeding 10 per cent of non-food consumption, but what is more significant is that Malays who incurred catastrophic health payments as assessed using the non-food consumption threshold were found to be concentrated among the poor. Non-Malay Bumiputeras had the lowest catastrophic incidence, 0.58 per cent exceeding the 10 per cent share of total consumption and 2.76 per cent exceeding 10 per cent of non-food consumption.

Over time, the incidence of catastrophic payments fell among the Chinese and the Indians, more so among the latter than the former (Table 6.10). In the case of the Chinese, those who exceeded the thresholds were more consistently concentrated among the rich. With the non-food threshold, the Chinese who incurred catastrophic health payments became increasingly concentrated among the rich over time. Among the Indians, the distribution was less clear but in each year, the incidence was more evenly distributed between the rich and poor than with the Chinese. Using the non-food consumption threshold, the incidence of catastrophic health payments for the Malays and non-Malay Bumiputeras declined over time but there was no clear pattern of distribution among the rich or poor.

In 1993, the intensity of catastrophic payments was the highest among Chinese and Indians and in both, the excess payments were concentrated among the rich (Table 6.11). The intensity of catastrophic payments for the Malays and non-Malay Bumiputeras were again much lower.

Table 6.11 also shows that among the Chinese and Indians, the intensity of catastrophic payment decreased over time. However, since the excess payments became less concentrated among the rich over the same period, the net impact of the decrease in intensity became less obvious as shown by the rank weighted overshoots. Among the Malays and non-Malay Bumiputeras, the intensity of catastrophic health payments was lower than the other two ethnic groups and did not change much over the years.

Figure 6.5. Incidence of catastrophic health payments by ethnic groups, Malaysia, 1993 - 2004



a. Thresholds as shares of total household consumption.

Threshold as shares of total household consumption

- % of population exceeding threshold 25.00% 20.00% 15.00% 10.00% 5.00% 0.00% 1993 1998 2004 1993 1998 2004 1993 1998 2004 1993 1998 2004 1993 1998 2004 Malays Non-Chinese Malay Indians Others Bumis ■ 30% **■** 25% **■** 20% **■** 15% **10%** 5%
- b. Thresholds as shares of non-food household consumption.

Threshold as shares of non-food consumption

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

	Threshold 10	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Ethnic group/Indices		consumption			consumption		
	1993	1998	2004	1993	1998	2004	
MALAYS							
Catastrophic Headcount H	1.14 (0.0013)	1.56 (0.0021)	1.34 (0.0020)	3.90 (0.0027)	4.15 (0.0033)	2.77 (0.0026)	
Concentration Index of Headcount C_E	0.1286@ (0.0734)	0.2179# (0.0892)	0.2599# (0.1107)	-0.1134# (0.0420)	-0.0014 (0.0488)	0.1193@ (0.0647)	
Rank Weighted Headcount H ^W	1.00	1.22	0.99	4.35	4.15	2.44	
NON-MALAY BUMIPUTERAS							
Catastrophic Headcount H	0.58 (0.0022)	0.79 (0.0033)	0.72 (0.0040)	2.76 (0.0048)	2.68 (0.0063)	2.19 (0.0068)	
Concentration Index of Headcount C_E	0.5317# (0.2386)	-0.0215 (0.3175)	-0.2026 (0.5314)	0.0781 (0.0759)	-0.0260 (0.1202)	-0.1392 (0.2220)	
Rank Weighted Headcount H ^W	0.27	0.81	0.86	2.54	2.75	2.49	
CHINESE							
Catastrophic Headcount H	3.95 (0.0033)	2.73 (0.0034)	2.48 (0.0047)	8.80 (0.0050)	7.22 (0.0056)	4.79 (0.0065)	
Concentration Index of Headcount C_E	0.2418* (0.0447)	0.3308* (0.0626)	0.1730 (0.1108)	0.1137* (0.0290)	0.1347# (0.0408)	0.2029# (0.0769)	
Rank Weighted Headcount <i>H^W</i>	2.99	1.83	2.05	7.80	6.74	3.82	

Table 6.10.Incidence of catastrophic OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Note. Headcounts are expressed as per cent of ethnic specific population.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Threshold 10	% OOP payments as	share of total	Threshold 10% OOP payments as share of non-food			
Ethnic group/Indices		consumption		consumption			
	1993	1998	2004	1993	1998	2004	
INDIANS							
Catastrophic Headcount H	2.63 (0.0052)	3.25 (0.0076)	0.90 (0.0042)	6.09 (0.0085)	7.77 (0.0119)	1.85 (0.0061)	
Concentration Index of Headcount C_E	0.2713# (0.1016)	0.4591# (0.1387)	0.1736 (0.1572)	-0.0129 (0.0798)	0.1325@ (0.776)	0.0219 (0.2280)	
Rank Weighted Headcount H^W	1.91	1.76	0.74	6.17	6.74	1.81	
OTHERS							
Catastrophic Headcount H	1.23 (0.0039)	2.22 (0.0084)	0.40 (0.0024)	3.62 (0.0066)	7.72 (0.0140)	2.28 (0.0074)	
Concentration Index of Headcount C_E	0.5187# (0.2368)	0.4835# (0.2016)	0.4377 (0.4152)	0.0566 (0.1167)	0.0994 (0.0846)	-0.0973 (0.2092)	
Rank Weighted Headcount <i>H^W</i>	0.59	1.15	0.23	3.41	6.96	2.50	

Table 6.10 (cont'd). Incidence of catastrophic OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Note. Headcounts are expressed as per cent of ethnic specific population.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

	Threshold 10% OOP payments as share of total			Threshold 10% OOP payments as share of non-food			
Ethnic group/Indices	consumption			consumption			
	1993	1998	2004	1993	1998	2004	
MALAYS							
Catastrophic Overshoot O	0.07 (0.0001)	0.15 (0.0004)	0.12 (0.0003)	0.25 (0.0003)	0.37 (0.0005)	0.27 (0.0005)	
Concentration Index of Overshoot C_0	0.2445# (0.1088)	0.5322# (0.2011)	0.4116@ (0.2195)	-0.0332 (0.0593)	0.1843@ (0.1061)	0.2202 (0.1389)	
Mean Positive Overshoot MPO	5.94 (0.0099)	9.38 (0.0192)	9.29 (0.0187)	6.35 (0.0056)	8.94 (0.0102)	9.71 (0.0137)	
Rank Weighted Overshoot 0 ^W	0.05	0.07	0.07	0.26	0.30	0.21	
NON-MALAY BUMIPUTERAS							
Catastrophic Overshoot O	0.06 (0.0003)	0.05 (0.0003)	0.05 (0.0002)	0.18 (0.0006)	0.17 (0.0006)	0.18 (0.0006)	
Concentration Index of Overshoot C_0	0.5812 (0.4039)	-0.1067 (0.4763)	0.1847 (0.4187)	0.3871@ (0.2305)	-0.1153 (0.2783)	-0.1663 (0.2736)	
Mean Positive Overshoot MPO	9.96 (0.0401)	6.48 (0.0230)	6.69 (0.0185)	6.35 (0.0193)	6.30 (0.0169)	8.28 (0.0115)	
Rank Weighted Overshoot 0 ^W	0.02	0.06	0.04	0.11	0.19	0.21	
CHINESE							
Catastrophic Overshoot O	0.38 (0.0005)	0.22 (0.0005)	0.24 (0.0005)	0.93 (0.0008)	0.60 (0.0007)	0.50 (0.0009)	
Concentration Index of Overshoot C_0	0.4902* (0.1120)	0.4974* (0.1388)	0.2491 (0.1678)	0.2856* (0.0611)	0.2792* (0.0709)	0.1586 (0.1103)	
Mean Positive Overshoot MPO	9.51 (0.0115)	7.97 (0.0136)	9.53 (0.0121)	10.54 (0.0076)	8.25 (0.0076)	10.46 (0.0130)	
Rank Weighted Overshoot 0 ^W	0.19	0.11	0.18	0.66	0.43	0.42	

Table 6.11. Intensity of catastrophic OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over ethnic specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold. Indices are statistically significant from zero at $p<0.001 \ p<0.05 \ p<0.10$. Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity. Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

	Threshold 10% OOP payments as share of total			Threshold 10% OOP payments as share of non-food			
Ethnic group/Indices	consumption			consumption			
	1993	1998	2004	1993	1998	2004	
INDIANS							
Catastrophic Overshoot O	0.34 (0.0010)	0.29 (0.0015)	0.08 (0.0006)	0.69 (0.0014)	0.71 (0.0020)	0.51 (0.0036)	
Concentration Index of Overshoot C_0	0.5463# (0.2222)	0.5430 (0.3302)	0.0062 (0.2023)	0.2767# (0.1404)	0.3054@ (0.1779)	-0.6550 (0.6708)	
Mean Positive Overshoot MPO	13.06 (0.0268)	8.94 (0.0356)	8.60 (0.0423)	11.34 (0.0180)	9.07 (0.0211)	27.61 (0.1366)	
Rank Weighted Overshoot O ^W	0.16	0.13	0.08	0.50	0.49	0.85	
OTHERS							
Catastrophic Overshoot O	0.12 (0.0005)	0.24 (0.0010)	0.02 (0.0001)	0.31 (0.0009)	0.68 (0.0023)	0.47 (0.0028)	
Concentration Index of Overshoot C_0	0.7530@ (0.4273)	0.4864# (0.2245)	0.3773 (0.4306)	0.3086 (0.2378)	0.3378@ (0.1785)	-0.5472 (0.4864)	
Mean Positive Overshoot MPO	9.39 (0.0298)	10.57 (0.0161)	4.54 (0.0066)	8.60 (0.0176)	8.81 (0.0232)	20.37 (0.0787)	
Rank Weighted Overshoot <i>O^W</i>	0.03	0.12	0.01	0.22	0.45	0.72	

Table 6.11 (cont'd). Intensity of catastrophic OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Note. Overshoots have been averaged over ethnic specific population and are expressed as per cent of total consumption or non-food consumption exceeding the corresponding catastrophic threshold.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for CIs have been adjusted for heteroskedasticity.

6.3.5 Household OOP payments shares by categories of health services

Tables 6.12 and 6.13 show the OOP payment shares by categories of health services across household consumption quintiles and conditional upon those who incurred catastrophic health payments.

Across all household consumption quintiles, OOP payments made by those who incurred catastrophic payments as assessed using the 10 per cent share of total consumption threshold were predominantly for private health care (Table 6.12). In 1993, these payments shares were mainly for private non-hospital based services, followed by payments for purchase of pharmaceuticals. The pharmaceutical shares were approximately half that of payment shares of non-hospital based care for the poorer quintiles and about two thirds for the richest two quintiles. However, the payment component for purchase of pharmaceuticals increased over time such that by 2004, payment for pharmaceuticals became the main component of health payments for those who incurred catastrophic health payments. In the case of the poorest quintile, payment for pharmaceuticals took up a 67.87 per cent share of household OOP payments, whilst private non-hospital based payments made up only 7.70 per cent of OOP payments. The payment profile of 2004 also reveals that OOP health payments for private hospital-based care were highest among those in the richest quintile but not among those in the poorer quintiles. Figure 6.6 provides a visual presentation of these payment trends over time.

The payment pattern using the 10 per cent share of non-food consumption threshold to identify those who incurred catastrophic health payments did not differ much from the pattern using the total consumption threshold (Table 6.13 and Figure 6.7).

Veer/Household	OOP payment shares						
Consumption Quintiles ¹	Public health care services	Private hospital-based care	Private non-hospital based care	Pharmaceuticals	Medical goods and appliances		
1993							
Poorest quintile	14.20 (0.0784)	7.30 (0.0396)	52.19 (0.0859)	25.59 (0.0684)	0.73 (0.0048)		
2 nd quintile	22.45 (0.0801)	6.03 (0.0306)	49.28 (0.0836)	21.72 (0.0676)	0.52 (0.0029)		
Middle quintile	9.80 (0.0373)	5.49 (0.0377)	57.07 (0.0587)	25.28 (0.0484)	2.36 (0.0177)		
4 th quintile	7.29 (0.0260)	10.14 (0.0331)	46.07 (0.0475)	31.07 (0.0463)	5.44 (0.0254)		
Richest quintile	3.12 (0.0140)	31.25 (0.0423)	36.24 (0.0361)	25.22 (0.0271)	4.18 (0.0146)		
1998							
Poorest quintile	10.05 (0.0589)	21.09 (0.0836)	27.61 (0.1171)	40.15 (0.1290)	1.10 (0.0102)		
2 nd quintile	13.74 (0.0676)	32.59 (0.1276)	32.09 (0.1031)	20.48 (0.0622)	1.10 (0.0077)		
Middle quintile	14.96 (0.0675)	14.31 (0.0605)	26.00 (0.0910)	43.38 (0.0936)	1.34 (0.0072)		
4 th quintile	9.18 (0.0458)	20.97 (0.0608)	46.17 (0.0794)	20.93 (0.0569)	2.75 (0.0093)		
Richest quintile	8.71 (0.0345)	25.21 (0.0465)	39.23 (0.0459)	25.30 (0.0378)	1.54 (0.0048)		
2004							
Poorest quintile	16.87 (0.0905)	3.85 (0.0395)	7.70 (0.0663)	67.87 (0.1254)	3.72 (0.0208)		
2 nd quintile	12.57 (0.0784)	3.59 (0.0208)	23.94 (0.0926)	58.88 (0.1250)	1.03 (0.0066)		
Middle quintile	10.56 (0.0536)	21.67 (0.0774)	18.15 (0.0580)	44.93 (0.0815)	4.69 (0.0229)		
4 th quintile	8.35 (0.0342)	16.48 (0.0461)	25.89 (0.0838)	46.25 (0.0842)	3.03 (0.0135)		
Richest quintile	6.60 (0.0257)	34.49 (0.1024)	4.00 (0.0140)	51.35 (0.1082)	3.56 (0.0229)		

Table 6.12. Shares of OOP payment by categories of health services conditional upon those incurring catastrophic health payments at the threshold of 10% OOP payments as share of total consumption, Malaysia, 1993 - 2004

Note: ¹Refers to population quintiles of per capita adult equivalent household consumption.

Numbers in parenthesis refer to standard errors.





Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

Vaar/Housahold	OOP payment shares					
Consumption Quintiles ¹	Public health care services	Private hospital-based care	Private non-hospital based care	Pharmaceuticals	Medical goods and appliances	
1993						
Poorest quintile	6.35 (0.0233)	15.10 (0.0343)	53.14 (0.0430)	20.23 (0.0292)	5.16 (0.0221)	
2 nd quintile	10.06 (0.0292)	5.15 (0.0166)	53.58 (0.0428)	28.76 (0.0375)	2.45 (0.0137)	
Middle quintile	6.66 (0.0173)	9.50 (0.0253)	49.29 (0.0361)	30.56 (0.0345)	3.99 (0.0122)	
4 th quintile	5.60 (0.0173)	7.32 (0.0179)	51.90 (0.0317)	31.75 (0.0304)	3.44 (0.0113)	
Richest quintile	2.58 (0.0091)	21.48 (0.0279)	40.45 (0.0283)	32.17 (0.0247)	3.32 (0.0090)	
1998						
Poorest quintile	12.35 (0.0368)	14.20 (0.0370)	43.34 (0.0558)	29.19 (0.0498)	0.95 (0.0054)	
2 nd quintile	7.29 (0.0268)	14.31 (0.0416)	47.51 (0.0509)	28.31 (0.0375)	2.58 (0.0094)	
Middle quintile	5.74 (0.0229)	13.41 (0.0389)	47.82 (0.0607)	31.42 (0.0506)	1.61 (0.0054)	
4 th quintile	5.55 (0.0211)	23.41 (0.0390)	40.88 (0.0456)	27.95 (0.0353)	2.21 (0.0056)	
Richest quintile	5.89 (0.0211)	25.73 (0.0349)	36.89 (0.0340)	29.55 (0.0300)	1.94 (0.0051)	
2004						
Poorest quintile	14.50 (0.0480)	10.60 (0.0447)	19.22 (0.0685)	52.41 (0.0891)	3.72 (0.0149)	
2 nd quintile	9.09 (0.0367)	4.98 (0.0306)	15.34 (0.0440)	68.58 (0.0602)	2.01 (0.0093)	
Middle quintile	11.83 (0.0375)	13.04 (0.0451)	15.25 (0.0352)	53.42 (0.0531)	6.45 (0.0165)	
4 th quintile	7.85 (0.0242)	12.56 (0.0324)	21.54 (0.0534)	54.28 (0.0572)	3.77 (0.0100)	
Richest quintile	11.61 (0.0445)	25.19 (0.0653)	13.04 (0.0486)	47.36 (0.0729)	3.24 (0.0125)	

Table 6.13. Shares of OOP payment by categories of health services conditional upon those incurring catastrophic health payments at the threshold of 10% OOP payments as share of non-food consumption, Malaysia, 1993 - 2004

Note: ¹Refers to population quintiles of per capita adult equivalent household consumption.

Numbers in parenthesis refer to standard errors.





Public health care services Private hospital-based care Private non-hospital based care Pharmaceuticals Medical goods/applicances

Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

6.4 SUMMARY

This chapter set out to assess the levels and distribution of households in Malaysia which incurred catastrophic health payments and to assess changes across the period of time from 1993 to 2004. The impact of catastrophic health payments will to a certain extent be affected by the choice of the catastrophic threshold. Arguments have been put forward for the use of a 10 per cent share of total household consumption as the catastrophic payment threshold and with a further refinement by using a 10 per cent share of non-food consumption threshold to improve identification of poorer households incurring catastrophic health payments. Catastrophic measures were also estimated using different levels of thresholds to show differences in the magnitude of the measures.

This analysis has found that the population shares which incurred catastrophic health payments decreased with increasing thresholds. With increasing thresholds, the incidence and intensity of catastrophic health payments became more concentrated among the rich. The catastrophic incidence was higher with the use of the non-food consumption threshold and the incidence using this threshold was also less concentrated among the rich than with the use of the total consumption threshold. The trend of catastrophic impact of OOP health payments over time appeared to be mixed. Although the incidence generally decreased, those who incurred catastrophic health payments became less concentrated among the rich. Similarly, although the intensity decreased over time, the amount by which payments exceeded the thresholds became less concentrated among the rich. A further indication of the greater impact of catastrophic health payment on the poor over time is the finding that catastrophic payment intensity conditional upon households incurring catastrophic payments also increased over time.
The impact of catastrophic health payments was found to be the least in Sarawak where both incidence and intensity measures fell from 1993 to 2004 and more significantly became more concentrated among the rich. In the Peninsular, the catastrophic incidence and intensity fell over time but generally became less concentrated among the rich. Sabah started off in 1993 with the lowest incidence and intensity of catastrophic payments of the three regions and both measures were concentrated among the rich. However although there was no clear pattern of decline in incidence and intensity over the years by 2004, both these measures were no longer concentrated among the rich but were evenly distributed in the Sabah population.

The incidence and intensity of catastrophic health payments were higher among the urban population compared to the rural population and in both populations these catastrophic measures declined over time. Based on the 10 per cent share of total household consumption threshold, incidence among the urban population was concentrated among the rich but this inequality favouring the rich became less over time. Incidence among the rural population was also concentrated among the rich and became less over time. Intensity of catastrophic payments was concentrated among the rich among the rich but became less so over time.

Among the main ethnic groups in Malaysia, the impact of catastrophic health payments is mainly experienced by the Chinese and the Indians. The incidence and intensity of catastrophic payments for these two ethnic groups were much higher than for the Malays and non-Malay Bumiputeras. However, the catastrophic impact for all the ethnic groups generally decreased over time after taking into consideration the varying changes in impact distribution among the poor and the rich.

The OOP payments made by those who incurred catastrophic payments had been mainly for purchase of private health care. However, there was a changing pattern over the years in which payment shares in 1993 were mainly for private non-hospital based services but by 2004, payment for pharmaceuticals became the main component of health payments for households which incurred catastrophic health payments. Payment for pharmaceuticals took up larger share of household OOP payments amongst the poorer household quintile compared to the richer ones. In contrast the OOP health payments for private hospital-based care were higher among richer quintiles.

Doorslaer et al (2007) compared the catastrophic impact of OOP payments in 14 countries in the Asia Pacific region including Malaysia. The analysis for Malaysia was conducted using data from the HES 1998/99 and the estimates obtained were close to those found in the current analysis. Using the 5 per cent, 10 per cent and 15 per cent of total consumption threshold, the household incidence of catastrophic health payments were found to be 6.62 per cent, 2.01 per cent and 0.98 per cent respectively. In the current analysis, using similar thresholds, the incidence for 1998 was found to be 6.92 per cent, 1.95 per cent and 0.92 per cent respectively. The main difference between the two studies has been that international comparative study produced household incidence of catastrophic health payments.

Examining the catastrophic health payment levels is but one aspect of the examination of financial risk protection for health in a country. The next chapter will examine the other component of financial risk protection namely levels of medical impoverishment caused by household OOP health payments.

CHAPTER 7 IMPOVERISMENT FROM HEALTH CARE OUT-OF-POCKET PAYMENTS

7.1 INTRODUCTION

Countries which profess to have a fairly financed health system need to ensure sufficient financial risk protection for health to prevent occurrence of medical impoverishment in their populations. The main aim of this chapter is to assess whether the Malaysian population had been impoverished by the need to make OOP payments for health care and if so the extent of the problem. This analysis benefits from the availability of official poverty lines which have been developed based on estimated household consumption of a basket of goods and services deemed to be essential to meet the monthly needs of a typical household in the country. The basic concept behind this analysis is that a household with total monthly consumption above the poverty line indirectly indicates that it has sufficient resources for its basic needs, and thus, is not impoverished. If the consumption of a household net of OOP health payments falls below the poverty line, it can be assumed that the basic needs of its members can no longer be met. Thus, this household shall be considered to have been impoverished by health payments.

The chapter begins with Section 7.2 which defines the medical impoverishment measures used in this analysis and describes their estimation methods. This section will also discuss how the poverty lines used in this analysis were derived. Section 7.3

presents the results of the analysis. The chapter concludes with Section 7.4 which provides a summary of the findings.

7.2 DATA AND METHODS

In this analysis, the poverty impact of health payments will be examined from two perspectives. The incidence of poverty caused by OOP health payments estimates the proportion of households in the country where household consumption after accounting for health payments falls below the poverty line and incidence is assessed using the poverty headcount measure. However, the poverty incidence does not provide information as to how severely households have been impoverished. The intensity or depth of poverty caused by OOP health payments is the consumption shortfall below the poverty line after health payments and is assessed using the poverty gap measure.

7.2.1 Incidence of poverty caused by OOP payments

The poverty headcount denotes the proportion of households whose monthly consumption falls below the poverty line. The incidence of poverty caused by OOP payments is measured by the difference in poverty headcounts before and after monthly OOP payments had been deducted from consumption. If x_i is the monthly consumption of household *i*, and *PL* is the poverty line, the poverty headcount before incurring health payments is given by:

$$H^{gross} = \frac{1}{N} \sum_{i=1}^{N} p_i^{gross}$$

where H^{gross} is the poverty headcount before health payments, N is the sample size and $p_i^{gross} = 1$ if $x_i < PL$ and 0 if otherwise.

After incurring health payments *T*, p_i^{gross} will be replaced by $p_i^{net} = 1$ if $(x_i - T) < PL$ and 0 if otherwise. Thus the poverty headcount after incurring health payments is given by:

$$H^{net} = \frac{1}{N} \sum_{i=1}^{N} p_i^{net}$$

where H^{net} is the poverty headcount after health payments.

The poverty impact of health payments on poverty incidence or the proportion of households impoverished because of health payments will be the difference between the pre and post-health payment poverty headcounts, $H^{net} - H^{gross}$.

7.2.2 Intensity of poverty caused by OOP payments

The poverty gap measures the consumption shortfall of households below the poverty line, and thus, denotes the depth or intensity of impoverishment. The intensity of poverty caused by OOP payments will then be the difference in poverty gaps measured before and after deducting OOP payments from monthly consumption.

The poverty gap before incurring health payments is given by:

$$G^{gross} = \frac{1}{N} \sum_{i=1}^{N} g_i^{gross}$$

where G^{gross} is the poverty gap before health payments and $g_i^{gross} = p_i^{gross}(PL - x_i)$.

After incurring health payments, the gap is given by:

$$G^{net} = \frac{1}{N} \sum_{i=1}^{N} g_i^{net}$$

where G^{net} is the poverty gap after health payments and $g_i^{net} = p_i^{net}(PL - (x_i - T_i))$.

The depth or intensity of poverty caused by health payments will then be $G^{net} - G^{gross}$.

The poverty gaps are given in terms of currency units and in this analysis the gaps will be in Ringgit Malaysia (RM). However, since this analysis covers a 12 year period and since official poverty lines are available for three regions in the country each year, it will be difficult to have a clear picture of intensity if poverty gaps are expressed in currency units. Thus, for ease of comparison across time and space in Malaysia, the poverty gaps will mainly be presented as normalised gaps, which are poverty gaps expressed as fractions of the poverty line relevant to each household according to time and location. The normalised poverty gap before health payments is given by:

$$NG^{gross} = \frac{1}{N} \sum_{i=1}^{N} \frac{g_i^{gross}}{PL_i}$$

where headcounts and gaps are defined with reference to PL_i which is the poverty line relevant to household *i* with respect to the year of analysis and location of household.

Similarly, the normalised poverty gap after health payment is given by:

$$NG^{net} = \frac{1}{N} \sum_{i=1}^{N} \frac{g_i^{net}}{PL_i}$$

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The difference between these normalised gaps, $NG^{net} - NG^{gross}$, indicates the intensity of poverty caused by health payments measured as fractions of the relevant poverty line.

The poverty headcounts and gaps described above have been averaged across the whole sample of households and thus do not reflect the intensity of poverty incurred by impoverished households. Equivalent measures conditional on households in poverty before and after incurring health payment are given by:

$$MPG^{gross} = \frac{G^{gross}}{H^{gross}}$$

and

$$MPG^{net} = \frac{G^{net}}{H^{net}}$$

where MPG^{gross} is the mean positive gap before health payments and MPG^{net} is the mean positive gap after health payments. The difference between the two measures indicates the intensity of poverty caused by health payments amongst households which are impoverished. These mean positive gaps are expressed in currency units, namely RM.

Similarly, the mean positive normalised gaps are normalised poverty gaps amongst impoverished households. Mean positive normalised gaps before and after incurring health payments are given by:

$$MPNG^{gross} = \frac{NG^{gross}}{H^{gross}}$$

and

$$MPNG^{net} = \frac{NG^{net}}{H^{net}}$$

where $MPNG^{gross}$ is the mean positive normalised gap before health payments and $MPNG^{net}$ is the mean positive normalised gap after health payments. The difference between the two measures $MPNG^{net} - MPNG^{gross}$, indicates the normalised gaps amongst those households impoverished by health payments.

7.2.3 Defining the poverty line

The official Malaysian poverty line was introduced by the Economic Planning Unit (EPU), Malaysia in 1977 (Economic Planning Unit Malaysia and United Nations Development Programme, n.d.). This poverty line was the estimated minimum household monthly income required to purchase food and certain non-food items sufficient for the basic needs of a five-person reference household of two adults and three children. The food component consisted of the monthly cost of a basket of food items necessary for the nutritional needs of this reference household. The non-food component was the estimated minimum monthly expenses for clothing, footwear, rental for housing, fuel and power, furniture and household equipment, transport and communication, recreation, education and cultural services as well as medical and health care services for this reference household. In 1977, the estimated cost of food and non-food items totalled RM240.34, of which costs for medical and health care services made up RM2.51 or 1.04 per cent (Shireen, 1998, pp. 151). An additional five per cent safety margin was then added. Thus, the original 1977 monthly household poverty line income for Malaysia was RM252.36.

Since 1977, this poverty line had been adjusted annually for inflation, using annual CPI, and for changing average household sizes in the country. Separate poverty lines are

now available for Peninsular Malaysia, Sabah and Sarawak and are used in combination with data from the Household Income Surveys (HIS), conducted by the DOS, to track incidence of poverty in Malaysia (Economic Planning Unit Malaysia and United Nations Development Programme, n.d.). Poor households are those with monthly household incomes below the poverty line.

The continued use of the 1977 poverty line has some drawbacks. In the determination of poverty rates in the country, the regional poverty line, for the Peninsular, Sabah or Sarawak, is applied uniformly to all households in the region regardless of household size or child/adult composition of household members. Every household, regardless of size or composition, with monthly incomes below the poverty line, is considered poor. Thus large households with more than five members having incomes just above the poverty line will be classified as non-poor. However average household resources will probably not be sufficient to provide for the basic needs of each member of these large households. Similarly, small households with only two members but with incomes just below the poverty line will be classified as poor even though available resources for each member dictate otherwise. These poverty lines also do not take into account differences in prices of goods and services in urban and rural areas in the country.

The EPU has since revised the methodology for estimating household poverty lines in 2005. The new method explicitly factored in household size, composition of households by age and gender as well as location of households (by state and urban rural strata) in determining the poverty line relevant for each household (Malaysia, 2006). The revised poverty lines are still based on food and non-food components but are now customised to each household based on the needs of its members and the spatial

pricing differences. The new poverty lines are designed to provide a more accurate estimate of poverty rates in the country. Using the new lines, the 2004 household poverty rate in Malaysia was estimated to be 5.7 per cent (Malaysia, 2006). This is higher than the 4.4 per cent estimated using the 2004 poverty line updated from the original 1977 line.

The new poverty lines are only available from the year 2004 and therefore could not be applied in this analysis which spans the period from 1993 to 2005. This analysis was thus conducted using updated 1977 household poverty lines to ensure comparability across time. However, the poverty lines used were adjusted to allow for differences in household sizes. This was done by dividing the household poverty line by the average household size for the relevant year to obtain the per capita poverty line for that year. Using the rationale discussed in Section 4.3 of Chapter 4, the poverty lines in this analysis should ideally be adjusted using the adult equivalence scale to yield per capita adult equivalent poverty line. However, since the official poverty lines each year subsequent to 1977 had been adjusted for the average household size for the year of which the adult child composition is not known, it was not possible to recover values to apply the equivalence scale for this analysis.

Table 7.1 shows the official household poverty lines and the per capita poverty lines derived for this analysis. Estimates of the poverty incidence and intensity measures described previously will apply these per capita poverty lines. To ensure consistency, the per capita household consumption and per capita OOP health payments to be used in these poverty estimates have been derived simply by dividing total monthly household

consumption or total household OOP health payments by the household sizes and not as in the previous two chapters by the equivalence scale.

	1993	1998	2004	
Household Poverty Lines (RM	[)			
Peninsular Malaysia	405	493	543	
Sabah	582	667	704	
Sarawak	492	572	608	
Average Household Size				
Peninsular Malaysia	4.8	4.6	4.4	
Sabah	5.1	4.9	5.2	
Sarawak	5.1	4.8	4.6	
Per Capita Poverty Lines (RM	[)			
Peninsular Malaysia	84.38	107.17	123.41	
Sabah	114.12	136.12	135.38	
Sarawak	96.47	119.17	132.17	

Table 7.1.Household and per capita poverty lines, Malaysia, 1993 - 2004

Source: (Malaysia, 2001, Economic Planning Unit Malaysia, 1994, Malaysia, 2006).

The use of per capita poverty lines in this analysis would mean that the pre-payment poverty incidence estimated in this analysis would not be directly comparable to the official household poverty rates in Malaysia, which were derived using the household poverty lines. The available official household poverty rates closest to the surveys years used in this analysis are listed in Table 7.2. These have been estimated using household income data from the HIS conducted by the DOS (Economic Planning Unit Malaysia and United Nations Development Programme, n.d.). The data on gross household income included incomes from paid work, self-employment, assets and from gross transfers. In contrast, this analysis derived poverty incidence using per capita household consumption data from the HES to produce population poverty rates. Because poor households are generally larger than non-poor households, these rates were expected to

be higher than the official household poverty incidence for the same year. Comparison between poverty estimates in Table 7.2 and the results of pre-payment poverty incidence to be presented in the next section will show general agreement with this statement.

	1993 ¹	1999 ²	2004 ²
Overall (%)	13.5	7.5	4.3
Urban (%)	5.3	3.4	1.6
Rural (%)	18.6	12.4	9.6

Table 7.2.Incidence of household poverty, Malaysia, 1993 - 2004

Sources: ¹Economic Report 1999/2000. ²Economic Report 2005/2006.

However, differences in poverty estimates between the official rates and those derived for this analysis should not invalidate the findings or the conclusions of this analysis. The main objective of the analysis is to explore the extent to which OOP health payments had the potential to reduce household consumption of basic needs. Comparison of household consumption pre and post-health payments to the poverty line was done based on the argument that these poverty lines, as they were designed in Malaysia, represent the minimum household resources required for basic needs and thus comparison to these poverty lines would indirectly indicate the extent that health payments reduce consumption of basic needs. It is not the intention of the analysis to improve upon the official poverty estimates in the country.

To obtain the poverty impact of OOP health payments, this analysis compared household consumption to the poverty line before and after deducting household health payments from household consumption. Because of this, some have argued that the same poverty line cannot be simultaneously used as pre-OOP payment and post-payment poverty thresholds to estimate poverty incidence (Wagstaff and van Doorslaer, 2003, O'Donnell et al., 2008b). This is especially so if the poverty line itself had been based on expenditures for food and non-food items, in which expenditures for health care had been included. It is argued that using consumption net of OOP health payments to derive post-payment poverty incidence requires that the post-OOP payment poverty line be adjusted downwards to remove the health care expenditure component in the poverty line. One must note that if the post-payment poverty line is to be lowered, there will be instances where households or individuals who were noted to be poor in the pre-payment poverty incidence estimates, may not be considered poor in the post-payment estimates. This phenomenon affects households who had reported zero OOP health payments.

Table 7.3 presents the changes in poverty incidence using post-payment poverty lines which have been adjusted downwards by 1.04 per cent from the respective pre-payment poverty line. The quantum of adjustment, 1.04 per cent, was taken from the percentage of total household income allocated for medical and health care in the 1977 estimation of the Malaysian poverty line (Shireen, 1998). In 1993 and 2004, the post-payment poverty incidences were actually lower than pre-payment incidence leading to a total of 21,420 persons being pulled out of poverty due to their health payments in 1993 and a total of 32,086 in 2004. In 1998, only 7,446 persons had been pushed into poverty throughout the country. These results were mainly because many pre-payment poor households which were just below the pre-payment poverty lines had reported either no health payments or very small health payments.

The results of poverty impact analysis using lower post-OOP payment poverty lines are not easily comprehensible. A less than thorough understanding of the results in Table 7.3 may lead to policy conclusion that OOP health payments have the beneficial effect of being able to reduce poverty rates. Therefore post-payment poverty thresholds have not been adjusted to exclude OOP health payments in this analysis.

	199	3	199	98	200)4
Poverty headcounts	%	No. of	%	No. of	%	No. of
		individuals		individuals		individuals
Pre-payment headcount H ^{gross}	12.48 (0.0033)	2,124,468	8.96 (0.0039)	1,574,055	7.37 (0.0036)	1,869,593
Post-payment headcount H ^{net}	12.36 (0.0033)	2,103,048	9.01 (0.0039)	1,581,501	7.25 (0.0036)	1,837,507
Poverty Impact $H^{net} - H^{gross}$	-0.13 (0.0007)	-21,420	0.04 (0.0009)	7,446	-0.12 (0.0008)	-32,086

Table 7.3. Incidence of poverty due to OOP payments for health care in Malaysia using adjusted¹ post-payment poverty lines

Note. ¹Post-payment poverty lines had been adjusted to remove household OOP health payments.

Numbers in parentheses refer to standard errors.

7.2.4 Data Sources and Specifications

The data for this analysis are obtained from the 1993/94, 1998/99 and 2004/05 rounds of the nationally representative HES. These surveys have been described in Section 4.2 of Chapter 4.

Poverty measures in this analysis have been adjusted to provide population estimates and not household estimates. In this analysis a poor person refers to a member of an impoverished household.

7.3 **RESULTS**

7.3.1 Poverty caused by health care OOP payments

The pre-OOP payment incidence of poverty showed a general pattern of decline from 12.48 per cent of the population in 1993, 8.96 per cent in 1998 to 7.37 per cent in 2004 (Table 7.4). During this same period, OOP payments for health increased poverty headcounts. In 1993, the headcount increased by 0.24 per cent, which meant that an additional 40,392 persons were pushed into poverty because of OOP payments. In 1998, the headcount increase was slightly higher at 0.35 per cent (60,660 persons). The headcount increase was the lowest in 2004 (0.12 per cent or 29,318 persons).

The intensity of poverty caused by OOP payments also showed a decreasing pattern over the years (Table 7.5). Since this analysis applied poverty lines from different years and for different regions in Malaysia, it is more informative to examine the normalised poverty gaps (which are poverty gaps divided by the respective poverty lines) rather than the actual poverty gaps. The intensity of the poverty gaps decreased from 0.08 per cent of poverty lines in 1993 to 0.07 per cent in 1998 and 0.05 per cent in 2004.

The mean positive normalised gaps restrict examination to only those who were impoverished and thus allow a closer examination on the OOP payment impact on the welfare of the poor. However, even among the impoverished, the intensity of poverty caused by OOP payments was relatively small. In 1993, OOP payments reduced the average monthly consumption of each person in an impoverished household by only 0.18 per cent of the poverty line or in monetary terms, only RM0.13. The mean positive normalised gaps were the highest in 2004 - 0.29 per cent or RM0.37. It is interesting to note that in 1998, OOP health payments actually increased the average monthly consumption of each poor person by 0.18 per cent of the poverty line or RM0.24. This is not a surprising finding if one examines the actual OOP payment impact on the already poor (already in poverty before making OOP health payments) separate from those newly poor because of OOP health payment (in poverty only after making OOP payments). Among the newly poor, the need to make OOP payments meant that each person's monthly consumption decreased by an average of RM2.67 or 2.28 per cent of their respective poverty lines (not shown in the tables). Amongst the already poor, OOP payments increased the intensity of poverty by an even smaller average of only RM0.83 or 0.69 per cent of respective poverty lines. Averaged over all persons in impoverished households, the post-payment poverty gap became lower than pre-payment poverty gap giving an impression that the average consumption of each poor person after paying for health care increased.

	1993		1998		2004	
Poverty headcounts	%	No. of	%	No. of	%	No. of
		individuals		individuals		individuals
Pre-payment headcount H ^{gross}	12.48 (0.0033)	2,124,468	8.96 (0.0039)	1,574,055	7.37 (0.0036)	1,869,593
Post-payment headcount H ^{net}	12.72 (0.0033)	2,164,860	9.31 (0.0039)	1,634,715	7.49 (0.0037)	1,868,911
Poverty Impact $H^{net} - H^{gross}$	0.24 (0.0005)	40,392	0.35 (0.0008)	60,660	0.12 (0.0005)	29,318

Table 7.4.Incidence of poverty due to OOP payments for health care, Malaysia, 1993 - 2004

	1002	1008	2004
	1993	1990	2004
Poverty Gaps (in RM)			
Pre-payment G ^{gross}	3.16 (0.11)	2.74 (0.15)	2.22 (0.14)
Post-payment G ^{net}	3.23 (0.11)	2.82 (0.16)	2.28 (0.14)
Poverty impact G^{gross} - G^{net}	0.08 (0.01)	0.08 (0.01)	0.06 (0.01)
Normalised Poverty Gaps (in %)			
Pre-payment NG ^{gross}	3.29 (0.0011)	2.25 (0.0013)	1.69 (0.0011)
Post-payment NG ^{net}	3.37 (0.0011)	2.32 (0.0013)	1.74 (0.0011)
Poverty impact NG ^{gross} - NG ^{net}	0.08 (0.0001)	0.07 (0.0001)	0.05 (0.0001)
Mean Positive Gaps (in RM)			
Pre-payment <i>MPG^{gross}</i>	25.28 (0.55)	30.54 (1.15)	30.05 (1.22)
Post-payment MPG ^{net}	26.41 (0.54)	30.30 (1.13)	30.43 (1.22)
Poverty impact <i>MPG^{gross}</i> - <i>MPG^{net}</i>	0.13	-0.24	0.37
Mean Positive Normalised Gaps (in %)			
Pre-payment MPNG ^{gross}	26.33 (0.0055)	25.09 (0.0090)	22.95 (0.0091)
Post-payment MPNG ^{net}	26.51 (0.0054)	24.91 (0.0089)	23.24 (0.0091)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.18	-0.18	0.29

Table 7.5.Intensity of poverty due to OOP payments for health care, Malaysia,1993 - 2004

Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

It is obvious that OOP health payments in Malaysia have impoverished only a relatively small proportion of the population. This is partially because a large proportion of the population did not report any OOP payments and the generally small quantum of health payments made by those who did (Tables 5.1 and 5.2). Thus, it is logical to assume that households made poor because of health payments are those whose consumption lie just above the poverty line where even a small amount of payment has the potential to cause impoverishment. This assumption was tested

visually by examining those made poor by health payments across the whole consumption distribution.

The distribution of those who had been made poor because of health payments in Malaysia was illustrated by the use of a modified Pen's parade graph. This graph is based on Jan Pen's parade of dwarfs and giants of the typical income distribution of a country (Pen, 1971). Pen described an imaginary parade of people in Britain whose heights were proportional to their incomes and which was said to last for an hour. According to Pen, spectators of normal heights would observe that the parade begins with people in debt who will hardly be noticeable. From then on very short people or dwarfs will appear representing people who earn very little, mainly old and the young and those who are not in regular employment. Though the people in the parade become increasingly taller, Pen opined that it is only after 45 minutes into the parade of dwarfs before people of normal height would begin to appear in the parade. In the late six minutes of this imaginary parade, spectators will likely be entertained by the appearance of very tall giants representing the richest in the economy.

Figure 7.1 is the Pen's parade that plots the impact of health payments on poverty headcounts in Malaysia for 1998. The pre-payment per capita consumption is plotted as multiples of the poverty line on the y-axis against the cumulative percentage of individuals ranked by pre-payment consumption on the x-axis. The OOP payments are then overlaid on the graph with the 'paint-drops' depicting the dip in consumption due to health payments. The lower boundary of these 'paint-drops' depicts the post-payment consumption. The graph has been limited to per capita consumption of up to

30 times the poverty line as graphing the entire sample will not permit a more detailed examination of OOP payments on those in the lower end of the consumption order.



Figure 7.1. Health care OOP payments and poverty, Malaysia, 1998

Source: Plotted using HES 1998/99.

Figure 7.1 shows that OOP health payments mainly impoverish those who were in the lower end of the consumption order, especially those whose pre-payment consumption was just above the poverty line. For them, even a small OOP payment may tip them into poverty. The quantum of OOP health payments for those in the middle and high consumption order was not sufficient to cause impoverishment. Pen's parades graphing pre and post-payment consumption for 1993 and 2004 showed very similar pictures to that for 1998.

7.3.2 Poverty caused by health care OOP payments by regions

The pre-payment incidence of poverty was generally much higher in Sabah compared to Peninsular Malaysia or Sarawak (Table 7.6). In 1993, about 40 per cent of the population in Sabah were already impoverished before even accounting for OOP health payments, which was about four times the poverty headcounts in the Peninsular and about five times that in Sarawak. The differences in pre-payment poverty headcounts between Sabah and the other two regions were similarly large in 1998 and 2004. With the exception of Sarawak, pre-payment poverty headcounts declined from 1993 to 2004, in the Peninsular by about 60 per cent and in Sabah by about 25 per cent. The pre-payment incidence of poverty in Sarawak has remained steady at about eight per cent.

Table 7.6 also shows that after taking into account OOP health payments, Sabah had the highest increase in poverty headcounts each year but even so the increases in headcounts were relatively small, 0.45 per cent of the population in 1993, 1.38 per cent in 1998 and 0.18 per cent in 2004. About 15 per cent of those who had been pushed by OOP payment into poverty in Malaysia in 1993 were from Sabah (6,696 out of 40,492 poor persons). In 1998, this figure increased to about 30 per cent (21,403 out of 60,660 poor persons). The poverty incidence due to OOP health payments in the Peninsular and Sabah dropped sharply from 1998 to 2004, in the Peninsular by half and in Sabah by more than 80 per cent. In 2004, 0.12 per cent of

the population had been impoverished by OOP health payments in the Peninsular compared to 0.23 per cent in 1998. In Sabah, the drop in incidence was from 1.38 per cent of the population in 1998 to 0.18 per cent in 2004.

In general, the impact of OOP payment on poverty incidence was much less in Sarawak compared to the other two regions. In 1993 and 2004, OOP health payments did not impoverish any household in the state. In 1998, the increase in poverty headcounts was nearly double that for the Peninsular but at 0.40 per cent meant only an additional 6,039 persons in Sarawak had been pushed into poverty due to OOP health payments in that year.

On average, OOP health payments increased the depth or intensity of poverty but only marginally (Table 7.7). In the Peninsular and Sarawak, the normalised poverty gaps for all the years were below 0.1 per cent of the respective poverty lines. In Sabah, the gaps were slightly higher, ranging from 0.19 per cent of the poverty line in 1993 to 0.29 per cent in 1998 and 0.23 per cent in 2004. However, the impact of OOP payments among the impoverished showed a more mixed picture. The highest increase in poverty headcounts from OOP health payments occurred in 1998 for all the three regions. However, the average post-payment poverty gap among the poor was lower than the corresponding pre-payment poverty gap and surprisingly the difference was the highest for Sabah. This finding is due to the small increase in intensity among those already poor before making health payments. Thus, when averaged across all impoverished persons, the post-payment poverty gap became lower than the pre-payment gap.

	199	3	199	8	200	4
Region/Poverty headcounts	%	No. of	%	No. of	%	No. of
		individuals		individuals		individuals
PENINSULAR MALAYSIA						
Pre-payment headcount H ^{gross}	10.02 (0.0035)	1,412,352	6.13 (0.0039)	888,113	4.07 (0.0033)	825,713
Post-payment headcount H ^{net}	10.26 (0.0036)	1,446,048	6.36 (0.0039)	921,331	4.19 (0.0033)	849,733
Poverty Impact H ^{net} – H ^{gross}	0.24 (0.0006)	33,696	0.23 (0.0007)	33,218	0.12 (0.0006)	24,020
SABAH						
Pre-payment headcount H ^{gross}	40.34 (0.0143)	596,916	37.15 (0.0201)	576,633	30.27 (0.0183)	868,091
Post-payment headcount H ^{net}	40.79 (0.0143)	603,612	38.53 (0.0201)	598,036	30.45 (0.0183)	873,390
Poverty Impact H ^{net} – H ^{gross}	0.45 (0.0019)	6,696	1.38 (0.0053)	21,403	0.18 (0.0010)	5,298
SARAWAK						
Pre-payment headcount H ^{gross}	7.97 (0.0082)	115,200	7.20 (0.0121)	109,309	7.89 (0.0126)	175,789
Post-payment headcount H ^{net}	7.97 (0.0082)	115,200	7.60 (0.0124)	115,347	7.89 (0.0126)	175,789
Poverty Impact H ^{net} – H ^{gross}	0	0	0.40 (0.0030)	6,039	0	0

Table 7.6.Incidence of poverty due to OOP payments for health care by regions, Malaysia, 1993 - 2004

Regions/Poverty Gaps	1993	1998	2004
PENINSULAR MALAYSIA			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	2.31 (0.0011)	1.26 (0.0010)	0.75 (0.0007)
Post-payment NG ^{net}	2.39 (0.0011)	1.31 (0.0011)	0.78 (0.0007)
Poverty impact NG ^{gross} - NG ^{net}	0.08 (0.0001)	0.05 (0.0001)	0.03 (0.0000)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	23.01 (0.0067)	20.56 (0.0109)	18.40 (0.0113)
Post-payment MPNG ^{net}	23.26 (0.0066)	20.55 (0.0107)	18.50 (0.0114)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.24	-0.01	0.10
SABAH			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	14.05 (0.0066)	12.18 (0.0090)	8.27 (0.0068)
Post-payment NG ^{net}	14.24 (0.0066)	12.47 (0.0090)	8.50 (0.0070)
Poverty impact NG ^{gross} - NG ^{net}	0.19 (0.0002)	0.29 (0.0004)	0.23 (0.0005)
Mean Positive Normalised Gaps (%)			
Pre-payment <i>MPNG^{gross}</i>	34.83 (0.0102)	32.78 (0.0147)	27.32 (0.0139)
Post-payment MPNG ^{net}	34.91 (0.0101)	32.36 (0.0149)	27.91 (0.0138)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.07	-0.42	0.59
SARAWAK			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	1.83 (0.0023)	1.53 (0.0039)	1.80 (0.0039)
Post-payment NG ^{net}	1.86 (0.0024)	1.60 (0.0040)	1.81 (0.0040)
Poverty impact NG ^{gross} - NG ^{net}	0.03 (0.0001)	0.07 (0.0002)	0.01 (0.0000)
Mean Positive Normalised Gaps (%)			
Pre-payment <i>MPNG^{gross}</i>	22.96 (0.0174)	21.31 (0.0366)	22.76 (0.0290)
Post-payment MPNG ^{net}	23.30 (0.0173)	21.10 (0.0353)	22.92 (0.0289)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.34	-0.21	0.16

Table 7.7.Intensity of poverty due to OOP payments for health care by regions,Malaysia, 1993 - 2004

7.3.3 Poverty caused by health care OOP payments by urban rural strata

Pre-payment poverty incidence was approximately four times higher in the rural areas as compared to urban areas for all the years (Table 7.8). In 1993, 20.93 per cent of the rural population were impoverished compared to only 5.02 per cent of the urban population. In general, there was a decreasing trend in poverty headcounts from 1993 to 2004 in the rural areas. In the urban areas, the lowest poverty headcounts occurred in 1998 and the highest in 1993. By 2004, about 13.82 per cent of the rural population remained impoverished compared to 3.90 per cent in the urban population.

However, the pattern of impoverishment caused by OOP health payments was more varied. In 1993 and 1998, impoverishment due to health payments appeared to be mainly a rural phenomenon. Health payments increased poverty headcounts by 0.31 per cent in rural areas in 1993 and which resulted in an additional 24,552 persons falling into poverty. In contrast, the increase in urban areas was even smaller at 0.18 per cent involving 15,840 persons. In 1998, 0.54 per cent of the rural population had been made poor because of health payments. In that year, the urban rural differences were even larger with the increase in rural poverty headcounts about three times that in the urban areas and involving more than three times the numbers of poor. However, OOP health payments appeared to have a more balanced effect on urban-rural areas in 2004. There was a 0.12 per cent increase in headcounts in the urban areas compared to a 0.11 per cent increase in the rural areas.

In the rural areas, the normalised poverty gap caused by health payments was relatively small – between 0.13 per cent of the poverty line in 1993, 0.11 per cent in 1998 and 0.10 per cent in 2004 (Table 7.9). Among the urban population, the gaps were even

smaller at 0.04 per cent, 0.03 per cent and 0.02 per cent for each respective year. Thus when averaged over only those who were impoverished, it appeared as though health payments increased consumption for impoverished urban poor. In contrast, among the rural poor, OOP payments resulted in deepening of poverty for years 1993 and 2004 but not 1998, although it must be noted that the increase in poverty gaps for 1993 and 2004 were relatively small.

	199	3	199	8	200)4
Strata/Poverty headcounts	%	No. of	%	No. of	%	No. of
		individuals		individuals		individuals
URBAN						
Pre-payment headcount H ^{gross}	5.02 (0.0030)	454,212	3.32 (0.0030)	295,102	3.90 (0.0036)	642,300
Post-payment headcount H ^{net}	5.20 (0.0030)	470,052	3.47 (0.0031)	308,955	4.02 (0.0037)	661,936
Poverty Impact H ^{net} – H ^{gross}	0.18 (0.0006)	15,840	0.16 (0.0007)	13,854	0.12 (0.0007)	19,636
RURAL						
Pre-payment headcount H ^{gross}	20.93 (0.0061)	1,670,256	14.76 (0.0071)	1,278,953	13.82 (0.0077)	1,227,293
Post-payment headcount H ^{net}	21.24 (0.0061)	1,694.808	15.31 (0.0072)	1,325,759	13.93 (0.0077)	1,236,976
Poverty Impact H ^{net} – H ^{gross}	0.31 (0.0008)	24,552	0.54 (0.0015)	46,806	0.11 (0.0005)	9,682

Table 7.8.Incidence of poverty due to OOP payments for health care by urban rural strata, Malaysia, 1993 -2004

Strata/Poverty Gaps	1993	1998	2004
URBAN			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	1.33 (0.0009)	0.69 (0.0009)	0.78 (0.0008)
Post-payment NG ^{net}	1.37 (0.0009)	0.73 (0.0009)	0.80 (0.0008)
Poverty impact NG ^{gross} - NG ^{net}	0.04 (0.0001)	0.03 (0.0001)	0.02 (0.0000)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	26.39 (0.0103)	20.90 (0.0196)	19.97 (0.0139)
Post-payment MPNG ^{net}	26.29 (0.0101)	20.88 (0.0189)	19.91 (0.0141)
Poverty impact MPNG ^{gross} - MPNG ^{net}	-0.10	-0.02	-0.05
RURAL			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	5.51 (0.0021)	3.85 (0.0024)	3.39 (0.0026)
Post-payment NG ^{net}	5.64 (0.0021)	3.96 (0.0024)	3.49 (0.0026)
Poverty impact NG ^{gross} - NG ^{net}	0.13 (0.0001)	0.11 (0.0001)	0.10 (0.0002)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	26.32 (0.0064)	26.06 (0.0101)	24.51 (0.0113)
Post-payment MPNG ^{net}	26.57 (0.0064)	25.85 (0.0100)	25.02 (0.0112)
Poverty impact MPNG ^{gross} - MPNG ^{net}	0.25	-0.20	0.50

Table 7.9.Intensity of poverty due to OOP payments for health care by urbanrural strata, Malaysia, 1993 - 2004

7.3.4 Poverty caused by health care OOP payments by ethnic groups

Among the four main ethnic groups in Malaysia, incidence of pre-payment poverty was the highest among the non-Malay Bumiputeras, followed by the Malays, Indians and the lowest among the Chinese (Table 7.10). In 1993, 1.38 per cent of the Chinese population were impoverished compared to 30.68 per cent of non-Malay Bumiputeras, 14.62 per cent Malays and 5.44 per cent Indians. In general, the incidence of pre-payment poverty for all ethnic groups declined by a large margin from 1993 to 2004. In 2004, 22.4 per cent of non-Malay Bumiputeras were impoverished. This represents a more than 25 per cent decline from the poverty incidence of the non-Malay Bumiputeras in 1993. During the same period, poverty incidence among the Malays declined by 61 per cent, the Indians by 46 per cent and Chinese by 51 per cent.

As was discussed in Section 5.3.4 of Chapter 5, persons classified as being in the 'others' ethnic group are less homogenous in terms of socioeconomic status and much smaller in numbers than that of the rest of the ethnic groups in the country. In terms of poverty incidence, this ethnic group would be placed just above those from the non-Malay Bumiputeras. These two ethnic groups share very similar degree of prepayment poverty incidence and trends over the years.

Despite the differences in pre-payment poverty, the increase in poverty headcounts caused by OOP health payments were similar for the Indians, Malays and non-Malay Bumiputeras in 1993, ranging from 0.31 per cent non-Malay Bumiputeras, 0.32 per cent Malays and 0.35 per cent Indians. The headcount increases were the lowest for the Chinese (0.04 per cent) and 'others' (0.19 per cent). However, because the

Malays form the largest ethnic group in the country, they make up more than half of those who had been impoverished because of OOP payments.

Poverty caused by OOP payments among the Malays and non-Malay Bumiputeras showed a very similar trend over the years – an increase from 1993 to 1998 and finally a decline from 1998 to its lowest level in 2004. In 2004, 0.17 per cent Malays and 0.14 per cent non-Malay Bumiputeras had been impoverished because of health payments. This picture of declining incidence over the years was even steeper for the Chinese and Indians. About 0.04 per cent Chinese, or 1,728 persons, had been impoverished in 1993. In the subsequent two years, health payments no longer impoverished any Chinese. In 1993, 0.35 per cent Indians or 4,896 persons had been impoverished. In 1998/98, no Indians were affected and in 2004 0.06 per cent Indians or 1,167 persons had been impoverished. The trend for the 'others' also showed a decline from 0.19 per cent in 1993 to 0.08 per cent in 2004 but with a peak in 1998 at 1.78 per cent which affected 15,062 persons that year.

It is evident from Table 7.11 that generally OOP payments caused minimal increase in the intensity of poverty for everyone in the country regardless of their ethnicity. Differences of this health payment impact were generally small but the poverty gaps caused by health payments were generally the highest among the 'others' and lowest among the Chinese in all the years. However, though health payments did not impoverish any Chinese in 1998 and 2004, the increase in poverty gaps caused by health payments among those who were already poor before making health payments were similar to that of the non-Malay Bumiputeras and 'others'.

Ethnic grouns/Poverty headcounts	19	993	1998		2004	
Etimic groups/roverty neadcounts _	% (SE)	No. of individuals	% (SE)	No. of individuals	% (SE)	No. of individuals
MALAYS						
Pre-payment headcount H ^{gross}	14.62 (0.0053)	1,278,936	8.65 (0.0056)	813,656	5.70 (0.0043)	808,957
Post-payment headcount H ^{net}	14.94 (0.0054)	1,306,764	8.99 (0.0057)	846,470	5.86 (0.0043)	832,511
Poverty Impact H ^{net} – H ^{gross}	0.32 (0.0008)	27,828	0.34 (0.0011)	31,814	0.17 (0.0008)	23,554
NON-MALAY BUMIPUTERA						
Pre-payment headcount H ^{gross}	30.68 (0.0143)	424,944	29.84 (0.0203)	447,459	22.45 (0.0185)	613,643
Post-payment headcount H ^{net}	30.99 (0.0143)	429,264	30.76 (0.0204)	461,243	22.58 (0.0185)	617,380
Poverty Impact H ^{net} – H ^{gross}	0.31 (0.0017)	4,320	0.92 (0.0047)	13,785	0.14 (0.0010)	3,737
CHINESE						
Pre-payment headcount H ^{gross}	1.38 (0.0025)	63,792	0.52 (0.0020)	22,947	0.68 (0.0031)	36,807
Post-payment headcount H ^{net}	1.42 (0.0026)	65,520	0.52 (0.0020)	22,947	0.68 (0.0031)	36,807
Poverty Impact H ^{net} – H ^{gross}	0.04 (0.0004)	1,728	0	0	0	0
INDIANS						
Pre-payment headcount H ^{gross}	5.44 (0.0091)	75,168	4.54 (0.0118)	62,434	2.93 (0.0113)	56,779
Post-payment headcount H ^{net}	5.80 (0.0094)	80,064	4.54 (0.0118)	62,434	2.99 (0.0113)	57,947
Poverty Impact H ^{net} – H ^{gross}	0.35 (0.0025)	4,896	0	0	0.06 (0.0006)	1,167

Table 7.10.Incidence of poverty due to OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Ethnic group/Poverty headcounts	1993		1998		2004	
	% (SE)	No. of individuals	% (SE)	No. of individuals	% (SE)	No. of individuals
Others						
Pre-payment headcount H ^{gross}	32.18 (0.0181)	281,628	26.93 (0.0240)	227,559	32.26 (0.0293)	353,407
Post-payment headcount H ^{net}	32.36 (0.0182)	283,248	28.71 (0.0244)	242,621	32.34 (0.0293)	354,267
Poverty Impact H ^{net} – H ^{gross}	0.19 (0.0014)	1,620	1.78 (0.0077)	15,062	0.08 (0.0008)	861

Table 7.10 (cont'd). Incidence of poverty due to OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004

Ethnic Groups/Poverty Gaps	1993	1998	2004
MALAYS			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	3.39 (0.0016)	1.71 (0.0014)	1.05 (0.0010)
Post-payment <i>NG^{net}</i>	3.50 (0.0017)	1.78 (0.0015)	1.08 (0.0010)
Poverty impact <i>NG^{gross} - NG^{net}</i>	0.12 (0.0001)	0.07 (0.0001)	0.04 (0.0001)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	23.16 (0.0068)	19.73 (0.0096)	18.37 (0.0110)
Post-payment MPNG ^{net}	23.44 (0.0068)	19.77 (0.0095)	18.51 (0.0111)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.28	0.04	0.13
NON-MALAY BUMIPUTERA			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	10.96 (0.0066)	10.13 (0.0093)	6.02 (0.0065)
Post-payment NG ^{net}	11.09 (0.0066)	10.30 (0.0094)	6.17 (0.0067)
Poverty impact NG ^{gross} - NG ^{net}	0.13 (0.0002)	0.16 (0.0003)	0.15 (0.0005)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	35.73 (0.0131)	33.96 (0.0193)	26.81 (0.0171)
Post-payment MPNG ^{net}	35.78 (0.0130)	33.48 (0.0193)	27.30 (0.0170)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.05	-0.48	0.49
CHINESE			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	0.26 (0.0006)	0.20 (0.0012)	0.11 (0.0005)
Post-payment NG ^{net}	0.27 (0.0006)	0.20 (0.0012)	0.12 (0.0005)
Poverty impact <i>NG^{gross} - NG^{net}</i>	0.01 (0.0000)	0.00 (0.0000)	0.00 (0.0000)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	18.83 (0.0322)	38.31 (0.1396)	16.56 (0.0290)
Post-payment MPNG ^{net}	18.90 (0.0319)	38.81 (0.1387)	16.97 (0.0274)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.08	0.50	0.42

Table 7.11.Intensity of poverty due to OOP payments for health care by ethnicgroups, Malaysia, 1993 - 2004

Ethnic Groups/Poverty Gaps	1993	1998	2004
INDIANS			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	1.10 (0.0024)	0.77 (0.0025)	0.29 (0.0010)
Post-payment NG ^{net}	1.15 (0.0025)	0.80 (0.0025)	0.30 (0.0010)
Poverty impact NG ^{gross} - NG ^{net}	0.06 (0.0002)	0.02 (0.0001)	0.01 (0.0001)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	20.12 (0.0278)	16.98 (0.0470)	10.06 (0.0243)
Post-payment MPNG ^{net}	19.90 (0.0266)	17.52 (0.0469)	10.14 (0.0238)
Poverty impact MPNG ^{gross} - MPNG ^{net}	-0.22	0.54	0.08
OTHERS			
Normalised Poverty Gaps (%)			
Pre-payment NG ^{gross}	9.63 (0.0068)	7.46 (0.0085)	9.50 (0.0114)
Post-payment NG ^{net}	9.78 (0.0068)	7.79 (0.0087)	9.72 (0.0115)
Poverty impact NG ^{gross} - NG ^{net}	0.16 (0.0003)	0.33 (0.0006)	0.22 (0.0004)
Mean Positive Normalised Gaps (%)			
Pre-payment MPNG ^{gross}	29.92 (0.0127)	27.71 (0.0187)	29.45 (0.0201)
Post-payment MPNG ^{net}	30.24 (0.0126)	27.14 (0.0189)	30.07 (0.0200)
Poverty impact <i>MPNG^{gross} - MPNG^{net}</i>	0.32	-0.56	0.62

Table 7.11 (cont'd). Intensity of poverty due to OOP payments for health care by ethnic groups, Malaysia, 1993 - 2004
7.3.5 OOP health payments among the poor and non-poor by services

Figure 7.2 shows that a very large share of the monthly OOP health payments for poor (including persons who were already poor before health payments as well as persons made poor because of health payments) and non-poor persons alike was for private care. Although the non-poor spent more, as shares of OOP payment, on private care, the OOP payment shares for private care spent by the poor was still very substantial. In 1993, on average each poor person spent 83.34 per cent of his monthly OOP health payment for health care purchased from private sector health providers. The average figure for the non-poor was only slightly higher at 97.26 per cent. The predominance of payments for private care for both poor and non-poor was also observed in 1998 and 2004.

Figure 7.2 also shows an interesting pattern in the distribution of OOP payments for private care. In 1993, the largest OOP payment component was for private non-hospital based care, essentially care provided mainly by private doctors and to a lesser extent, by traditional health practitioners and private dentists, in care settings outside of hospitals. The OOP payment share for pharmaceuticals, mainly purchased from private pharmacies, was the second largest component. However, by 2004, about half of the OOP payment shares for poor and non-poor were for the purchase of pharmaceuticals.





Source: Plotted using HES 1993/94, HES 1998/99 and HES 2004/05.

Although, the OOP payment shares for private health care for the poor appear to be very large, one needs to also take cognizance that on average each poor person spent very little on OOP health payments (Table 7.12). But the issue remains, that a large part of this small OOP payment still went to pay for private care.

Table 7.12.Average per capita monthly OOP payments of poor and non-poorpersons, Malaysia, 1993 - 2004

	Mean per capita monthly OOP payments in RM (SE)		
	1993 ¹	1998 ¹	2004
Poor	0.93 (0.31)	1.16 (0.12)	1.47 (0.56)
Non-poor	7.39 (0.35)	8.17 (0.34)	6.64 (0.46)
Overall	6.57 (0.31)	7.52 (0.31)	6.25 (0.43)

Note: ¹Real estimates for 1993 and 1998 have been adjusted to 2004 prices. Source: Estimated from HES 1993/94, HES 1998/99 and HES 2004/05.

7.4 SUMMARY

Medical impoverishment is an indication of severe reduction in household welfare from the need to make OOP health payments. Thus, levels of medical impoverishment will reflect the adequacy of financial risk protection in a country. In this chapter, the extent to which OOP health payments had impoverished the population in Malaysia has been assessed by comparing monthly household consumption, before and after accounting for OOP health payments, with the official poverty lines. To improve the measurement of poverty levels, these poverty lines had been adjusted for household size.

Overall, the OOP health payments impoverished a relatively small proportion of the population in the country, affecting 40,392 persons or 0.24 per cent of the population in 1993, 60,660 persons or 0.35 per cent of the population in 1998 and 29,318 persons or

0.12 per cent of the population in 2004. Poverty caused by health payments was shown to affect those who were already poor or near poor to start off with. The intensity of poverty or poverty deepening caused by OOP payments was also relatively small. The intensity of poverty was 0.18 per cent of the poverty line or in monetary terms RM0.08 in 1993. In 1998 the intensity was 0.07 per cent of the poverty line or RM0.08. And in 2004 the intensity was 0.05 per cent of the poverty line or RM0.06.

Among the three regions in this analysis, Sabah appeared to have fared the worst and Sarawak the best. The incidence and intensity of poverty due to health payments were the highest in Sabah. In 1993 the poverty incidence was 0.45 per cent of the Sabah population, nearly twice that in the Peninsular. In the same year, the intensity of poverty due to health payments in Sabah was 0.19 per cent of the poverty line, more than twice that of the Peninsular. In 1993, OOP health payments did not impoverish any household in Sarawak. Poverty incidence and intensity due to health payments decreased over time for Sabah and the Peninsular but remained higher in Sabah. In 1998, health payments impoverished 0.40 per cent of the population in Sarawak but in 2004 again, health payments did not cause any household to be poor.

Household OOP health payments caused higher poverty incidence rates among the rural population compared to the urban population in 1993 and 1998. The incidence rates were almost similar between the two strata in 2004 where 0.11 per cent of the rural population and 0.12 per cent of the urban population had been impoverished by health payments. The intensity of poverty caused by health payments was low among the urban and rural population. The intensity among the urban population decreased from 0.04 per cent of poverty line in 1993 to 0.02 per cent in 2004. Among the rural

population, the intensity decreased from 0.13 per cent of the poverty line in 1993 to 0.10 per cent in 2004.

Among the four main ethnic groups in Malaysia, the poverty impact of health payments was the lowest among the Chinese, followed by the Indians and Malays. The poverty impact was the highest among the non-Malay Bumiputeras. Among the Chinese, health payments impoverished only 0.04 per cent of the population or 1,728 persons in 1993 and none at all in 1998 and 2004. Among the non-Malay Bumiputras, health payments impoverished 0.31 per cent of the population or 4,320 persons in 1993, 0.92 per cent or 13,785 persons in 1998 and 0.14 per cent or 3,737 persons in 2004. The intensity of poverty caused by health payments was lowest among the Chinese where the intensity in 1993 was only 0.01 per cent of the poverty line and no poverty deepening for the other two years. Among the non-Malay Bumiputeras, the intensity was also small, 0.13 per cent of the poverty line in 1993, 0.16 per cent in 1998 and 0.15 per cent in 2004.

Health payments made by poor and non-poor persons were mainly for purchase of private health care where more than 80 per cent of health payments in each year were for private care which were payments mainly for purchase of non-hospital based care and pharmaceuticals. However, this finding must be interpreted together with the understanding that the monthly OOP payment for each poor person was very much lower than the OOP payment made by each non-poor persons. In 1993, the OOP payment for a poor person was only 1.38 per cent that of a non-poor person. In 1998 and 2004, these figures were 2.02 per cent and 4.91 per cent respectively.

As was shown in Table 7.2, poverty rates have significantly reduced in Malaysia from 1993 to 2004. Similarly, poverty incidence caused by health payments has also reduced in the same period. But because the 1993 incidence rates were small, 0.24 per cent of the population, the reduction over the years to 0.12 per cent in 2004, does not appear as remarkable as that of the reduction in general poverty rates. However, despite the small values, the existence of households which have been forced into poverty because of having to make health payments should raise some concerns in society.

This analysis has shown that the overall incidence and intensity of medical impoverishment is small in Malaysia. These findings are consistent with that estimated for Malaysia in a comparative study of 11 Asia Pacific countries (van Doorslaer et al., 2006). The poverty lines used in the study were the World Bank's two international absolute poverty lines, US\$1.08 and US2.15 per person per day, which were than adjusted to reflect the purchasing power and current prices in each country. Among the 11 countries in the study, Malaysia was found to have the lowest poverty incidence caused by health payments.

The Malaysian analysis has been carried out using the HES 1998/99 where household resources were measured in terms of household consumption. Using the US\$1.08 poverty line, the increase in headcounts after accounting for OOP health payments was 0.1 per cent which meant an additional 10,562 persons being pushed into poverty. This is considerably lower than the poverty incidence for 1998 estimated in this analysis, mainly because the US\$1.08 poverty line when adjusted to the current local currency was approximately half the value of the poverty lines used in this analysis for 1998.

The increase in poverty incidence estimated using the US2.15 poverty was 0.3 per cent or 58,626 persons and this is close to the estimates obtained in this analysis.

In conclusion, the poverty impact of direct household OOP payments has in general been low in Malaysia from 1993 to 2004. The poverty impact were higher among the sub-populations noted to have high pre-payment poverty rates namely the populations of Sabah, rural areas and the non-Malay Bumiputeras. Conversely, because they had the lowest poverty rates in the country, the Chinese population and the population in Sarawak also had the lowest poverty impact from health payments.

The analysis of poverty impact caused by health payments in this chapter concludes the examination of financial risk protection for health in Malaysia. In the next chapter, the focus of the analysis will be on assessing the progressivity of the entire health financing system in Malaysia.

CHAPTER 8 PROGRESSIVITY IN HEALTH FINANCING

8.1 INTRODUCTION

The two main components in the assessment of fair financing of health in a country are that there should be adequate financial protection in health for all and that the entire health financing system should have a progressive distribution. It is typically the case that funds to finance health care in any country be obtained from many sources, of which the main sources are general taxation, health insurance funds and household OOP health payments. The main aim of this chapter is then to assess the progressivity of the overall Malaysian health financing system by combining the assessment of the progressivity of its individual health financing sources.

The chapter begins with Section 8.2 which will describe the methods used in the analysis. This section reviews data sources, computational methods and incidence assumptions used to derive estimates of household contributions to various health financing sources. Section 8.3 contains the results of the analysis on the progressivity of the Malaysian health financing system. The chapter concludes with Section 8.4 which provides a summary of the findings.

8.2 METHODS AND DATA

There are two distinct components in this progressivity analysis. The first is to determine the progressivity of each source of health financing and the second, to combine these to determine the progressivity of the entire health financing system in Malaysia (O'Donnell et al., 2008b). The main sources of health financing examined here are government revenues including tax-based and non-tax based revenues, direct household OOP payments, social security funds (EPF and SOCSO) and private health insurance funds.

It needs to be stated that unlike previous chapters, this progressivity analysis could only be undertaken at the national level for the years 1998 and 2004 due to data limitations. Crucial information used to develop the weights required to combine progressivity estimates of individual financing sources into estimates for the entire financing system was obtained from the MNHA. As was explained in Section 3.3 of Chapter 3, systematically collected and verified information on total health expenditures for Malaysia are only available for the years 1997 to 2009 (Ministry of Health Malaysia, 2011). This precludes the examination of progressivity of the Malaysian health financing system prior to 1997. Moreover, the MNHA has only released detailed health expenditure information by financing sources at the national level. Health expenditures by financing sources at the sub-national levels are not available.

Estimation of the progressivity for each financing source requires data on households' contributions to each source in order to establish the distribution of health payments across households of different ATP. In this analysis, data from the HES 1998/99 and 2004/05 were used for this purpose. Though the data captured by the HES were

extensive, the focus was mainly on household expenditures on goods and services. With specific reference to the health financing sources relevant to this analysis, the HES captured monthly household OOP payments for health care, household monthly contributions to EPF and SOCSO, and monthly household payments of private health insurance premiums. However, information on household contributions to government revenues (tax and non-tax based revenues), which are the main sources of funding for the public health sector, was incomplete. As the purpose of this analysis is to gauge the actual health financing burden on households, it was necessary to make several incidence assumptions in order to allocate that portion of health financing attributed to government revenues down to the level of individual households. These assumptions will be elaborated on further in later sections in this chapter. The progressivity of each of the payment sources was then estimated using the KI which was described in Section 5.2.2 of Chapter 5.

The final step in the analysis was to obtain a weighted average of the KI of all individual financing sources to determine the progressivity of the overall health financing system in the country. The weights used for this purpose were derived from the shares of each financing source to the total health expenditure for the relevant year (Wagstaff et al., 1999, O'Donnell et al., 2008a). In this analysis, these shares were derived from the estimates of national health expenditures by financing sources produced by the MNHA.

8.2.1 Establishing Sources of Health Financing in Malaysia

As was stated earlier the first component of this analysis was to examine the progressivity of household health contributions to each source of health financing. Thus the first step in this analysis was to establish the list of all sources of health financing in the country and concurrently, to establish the share of total health expenditures contributed by each source. The information to accomplish these tasks was obtained from the health expenditure estimates obtained from the MNHA and also breakdown of the Federal Government revenues. In this analysis, information on health expenditures for 1998 was combined with details of Federal Government revenues for 2000. It is assumed that the distribution of government revenues would not have differed significantly in the short span of two years and thus that the details of the 2000 revenues could then be applied to 1998. Similarly, the information on health expenditures for 2004 was combined with details of Federal Government revenues for 2005.

The information on total health expenditures in the country as provided by the MNHA categorises health financing sources by the institutions involved in the funding of health care (Ministry of Health Malaysia, 2011). These have been divided into public financing sources and private financing sources. The public sources are made up of various governmental agencies of the Federal Government, State Government and Local Authorities, as well as the two main social security organisations in the country namely the EPF and SOCSO. The private sources are made up of households, private corporations, private health insurance companies and non-profit organisations. Table 8.1 shows the shares of total health expenditures contributed by each financing source for the years 1998 and 2004.

	Amounts in mil. RM¹ (% of total health expenditures)		
Sources of Health Financing			
-	1998	2004	
Public Financing Sources	4,879 (55.75)	11,090 (55.70)	
Governmental Agencies	4,851 (55.43)	10,995 (55.22)	
Ministry of Health	4,033 (46.08)	8,917 (44.79)	
Ministry of Higher Education	517 (5.91)	1,229 (6.17)	
Ministry of Defence	7 (0.08)	24 (0.12)	
Other federal agencies (including statutory	216 (2.47)	685 (3.44)	
bodies)			
State and Local authorities	78 (0.89)	140 (0.70)	
Social Security Organisations	28 (0.32)	95 (0.48)	
Employees Provident Fund (EPF)	15 (0.17)	56 (0.28)	
Social Security Organisation (SOCSO)	13 (0.15)	39 (0.20)	
Private Financing Sources	3,873 (44.25)	8,820 (44.30)	
Household OOP payments for health	2,835 (32.39)	6,719 (33.75)	
Private corporations ²	515 (5.88)	698 (3.51)	
Private health insurance companies ³	415 (4.74)	1,196 (6.01)	
Non-profit organisations serving households ⁴	108 (1.23)	207 (1.04)	
Total	8,752 (100.00)	19,910 (100.00)	

Note: ¹Nominal values.

²These payments were made by private companies on behalf of their employees as part of their employment health plans.

³These payments were made by private health insurers on behalf of persons insured under their plans. These also include payments made by managed care organisations on behalf of their enrolees.

⁴These payments were made by non-profit organisations which fund some health care services needed by the public and include charitable organisations and non-governmental organisations.

Source: (Ministry of Health Malaysia, 2011)

Table 8.1 shows that more than half of the total health expenditures for 1998 as well as 2004 were funded by governmental agencies. The second largest health expenditure component was that of household OOP health payments. In 1998, OOP health payments contributions amounted to 32.39 per cent of the total health expenditures in the country and in 2004, this share increased to 33.75 per cent.

From Table 8.1 it will be obvious how households contribute to the financing sources listed:

- tax and non-tax payments made by household members making up part of government revenues which in turn are used to finance health care provided by the governmental agencies in Malaysia;
- ii. payments made by household members to the two social security agencies namely the EPF and SOCSO which finance some health care for their members;
- iii. direct household OOP payments made by household members to purchase health care from health care providers;
- iv. household payments of private health insurance premiums which are used to finance health care for insured members;
- v. employer sponsored health benefits for household members as health payments made by employers on behalf of their employees can rationally be seen as resulting from the labours of the employee who is also a member of his household; and
- vi. financial support from households to non-profit organisations to fund health care services for the public.

Governmental agencies receive their funding mainly from government revenues. Table 8.1 shows that the three main governmental agencies financing health care in the country are the Ministries of Health, Higher Education and Defence. These ministries receive their funding mainly from the Federal Government through annual allocations. State and Local authorities finance a very limited scope of health services⁴⁴ and which is reflected in the small contribution from these agencies towards total health expenditures in the country. State and Local authorities also receive substantial portions of their funds from the Federal Government of Statistics Malaysia, 2008). Therefore, in this study, it is assumed that all governmental agencies, obtain funds to finance health services from the Federal Government.

Federal Government revenues used to fund health care provision by the governmental agencies are derived from both tax and non-tax based sources. Table 8.2 provides details of the Federal Government revenues for the years 2000 and 2005 which have been compiled from information available in the Ninth Malaysia Plan (Malaysia, 2006).

⁴⁴ Mainly for public health activities of ensuring food hygiene and vector control in areas under the jurisdiction of Local Authorities.

Sources of Revenues	Amounts in mil. RM ¹		
	(% of Federal Government Revenues)		
-	2000	2005	
Direct taxes	29,156 (47.13)	53,544 (50.37)	
Income taxes	27,017 (43.67)	50,789 (47.78)	
Company	13,905 (22.48)	26,381 (24.82)	
Personal	7,015 (11.34)	8,649 (8.14)	
Petroleum	6,010 (9.71)	14,566 (13.70)	
Other direct taxes	2,226 (3.60)	3,948 (3.71)	
Indirect taxes	18,017 (29.12)	27,051 (25.45)	
Sales tax	5,968 (9.65)	7,709 (7.25)	
Service tax	1,701 (2.75)	2,582 (2.43)	
Excise duties	3,803 (6.15)	8,641 (8.13)	
Import and export duties	4,631 (7.49)	5,470 (5.15)	
Other indirect taxes	1,914 (3.09)	2,648 (2.49)	
Non-tax revenue	14,093 (22.78)	25,052 (23.57)	
Licenses and permits	5,548 (8.97)	8,332 (7.84)	
Service fees	576 (0.93)	842 (0.79)	
Fines and penalties	419 (0.68)	594 (0.56)	
Interests and returns from investments	7,383 (11.93)	14,849 (13.97)	
Other non-tax revenue	167 (0.27)	436 (0.41)	
Non-revenue receipts	598 (0.97)	657 (0.62)	
Total	61,864 (100.00)	106,304 (100.00)	

Table 8.2.Sources of revenues for the Federal Government of Malaysia, 2000 and2005

Note: ¹Nominal values.

Source: (Malaysia, 2006)

Table 8.2 shows that the bulk of Federal Government revenues for 2000 as well as 2005 came from direct taxes, followed by indirect taxes and non-taxes revenues. Direct taxes made up 47.13 per cent of the government revenues in 2000 and this share increased to 50.37 per cent in 2005. Among the different categories of direct taxes, company income taxes contributed the most revenue each year. Among the different categories of indirect taxes, one of the largest revenue components was sales taxes.

Households contribute directly to some of these sources of Federal Government revenues, for example in the form of personal income tax and payment of sales tax for goods purchased. However, not all sources of government revenues involve direct contributions from households. An example of such is the petroleum income tax. Therefore, in order to examine the extent to which households finance health care funded by governmental agencies via government revenues, it will be necessary to combine information on total health expenditures by financing sources in Table 8.1 and details of Federal Government revenues in Table 8.2⁴⁵. The results of this exercise are presented in Table 8.3.

Table 8.3 shows that the main health financing source in the country came from the Federal Government revenues for both 1998 and 2004. In 1998, the Federal

⁴⁵ For instance, 11.34 per cent of total Federal Government revenues came from personal income taxes in 2000 (Table 8.2). It is then assumed that 11.34 per cent of funding from all governmental agencies also came from personal income taxes. Since the funding from governmental agencies amounted to 55.43 per cent of total health financing for 1998 (Table 8.1), personal income taxes were estimated to contribute 6.29 per cent (product of 11.34 per cent and 55.43 per cent) of total health financing for that year (Table 8.3). The proportions of health expenditures from social security organisations, OOP health payments, private health insurers and non-profit organisations as listed in Table 8.3, came directly from the MNHA estimates listed in Table 8.1.

Government financed 55.43 per cent of the total health expenditures. In 2004, this figure decreased slightly to 55.22 per cent. In both years, about half of the Federal Government revenues came from direct taxation. The second largest source of health financing was household OOP payments for health care which made up 32.39 per cent of total health expenditures in 1998 and 33.75 per cent in 2004.

Sources of Health Financing	Percentage of total health expenditures	
	1998	2004
Federal Government revenues	55.43	55.22
Direct Taxes:	26.12	27.82
Personal income tax	6.29	4.49
Corporation income tax	12.46	13.70
Petroleum income tax	5.38	7.57
Others	1.99	2.05
Indirect Taxes:	16.14	14.05
Sales tax	5.35	4.00
Services tax	1.52	1.34
Excise duties	3.41	4.49
Import and export duties	4.15	2.84
Others	1.71	1.38
Non-tax revenue	12.63	13.01
Licenses and permits	4.97	4.33
Service fees	0.52	0.44
Fines and penalties	0.38	0.31
Interests and returns from investments	6.61	7.71
Others	0.15	0.23
Non-revenue receipts	0.54	0.34
Social Security Organisations	0.32	0.48
Employee Provident Fund (EPF)	0.17	0.28
Social Security Organisation (SOCSO)	0.15	0.20
Household OOP payments for health	32.39	33.75
Private corporations	5.88	3.51
Private health insurance companies	4.74	6.01
Non-profit organisations serving households	1.23	1.04
Total	100.00	100.00

Table 8.3. Total health	expenditures by fur	nding sources, Malaysia	, 1998 and 2004
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Note: Totals may not add up to 100 per cent because of rounding.

Sources: Estimated from details of total health financing (Ministry of Health Malaysia, 2011) and Federal Government revenues (Malaysia, 2006).

8.2.2 Assessing Progressivity of Each Financing Source

The final list of health financing sources used in this analysis is as shown in Table 8.3. The next step in this analysis is the assessment of progressivity of each of these sources. This required household level data providing information on household contributions to each financing source. In this analysis, household data from the HES 1998/99 and 2004/05 were used for this purpose. Thus this analysis was conducted using household level data in HES 1998/99, MNHA health expenditures for 1998 and details of Federal Government revenues for 2000 with the assumption that the information accurately described the prevailing situation in 1998. A similar assumption was made in the analysis using HES 2004/05, MNHA health expenditures for 2004 and Federal Government revenues for 2005 that the information relates to the situation in 2004.

The methodologies used to determine the extent of progressivity in health financing have been reviewed in Section 5.2.2 of Chapter 5. The progressivity of each financing source in this analysis was primarily assessed using the KI as the summary measure of progressivity. This measure facilitated comparisons of progressivity across various sources of health financing and also across time. In this analysis, progressivity in health payments was also assessed visually by comparing household health financing distributions for each financing source with the distributions of household ATP. The former was depicted graphically by concentration curves of health payments and the latter by the Lorenz curves of household ATP. Graphical depiction of the health payment distributions against the household ATP distributions permitted examination of progressivity across the whole spectrum of households, which would not have been possible if progressivity was to be assessed using the summary measure of KI alone. However, the allocation of health payments from different financing sources to households using data from the HES required the application of different methodologies. The following sections describe the manner of household allocations of the health financing sources detailed in Table 8.3.

8.2.3 Household Payments of Direct Taxes

Direct taxes contributed to 26.12 per cent of total health expenditures 1998 and 27.82 per cent in 2004 (Table 8.3). The main components of direct taxes contributing to the financing of health care in Malaysia are corporation income tax, petroleum income tax and personal income tax. Of these, only personal income tax could be directly allocated to households using data in the HES.

It is generally assumed that company shareholders and consumers share the burden of paying corporate income taxes (Borghi et al., 2009). However, there is no general consensus on the proportions of the tax burden to be borne by each. Previous studies on progressivity of health financing have assumed that either all corporate income taxes are borne by shareholders (Wagstaff et al., 1999) or borne equally by shareholders and consumers (Akazili et al., 2011). In these studies, shareholders were identified from the household surveys as those households which reported having received dividends from ownership of shares. However, in the present analysis, the available HES datasets did not contain data to permit identification of company shareholders. Thus household distribution of corporate income tax could not be determined directly from the surveys.

The Petroleum (Income Tax) Act was introduced in 1967 to levy taxes on the income of companies participating in upstream petroleum operations involving activities related to searching for, extracting and disposing of crude petroleum and natural gas. Downstream petroleum operations such as refining and marketing petroleum products do not fall within the ambit of this Act. Profits from such companies are levied a flat tax rate of 38 per cent⁴⁶. Similar to corporate income tax, it was not possible to allocate petroleum income taxes directly to households using the information available in the HES.

The available HES datasets contained data on household monthly personal income tax payments and these have been used in the present study to allocate that portion of health financing attributed to personal income tax to households. However, this manner of allocation to households has not been universally adopted in tax incidence analyses.

Two previous studies on tax incidence for Peninsular Malaysia assessed household distribution of personal income tax by examining amounts of income tax collected by different household income brackets using information obtained from the Department of Internal Revenue (McLure, 1971, Salleh, 1977). However, the estimation of KI in this present study requires information on the distribution of personal income tax across the whole spectrum of households of different ATP and not just by groupings of households by ATP. Moreover, household consumption and not household income is the preferred measure of ATP and the mapping of information on income tax collected by household income brackets to household consumption groupings requires assumptions of similarity

⁴⁶ Information obtained from Treasury website:

http://www.treasury.gov.my/index.php?option=com_content&view=article&id=786%3Asummary-of-tax-system-2008&catid=95%3Acatpenerbitan&Itemid=203&lang=en.

between household memberships to groups defined by income or consumption which may not be valid.

Akazili et al (2011), in their study on progressivity of health financing in Ghana, applied official tax rate on gross taxable income of working individuals reported in household surveys. However, the authors noted the possibility that income may have been underreported in their study leading to possible bias in income tax estimations. In the current analysis, although both the HES 1998/99 and 2004/05 captured total pre-tax gross income for each household, it will not be appropriate to assess personal income tax in the same manner as the Akazili study. Estimations of personal income tax as adopted in their study require information on individual taxable income. However, the HES datasets contain total household income and not individual incomes of household members. Moreover, it will be difficult to assess income tax exemptions or rebates from reported gross income. These exemptions and rebates are important in the Malaysian context as will be explained later.

In high income countries, some studies have used reported income tax payments using information from household income and expenditure surveys (Wagstaff and van Doorslaer, 1992, Wagstaff et al., 1999). Borghi et al (2009) noted that reported income tax payments in household surveys in lower income settings may be less reliable and cited the example of Tanzania where only 0.21 per cent of survey respondents reported paying income tax although 47 per cent had been identified as receiving income. In the current analysis, both the HES 1998/99 and 2004/05 captured reported household income tax payments. In the HES 1998/99, an estimated 17.38 per cent of all households reported personal income tax payments, with an increasing proportion of

households making such payments from the poorest to the richest quintiles (Table 8.4). An estimated 47.86 per cent of households in the richest quintile reported having made income tax payments. However, in the HES 2004/05 only 5.74 per cent of households reported paying personal income taxes. Although there was still increasing proportions of households paying income taxes from the poorest to richest household quintile, only 16.74 per cent of households in the richest quintile reported paying income taxes.

Table 8.4.Households reporting income tax payments, Malaysia, 1998/99 and2004/05

Quintiles of Household	% of households reported making income tax payments (SE)		
Consumption ¹	1998/99	2004/05	
Poorest quintile	0.51 (0.0018)	0.78 (0.0022)	
2 nd quintile	2.40 (0.0040)	1.40 (0.0033)	
Middle quintile	7.66 (0.0066)	2.01 (0.0037)	
4 th quintile	17.29 (0.0087)	5.33 (0.0055)	
Richest quintile	47.86 (0.0112)	16.33 (0.0103)	
Overall	17.38 (0.0040)	5.74 (0.0029)	

¹Refers to quintiles of adult equivalent household consumption.

Source: Estimated from HES 1998/99 and HES 2004/05.

The small proportion of the population in Malaysia who actually paid personal income taxes may be partially due to the structure of tax exemptions or rebates in the country. In the year of tax assessment 2004, individuals with taxable incomes of less than RM 2,500 per year need not pay any income tax. Another example of a tax rebate is that given for *zakat*, *fitrah* or other Islamic religious dues in which a full rebate is given to individuals making such payments as provided for under section 6A of the Income Tax Act 1967. It may be that in the later survey more individuals in the richer quintiles received similar rebates and thus reduce the proportions of households making income

tax payments. However, it is not possible to test this hypothesis due to limitations in the available data.

This analysis will thus use household reported income tax payments in the HES to estimate the progressivity of this source of household health payments. This would mean that the only component of direct taxes allocated to households using data in the HES is income tax which made up 6.29 per cent of total health financing in 1998 and 4.49 per cent in 2004 (Table 8.3). The other components of direct taxes, making up 19.84 per cent of total health expenditures in 1998 and 23.32 per cent in 2004, could not be allocated directly to households. The manner of dealing with these unallocated taxes will be detailed later in this chapter.

8.2.4 Household Payments of Indirect Taxes

Indirect taxes contributed to 16.14 per cent of total health expenditures 1998 and 14.05 per cent in 2004 (Table 8.3). The main components of indirect taxes contributing to the financing of health care are sales tax, services tax, excise duties, import duties and export duties. Of these, only sales taxes could be directly allocated down to households using the HES datasets.

Service taxes are imposed on 'taxable services' as listed in the Second Schedule of the Services Tax Regulations 1975. Basically these consumption taxes are levied on a wide range of services from provision of food, hotel accommodations, car rentals to professional and consultancy services such as those provided by lawyers and accountants. In general, service taxes are levied on such services only if the annual turnover of the service providers exceeded a specified threshold for their category which ranges from RM150,000 to RM300,000. However, though the HES recorded household expenditures for many of the categories of services included in the list of 'taxable services' it was not possible to determine whether the turnover of the service providers had actually exceeded the tax threshold. Thus, household distribution of services taxes in Malaysia could not be determined directly from the HES.

Excise duties are taxes imposed on a limited range of locally manufactured goods consumed locally. These goods are alcoholic beverages, tobacco products, motor vehicles and playing cards. Import duties are levied on many classes of imported goods for consumption in Malaysia. The tax rates in both instances vary with the type of goods. The HES surveys used in this analysis captured information on household expenditures for goods but did not indicate whether the goods consumed were locally manufactured or imported. Thus it was not possible to estimate household contributions to these categories of indirect taxes by applying the relevant tax rates to the expenditure for specific types of goods.

Export duties are taxes levied on goods exported from the country and are levied on the manufacturer of these goods. Thus again, it was neither possible nor appropriate to allocate these taxes down to households.

Sales tax is a category of consumption tax levied on a wide variety of locally manufactured and imported goods for local consumption. In general, the ad valorem tax rates range from 5 per cent to 25 per cent depending on the type of goods consumed. Many classes of goods have also been exempted from sales tax, including many types of

food such as rice and other cereals. In this analysis, the relevant sales tax rates were applied to the reported household expenditures for that type of good in the HES 1998/99 and 2004/05. The sales tax rates for individually identified goods for the years 1998 and 2004 were obtained from the Royal Malaysian Customs and Excise Department (Royal Malaysian Customs and Excise Department, 1998, Royal Malaysian Customs and Excise Department, 2005). For each survey, item specific sales tax rates were applied to over 480 individually identified goods to estimate household level contributions to sales taxes. Sales tax is not applicable to certain geographical areas in Malaysia, including Langkawi in Kedah and the Federal Territory of Labuan. The available data in HES only allowed for identification of households in Labuan but not Langkawi. Thus, households from Labuan were recorded as not having made any sales tax in this analysis.

Thus, the only component of indirect taxes allocated to households using data in the HES is sales tax which made up 5.35 per cent of total health financing in 1998 and 4.00 per cent in 2004 (Table 8.3). The other components of indirect taxes, making up 10.80 per cent of total health expenditures in 1998 and 10.05 per cent in 2004, could not be allocated directly to households. The manner of dealing with these unallocated taxes will be detailed later in this chapter.

8.2.5 Household Financial Contributions towards Non-tax Federal Government Revenues

Non-tax revenues constitute significant shares of total Federal Government revenues, 22.78 per cent in 1998 and 23.57 per cent in 2004 (Table 8.2) and make up 12.63 per

cent of total health expenditures in 1998 and 13.01 per cent in 2004 (Table 8.3). Among others, these revenues came from payments of licences, permits, service fees, fines and other financial penalties. The HES captured reported household payments for these expenses and this information was used to allocate these payments to the households. However, Federal Government non-tax revenues also included other items such as 'interests and returns from investments' and unspecified non-tax revenues which were not possible to allocate to households using data from the HES.

Thus, the components of non-tax Federal Government revenues that could be allocated to households using data in the HES were payments of licences, permits, service fees, fines and other financial penalties which collectively made up 5.86 per cent of total health financing in 1998 and 5.07 per cent in 2004 (Table 8.3). The other components of non-tax revenues, 'interests and returns from investments' and unspecified non-tax revenues, which collectively made up 6.76 per cent of total health expenditures in 1998 and 7.94 per cent in 2004, could not be allocated directly to households. The manner of dealing with these unallocated revenues will be detailed later in this chapter.

8.2.6 Household Social Security Health Payments

The two main social security organisations in Malaysia are the EPF and SOCSO. Both these institutions provide benefits, including health care, to select population groups in the country (Ng, 2005). The EPF covers mainly private sector employees and non-pensionable public sector employees and SOCSO mainly private sector employees who earn a monthly wage of RM 3,000 or less. The HES captured reported combined household contributions to EPF and SOCSO. It was not possible to separate out

payments to each of these organisations. This information has been used to allocate that portion of health financing attributed to social security organisations to households. Thus, the 0.32 per cent of total health expenditures in 1998 and 0.48 per cent in 2004 attributed to social security organisations (Table 8.3), could be allocated in its entirety directly to households using data from the HES.

8.2.7 Household OOP Payments for Health Care

The HES captured reported household OOP payments for health care. This information was used to allocate this financing source to households. Thus, OOP payment shares of total health expenditures amounting to 32.39 per cent in 1998 and 33.75 per cent in 2004 (table 8.3) could be allocated directly to households using data from the HES.

8.2.8 Household Private Health Insurance Payments

The HES also captured reported monthly insurance premiums paid by households to private health insurance companies. This was used to allocate that portion of health financing attributed to private health insurance companies to households. Thus, these payment shares of total health expenditures amounting to 4.74 per cent in 1998 and 6.01 per cent in 2004 were allocated directly to households using data from the HES.

8.2.9 Incidence Assumptions for Unallocated Financing Sources

From the discussion above, it can be seen that not all the health financing sources depicted in Table 8.3 could be allocated down to the households using data captured in

the HES. In order to carry out this progressivity analysis, some assumptions had to be made concerning the unallocated financing sources. However, prior to doing this, it would be useful to review the sources that could be allocated to households and their manner of allocation:

- personal income tax based on reported personal income tax payments making up
 6.29 per cent of total health financing in 1998 and 4.49 per cent in 2004;
- sales tax based on estimations made by applying relevant goods specific sales
 tax rates to household expenditures for the corresponding good making up 5.35
 per cent of total health financing in 1998 and 4.00 per cent in 2004;
- a portion of the non-tax revenues based on reported household payments for licenses, permits, service fees, fines and penalties⁴⁷ making up 5.86 per cent of total health financing in 1998 and 5.07 per cent in 2004;
- iv. health payments made by social security agencies based on reported household combined contributions to EPF and SOCSO making up 0.32 per cent of total health financing in 1998 and 0.48 per cent in 2004;
- v. OOP payments for health care based on reported household OOP payments for health care making up 32.39 per cent of total health financing in 1998 and 33.75 per cent in 2004; and
- vi. private health insurance payments based on reported household payments of private health insurance premiums making up 4.74 per cent of total health financing in 1998 and 6.01 per cent in 2004.

⁴⁷ The other portion of the non-tax revenues not allocated to households refer mainly to revenues from Federal Government investments.

The six financing sources which could be allocated to households using information contained in the HES contributed to 54.95 per cent of total health financing in 1998 and 53.80 per cent in 2004 (Table 8.5). This means that 45.05 per cent of total health expenditures in 1998, made up of 37.93 per cent of total health expenditures from Federal Government revenues and 7.12 per cent from private financing sources could not be allocated to households. In 2004, 46.20 per cent of total health expenditures, made up of 41.65 per cent of total health expenditures from Federal Government revenues and 4.55 per cent from private financing sources could not be allocated to households.

Sources of Health Einspeine	Percentage of total health expenditures	
Sources of Health Financing	1998	2004
Allocated to households	54.95	53.80
Federal Government Revenues	17.49	13.57
Personal income tax	6.29	4.49
Sales tax	5.35	4.00
Non-tax revenue ¹	5.86	5.07
Social Security Agencies	0.32	0.48
Private financing sources	37.13	39.75
Household OOP payments for health	32.39	33.75
Private health insurance companies	4.74	6.01
Not allocated to households	45.05	46.20
Federal Government Revenues	37.93	41.65
Direct Taxes		
Corporation income tax	12.46	13.70
Petroleum income tax	5.38	7.57
Other direct taxes	1.99	2.05
Indirect Taxes		
Services tax	1.52	1.34
Excise duties	3.41	4.49
Import and export duties	4.15	2.84
Other indirect taxes	1.71	1.38
Non-tax revenue ²	6.76	7.94
Non-revenue receipts	0.54	0.34
Private financing sources	7.12	4.55
Private corporations	5.88	3.51
Non-profit organisations serving	1.23	1.04
households		

Table 8.5.Total health expenditures allocated to households, Malaysia, 1998 and2004

Note: ¹These include household payments for licenses, permits, service fees, fines and penalties.

²These include 'interests and returns from investments' and other non-tax revenues.

Totals may not add up to 100 per cent because of rounding.

Source: Estimated from details of total health financing (Ministry of Health Malaysia,

2011) and Federal Government revenues (Malaysia, 2006).

The progressivity of each of the financing sources that are allocated to households could be assessed directly using the KI as the summary measure of progressivity and also assessed graphically by comparing the concentration curves of household health payments and the Lorenz curves of household ATP. However, the progressivity of the unallocated sources could not be assessed individually. Therefore, the assessment of the progressivity of the entire health financing system required that some assumptions be made concerning the financing sources listed in Table 8.5 that could not be allocated to households. Three scenarios with different incidence assumptions have been developed for this analysis. Following methodologies used in previous studies on progressivity of health financing (Wagstaff and van Doorslaer, 1992, Yu et al., 2008, O'Donnell et al., 2008a) these scenarios are all based on the distributions of financing sources that could be allocated to households using household survey data but differed in the manner in which these distributions have been applied to each unallocated source.

In Scenario 1, it is assumed that:

- i. all unallocated direct taxes were distributed as personal income tax, the only direct tax for which distribution could be estimated from the HES data;
- ii. all unallocated indirect taxes were distributed as sales tax, the only indirect tax that could be estimated from the HES;
- iii. all unallocated non-tax revenues were distributed as the non-tax revenues that could be allocated; and
- iii. all other unallocated sources were distributed as the weighted average of allocated sources other than allocated Government revenues.

Since direct taxes make a substantial contribution to the total health expenditures in the country, 26.12 per cent in 1998 and increasing to 27.82 per cent in 2004, the overall

progressivity of the health financing system under the assumptions of this scenario would be significantly affected by the degree of progressivity of personal income taxes (Table 8.4).

In Scenario 2, the assessment of progressivity of all Federal Government revenues is based collectively on the distribution of all revenues that could be allocated to households, i.e. personal income tax, sales tax and allocated non-tax revenues. It is thus assumed that:

- i. all unallocated Federal Government revenues were distributed as the weighted average of those Federal Government revenues that could be allocated; and
- ii. all unallocated private financing sources were distributed as the weighted average of private financing sources that could be allocated.

The incidence assumptions in Scenario 3 are the most conservative. In this scenario, it is assumed that all unallocated financing sources were distributed as the weighted average of all allocated sources.

The implications of these three scenarios in the derivation of the final progressivity estimates will be discussed in the next section.

8.2.10 Assessing Progressivity of the entire Health Financing System

The progressivity of the entire health financing system was assessed using the KI as the summary measure of progressivity. The KI of the overall financing system was computed as the weighted average of the indices of each individual financing source where the weights used are the proportions of total health financing accounted for by each source as follows:

$$KI = \sum_{j} w_{j} KI_{j}$$

where KI_j is the KI for payment source *j* and w_j is the proportion of the total financing of health contributed by that source (Wagstaff and van Doorslaer, 1992).

The weights used in the computation of the overall KI for the Malaysian health financing system in 1998 and 2004 should have been the shares of total health expenditures contributed by each financing source as shown in Table 8.3. However, individual KI could only be computed for six of the identified financing sources listed in the table⁴⁸ since these sources could be allocated to households using the HES data. Thus the macroweights used in this analysis for the computation of the overall KI for the health system were derived from the shares of total health expenditures contributed by the six allocated financing sources inflated to represent all financing sources including those that could not be allocated using assumptions in the three different incidence scenarios for unallocated financing sources described in the previous section.

Table 8.6 shows the macroweights used in this analysis. The derivation of these weights is as follows:

i. Scenario 1 - where all unallocated direct taxes were distributed as personal income tax, all unallocated indirect taxes were distributed as sales tax, all unallocated non-tax revenues were distributed as allocated non-tax revenues and

⁴⁸ These six financing sources are personal income tax, sales tax, portion of non-tax Federal Government revenues, funds from Social Security Organisations, household OOP health payments and private health insurance companies.

all other unallocated sources were distributed as the weighted average of allocated sources other than allocated tax and non-tax Government revenues. In 1998, direct taxes contributed 26.12 per cent of the total health expenditures. Thus the macroweight for personal income tax was inflated from the original 0.0629 to 0.2612. Indirect taxes contributed 16.14 per cent of total health expenditures for that year. Thus, the macroweight for sales tax was inflated from the original 0.0535 to 0.1614. All other government revenues contributed 13.16 per cent of total health expenditures for that year. Thus, the macroweight for allocated non-tax revenues was inflated from the original 0.0586 to 0.1316. The rest of the financing sources contributed 44.57 per cent of the total health financing of which 37.45 per cent came from the three remaining allocated financing sources, namely funds from Social Security Organisations, household OOP health payments and private health insurance companies. Thus, the macroweight for OOP health payments was inflated from the original 0.3239 to 0.3855^{49} . The macroweights for the rest of the allocated financing sources were similarly derived.

ii. Scenario 2 - where all unallocated Federal Government revenues were distributed as the weighted average of those Federal Government revenues that could be allocated and all unallocated private financing sources were distributed as the weighted average of private financing sources that could be allocated. In 1998, Federal Government revenues contributed 55.43 per cent of the total health financing of which 17.49 per cent came from the three allocated Federal Government revenue sources, namely personal income tax, sales tax and portion

⁴⁹ Derived from [(32.39/37.45)*44.57].

of non-tax revenues. Thus the macroweight for personal income tax was inflated from the original 0.0629 to 0.1991^{50} The macroweights for the rest of the allocated direct taxes were similarly derived. In the same year, private financing sources contributed 44.25 per cent of the total health financing of which 37.13 per cent came from the two allocated private sources, namely household OOP payments and private health insurance. Thus the macroweight for OOP health payments was inflated from the original 0.3239 to 0.3860^{51} . The macroweight for private health insurance was similarly derived. The macroweight for social security funds remained as the original share of 0.0032.

Scenario 3 - where all unallocated financing sources were distributed as the weighted average of all allocated sources. The health expenditure share of all six allocated sources in 1998 was 54.95 per cent. Thus the macroweight for personal income tax was inflated from the original 0.0629 to 0.1144⁵². In 2004, the health expenditure share of all six allocated sources totalled 53.80 per cent and the macroweight for personal income tax was inflated from the rest of the five allocated financing sources, namely sales tax, portion of non-tax Federal Government revenues, funds from Social Security Organisations, household OOP health payments and private health insurance companies were similarly derived.

⁵⁰ Derived from [(6.29/17.49)*55.43].

⁵¹ Derived from [(32.39/37.13)*44.25].

⁵² This came from 6.29/54.95.

⁵³ Derived from 4.49/53.80.
The macroweights for all six allocated health financing sources as shown in Table 8.6 were used in the final computation of the KI of the overall financing system.

		199	98		2004			
Sources of Health Financing	% of total Macroweights		% of total		Macroweights			
	health expenditures	Scenario 1	Scenario 2	Scenario 3	health expenditures	Scenario 1	Scenario 2	Scenario 3
Federal Government revenues								
Direct Taxes:								
Personal income tax	6.29	0.2612	0.1991	0.1144	4.49	0.2782	0.1828	0.0835
Unallocated direct tax ¹	19.84				23.32			
Indirect Taxes:								
Sales tax	5.35	0.1614	0.1694	0.0973	4.00	0.1405	0.1629	0.0744
Unallocated indirect tax ²	10.80				10.05			
Non-tax revenue								
Allocated ³	5.86	0.1316	0.1857	0.1067	5.07	0.1336	0.2065	0.0943
Unallocated ⁴	6.76				7.94			
Non-revenue receipts (unallocated)	0.54				0.34			
Social Security Organisations (allocated)	0.32	0.0038	0.0032	0.0058	0.48	0.0053	0.0048	0.0089
Household OOP payments for health (allocated)	32.39	0.3855	0.3860	0.5895	33.75	0.3756	0.3761	0.6272
Private health insurance companies (allocated)	4.74	0.0564	0.0565	0.0863	6.01	0.0669	0.0669	0.1116
Other private sources (unallocated)	7.12				4.55			
Total	100.00	1.0000	1.0000	1.0000	100.00	1.0000	1.0000	1.0000

Table 8.6.Macroweights for Progressivity computation, Malaysia 1998 and 2004

Note: ¹These include company income tax, petroleum income tax and other unspecified direct taxes. ²These include service tax, excise duties, import and export duties and other unspecified indirect taxes.

³These include household payments for licenses and permits; service fees; fines and penalties.

⁴These include 'interests and returns from investments' and other non-tax revenues.

Derivation of macroweights:

- Scenario 1 Unallocated direct taxes distributed as personal income tax. Unallocated indirect taxes distributed as sales tax. Unallocated Government revenues distributed as allocated non-tax revenues. All other unallocated sources distributed as weighted average of allocated sources other than Government revenues.
- Scenario 2 Unallocated Federal Government revenues distributed as weighted average of allocated Federal Government revenues. Unallocated private financing sources distributed as weighted average of allocated private financing sources.
- Scenario 3 Unallocated financing sources distributed as weighted average of all allocated sources.

8.2.11 Measure of Household ATP

The measure of household ATP used in the progressivity analysis was monthly household consumption per adult equivalent, which also took into account economies of scale within the household. Each source of health payment was also adjusted using the same equivalence scale used to derive the household ATP. The rationale for the use of this scale was provided in Section 4.3 of Chapter 4.

8.3 **RESULTS**

8.3.1 **Progressivity of Federal Government Revenues**

The three sources of Government revenues that could be allocated to households were personal income tax, sales tax and the portion of non-tax revenues obtained from payments of licenses, permits, service fees, fines and penalties.

Personal income tax was highly concentrated among the rich as shown by large positive CIs close to the value of one more so in 2004 compared to 1998 (Tables 8.7 and 8.8). The distributions are graphically depicted in Figure 8.1 where it can be seen that the concentration curves for personal income tax lie far below the line of equality in both years. Not surprisingly, personal income tax was a progressive health financing source (Tables 8.7 and 8.8). This financing source was slightly more progressive in 2004 compared to 1998 as shown by the higher KI of 0.5051 in 2004 compared to 0.4361 in 1998.

The distributions of sales tax were mixed. Sales taxes were concentrated among the rich, more so in 1998 than 2004. However, these taxes were only slightly progressive in

1998 but with a positive KI close to zero (Table 8.7). In 2004, a proportional distribution could not be statistically excluded (Table 8.8).

In contrast to the distribution of direct and indirect taxes, the non-tax revenues in both years were regressive but were still concentrated among the rich (Tables 8.7 and 8.8).

Household Consumption	Cumulative population shares					
Quintiles ¹	Household consumption	Personal Income Tax	Sales Tax	Non-tax revenues ²		
Poorest quintile	7.06 (0.0773)	0.22 (0.1158)	6.44 (0.1462)	8.45 (0.4520)		
2 nd quintile	18.35 (0.1662)	1.21 (0.3111)	17.09 (0.3465)	19.69 (0.6161)		
Middle quintile	33.67 (0.2713)	4.62 (0.6425)	31.39 (0.6028)	35.72 (0.8404)		
4 th quintile	55.13 (0.3841)	14.42 (1.2498)	49.85 (0.9044)	57.80 (1.0451)		
Richest quintile	100.00	100.00	100.00	100.00		
Cini/Concentration Index	0.3731*	0.8092*	0.4252*	0.3327*		
Gill/Concentration muex	(0.0070)	(0.0651)	(0.0187)	(0.0139)		
Kakwani Inday		0.4361*	0.0521#	-0.0404#		
Nakwaiii inuex		(0.0630)	(0.0153)	(0.0148)		

Table 8.7.Cumulative shares of government revenues by household consumptionquintiles, Malaysia 1998

Note: ¹Refers to population quintiles of adult equivalent household consumption.

²Includes only portion of non-tax-revenues allocated to households.

Shares are expressed as per cent of total health payments by each source.

Indices are statistically significant from zero at *p<0.001 #p<0.05.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 1998/99.

Household Consumption	Cumulative population shares					
Quintiles ¹	Household Persona		Sales Tax	Non-tax		
	consumption	Income Tax		revenues		
Poorest quintile	6.89 (0.0591)	0.16 (0.0448)	7.18 (0.1187)	9.79 (0.3617)		
2 nd quintile	18.14 (0.1302)	0.46 (0.0911)	18.44 (0.2675)	22.61 (0.5076)		
Middle quintile	33.68 (0.2118)	1.89 (0.4145)	33.38 (0.4449)	38.93 (0.6513)		
4 th quintile	55.51 (0.2967)	8.72 (1.3229)	53.79 (0.6644)	61.22 (0.8240)		
Richest quintile	100.00	100.00	100.00	100.00		
Cini/Concentration Index	0.3706*	0.8757*	0.3842*	0.2882*		
Gini/Concentration index	(0.0067)	(0.2439)	(0.0167)	(0.0135)		
17 - I		0.5051#	0.0136	-0.0824*		
Nakwaiii iliutx		(0.2429)	(0.0150)	(0.0144)		

Table 8.8.Cumulative shares of government revenues by household consumptionquintiles, Malaysia 2004

Note: ¹Refers to population quintiles of adult equivalent household consumption.

²Includes only portion of non-tax-revenues allocated to households.

Shares are expressed as per cent of total health payments by each source.

Indices are statistically significant from zero at *p<0.001 #p<0.05.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 2004/05.

Figure 8.1. Concentration curves for personal income tax, sales tax and non-tax revenues and Lorenz Curve for household consumption, Malaysia, 1998 and 2004



Source: Plotted using HES 1998/99 and HES 2004/05.

8.3.2 **Progressivity of Social Security Contributions**

Social security contributions towards financing of health came from household contributions to the EPF and SOCSO. Table 8.9 shows that these contributions were concentrated among the rich but were more concentrated among the rich in 2004 than in 1998. The positive KIs also showed that the distributions in both years were progressive. The higher positive value of the KI in 2004 showed that these distributions were more progressive in 2004 than 1998.

Table 8.9.Cumulative shares of social security contributions by householdconsumption quintiles, Malaysia, 1998 and 2004

	Cumulative po	pulation shares	Cumulative po	pulation shares
	19	98	20	04
	Household	EPF/SOCSO	Household	EPF/SOCSO
	consumption	Contributions	consumption	Contributions
Poorest quintile	7.06 (0.0773)	4.33 (0.2002)	6.89 (0.0591)	3.09 (0.1385)
2 nd quintile	18.35 (0.1662)	13.02 (0.4259)	18.14 (0.1302)	10.18 (0.3073)
Middle quintile	33.67 (0.2713)	27.70 (0.7492)	33.68 (0.2118)	23.79 (0.5210)
4 th quintile	55.13 (0.3841)	48.71 (1.1226)	55.51 (0.2967)	46.00 (0.7784)
Richest quintile	100.00	100.00	100.00	100.00
Cini/Concentration Index	0.3731*	0.4554*	0.3706*	0.4985*
Ghil/Concentration Index	(0.0070)	(0.0201)	(0.0067)	(0.0243)
Kakwani Inday		0.0823*		0.1279*
Kakwain mutx		(0.0197)		(0.0230)

Note: Shares are expressed as per cent of total health payments by each source.

Indices are statistically significant from zero at *p<0.001.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 1998/99 and HES 2004/05.

The HES captured combined household contributions to both EPF and SOCSO. SOCSO membership is only mandated for private sector workers whose monthly wages are below RM3,000. Members of the EPF are mainly those working in the private sector and income levels do not form a barrier to participation. EPF contributions are calculated at a fixed proportion of the members' income regardless of income level. These features of the social security organizations are reflected in the distributions of household contributions seen in Figure 8.2.

Though the concentration curves of EPF/SOCSO contributions lie outside the Lorenz curves for consumption for most parts of the distributions, the Lorenz curves for consumption and concentration curves appear to coincide for the richest decile of the population. This may be because this portion of the distribution mainly reflects EPF household contributions, which are calculated as a fixed proportion of the member's income.

Figure 8.2. Concentration curves for contributions to EPF and SOCSO and Lorenz Curve for household consumption, Malaysia, 1998 and 2004









Source: Plotted using HES 1998/99 and HES 2004/05.

8.3.3 Progressivity of Private Financing Sources

The two private health financing sources that could be allocated to households were household OOP health payments and payments of private health insurance premiums.

As was discussed in Section 5.3.1 of Chapter 5, the household OOP health payment distributions for 1998 and 2004 were concentrated among the rich, and was also progressive (Tables 8.10 and 8.11). The OOP health payments were more concentrated among the rich in 1998 than in 2004 as shown by the higher CI value in 1998. However, the distributions were equally progressive as shown by similar value of KI.

Private health insurance uptake in Malaysia is still mainly confined to the rich. The richest 20 per cent of the population paid 71.44 per cent of the insurance premiums in 1998 and 61.84 per cent in 2004 which led to the large positive values of the CIs for the corresponding years (Tables 8.10 and 8.11). The insurance premiums were also progressive in both years but more so in 1998 than in 2004.

The private insurance premiums were more concentrated among the rich than household OOP health payments as the positive CIs for private health insurance premiums were higher than the CIs for household OOP health payments (Tables 8.10 and 8.11). As a consequence, the concentration curves for private health insurance lie outside that of OOP health payments for 1998 and 2004 (Figure 8.3).

	Cumulative population shares					
Household Consumption Quintiles ¹	Household consumption	OOP Health Payments	Private Health Insurance Premiums			
Poorest quintile	7.06 (0.0773)	3.89 (0.2474)	0.38 (0.1429)			
2 nd quintile	18.35 (0.1662)	11.64 (0.5635)	5.78 (1.5430)			
Middle quintile	33.67 (0.2713)	23.26 (1.0103)	15.95 (3.6708)			
4 th quintile	55.13 (0.3841)	44.03 (1.7119)	28.56 (5.7904)			
Richest quintile	100.00	100.00	100.00			
Gini/Concentration Index	0.3731* (0.0070)	0.5060* (0.0331)	0.6818* (0.1721)			
Kakwani Index		0.1328* (0.0331)	0.3087@ (0.1712)			

 Table 8.10.
 Cumulative shares of private health financing sources by household consumption quintiles, Malaysia, 1998

Note: ¹Refers to population quintiles of adult equivalent household consumption.

Shares are expressed as per cent of total health payments by each source.

Indices are statistically significant from zero at *p<0.001 #p<0.05 @p<0.10.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 1998/99.

	Cumulative population shares					
Household Consumption Quintiles ¹	Household consumption	OOP Health Payments	Private Health Insurance Premiums			
Poorest quintile	6.89 (0.0591)	4.31 (0.2723)	0.82 (0.2611)			
2 nd quintile	18.14 (0.1302)	11.81 (0.6616)	4.35 (0.7038)			
Middle quintile	33.68 (0.2118)	24.09 (1.2666)	14.70 (1.6279)			
4 th quintile	55.51 (0.2967)	43.93 (2.1122)	38.16 (3.2163)			
Richest quintile	100.00	100.00	100.00			
Gini/Concentration Index	0.3706* (0.0067)	0.5034* (0.0627)	0.6167* (0.0650)			
Kakwani Index		0.1328# (0.0622)	0.2461* (0.0648)			

 Table 8.11.
 Cumulative shares of private health financing sources by household consumption quintiles, Malaysia, 2004

Note: ¹Refers to population quintiles of adult equivalent household consumption.

Shares are expressed as per cent of total health payments by each source.

Indices are statistically significant from zero at *p<0.001 #p<0.05.

Numbers in parenthesis refer to standard errors. Standard errors for all indices have been adjusted for heteroskedasticity.

Source: Estimated from HES 2004/05.

Figure 8.3. Concentration curves of household OOP health payments and private health insurance premiums, and Lorenz Curve for household consumption, Malaysia, 1998 and 2004





1998

a.



Source: Plotted using HES 1998/99 and HES 2004/05.

8.3.4 Progressivity of Overall Health Financing System

The progressivity assessments for each of the allocated health financing sources were combined with the macroweights derived from the three different incidence scenarios as described in Section 8.2.11 to compute the overall KI for the health financing system in Malaysia for the years 1998 and 2004 (Tables 8.12 and 8.13). The six allocated financing sources are personal income tax, sales tax, portion of non-tax government revenue, social security funds, OOP health payments and private health insurance payments,

In 1998, distributions of all financing sources that could be allocated to households were found to be progressive with the exception of non-tax government revenues (Table 8.12). Personal income taxes were the most progressive financing source, though these taxes only contributed a small share, 6.29 per cent, to the overall health financing in the country. The second most progressive financing source was that of private health insurance payments but these payments made up only 4.74 per cent of total health expenditures in 1998. Direct household OOP health payments which made up a significant 32.39 per cent share of total health expenditures were also progressive. The other two allocated financing sources, sales tax and social security funds, were the least progressive of the allocated sources. The only regressive distribution was for non-tax revenues but this source contributed only a small, 5.39 per cent share to total health expenditures.

Combining these mostly progressive financing distributions, the overall health financing system was found to be progressive for all the three incidence scenarios. The Malaysian health financing system of 1998 was found to be the most progressive under the

assumptions of Scenario 1. The combined KI under Scenario 1 was 0.1859 which was higher than that of Scenario 2 (KI of 0.1571) and Scenario3 (KI of 0.1561). This is mainly caused by the assumptions under Scenario 1 that all direct taxes were as progressive as personal income tax which was the most progressive health financing source in the country. The high positive KI value of the personal income tax distribution was somewhat diluted in the progressivity estimates under Scenarios 2 and 3. While in Scenario 1 the KI of the personal income tax distribution depicted the distribution of all direct taxes, In Scenario 2, this KI was combined with the distributions of sales tax and non-tax revenues to depict the distribution of all Federal Government revenues and lastly in Scenario 3, the KIs of all allocated sources were combined to depict the distribution of the entire financing system in the country.

In 2004, the distribution patterns of health financing sources were very similar to that in 1998 where all sources were found to be progressive with the exception of non-tax government revenue (Table 8.13). Personal income tax was again the most progressive source and was found to be even more progressive than the distribution in 1998. However, the personal income tax contributed a lower share of total health expenditures in 2004 compared to 1998 even though the shares of direct taxes increased from 26.12 per cent of total health expenditures in 1998 to 27.82 per cent in 2004. In contrast private health insurance payments became less progressive in 2004 and also contributed a larger share of total health expenditures compared to 1998. In addition, the distributions of sales tax also became less progressive and the distributions of non-tax revenue became more regressive over time. Despites these changes, the overall health financing system under all three incidence scenarios was again found to be progressive.

with the most progressive distribution Scenario 1 (KI of 0.1984) followed by Scenario 3 (KI of 0.1473) and Scenario 2 (KI of 0.1446).

Common of Hooldh France diturno	Percentage of total health	Kakwani Index by	Macroweights		
Sources of Health Expenditures	financing	Source	Scenario 1	Scenario 2	Scenario 3
Federal Government revenues					
Direct Taxes:					
Personal income tax	6.29	0.4361	0.2612	0.1991	0.1144
Unallocated direct tax ¹	19.84				
Indirect Taxes:					
Sales tax	5.35	0.0521	0.1614	0.1694	0.0973
Unallocated indirect tax ²	10.80				
Non-tax revenue					
Allocated ³	5.86	-0.0404	0.1316	0.1857	0.1067
Unallocated ⁴	6.76				
Non-revenue receipts (unallocated)	0.54				
Social Security Organisations (allocated)	0.32	0.0823	0.0038	0.0032	0.0058
Household OOP payments for health (allocated)	32.39	0.1328	0.3855	0.3860	0.5895
Private health insurance companies (allocated)	4.74	0.3087	0.0564	0.0565	0.0863
Other private sources (unallocated)	7.12				
Total	100.00		1.0000	1.0000	1.0000
Kakwani Index for total health financing			0.1859	0.1571	0.1561

Table 8.12.Progressivity of overall health financing, Malaysia 1998

Note: ¹These include company income tax, petroleum income tax and other unspecified direct taxes.

²These include service tax, excise duties, import and export duties and other unspecified indirect taxes.

³These include household payments for licenses and permits; service fees; fines and penalties.

⁴These include 'interests and returns from investments' and other non-tax revenues.

No statistical inference has been made for Kakwani Indices for total health financing as these are computed as weighted averages.

Derivation of macroweights:

- Scenario 1 Unallocated direct taxes distributed as personal income tax. Unallocated indirect taxes distributed as sales tax. Unallocated Government revenues distributed as allocated non-tax revenues. All other unallocated sources distributed as weighted average of allocated sources other than Government revenues.
- Scenario 2 Unallocated Federal Government revenues distributed as weighted average of allocated Federal Government revenues. Unallocated private financing sources distributed as weighted average of allocated private financing sources.
- Scenario 3 Unallocated financing sources distributed as weighted average of all allocated sources.

Source: Estimated from HES 1998/99.

Sources of Health Expanditures	Percentage of total health	Kakwani Index by	Macroweights		
Sources of Health Expenditures	financing	Source	Scenario 1	Scenario 2	Scenario 3
Federal Government revenues					
Direct Taxes:					
Personal income tax	4.49	0.5051	0.2782	0.1828	0.0835
Unallocated direct tax ¹	23.32				
Indirect Taxes:					
Sales tax	4.00	0.0136	0.1405	0.1629	0.0744
Unallocated indirect tax ²	10.05				
Non-tax revenue					
Allocated ³	5.07	-0.0824	0.1336	0.2065	0.0943
Unallocated ⁴	7.94				
Non-revenue receipts (unallocated)	0.34				
Social Security Organisations (allocated)	0.48	0.1279	0.0053	0.0048	0.0089
Household OOP payments for health (allocated)	33.75	0.1328	0.3756	0.3761	0.6272
Private health insurance companies (allocated)	6.01	0.2461	0.0669	0.0669	0.1116
Other private sources (unallocated)	4.55				
Total	100.00		1.0000	1.0000	1.0000
Kakwani Index for total health financing			0.1984	0.1446	0.1473

Table 8.13.Progressivity of overall health financing, Malaysia 2004

Note: ¹These include company income tax, petroleum income tax and other unspecified direct taxes.

²These include service tax, excise duties, import and export duties and other unspecified indirect taxes.

³These include household payments for licenses and permits; service fees; fines and penalties.

⁴These include 'interests and returns from investments' and other non-tax revenues.

No statistical inference has been made for Kakwani Indices for total health financing as these are computed as weighted averages.

Derivation of macroweights:

- Scenario 1 Unallocated direct taxes distributed as personal income tax. Unallocated indirect taxes distributed as sales tax. Unallocated Government revenues distributed as allocated non-tax revenues. All other unallocated sources distributed as weighted average of allocated sources other than Government revenues.
- Scenario 2 Unallocated Federal Government revenues distributed as weighted average of allocated Federal Government revenues. Unallocated private financing sources distributed as weighted average of allocated private financing sources.
- Scenario 3 Unallocated financing sources distributed as weighted average of all allocated sources.

Source: Estimated from HES 2004/05.

Progressivity estimates obtained using different incidence scenarios did not produce a consistent pattern over time (Table 8.14). The Malaysian financing system was found to have become more progressive over time under the incidence assumptions of Scenario 1 but decreased over time using the assumptions of Scenarios 2 and 3. This is mainly because of the greater emphasis given to progressivity of personal income tax, the most progressive financing source, in Scenario 1. However, closer examination of the indices in Table 8.14 shows that the differences in each incidence scenario from 1998 to 2004 were actually very small and thus, beyond the finding of a progressive financing system in Malaysia, it would not be possible to conclude with confidence whether progressivity increased or decreased with time.

Table 8.14.Progressivity of overall health financing, Malaysia, 1998 and 2004

Incidance Scanarios	Kakwani Index				
Incluence Scenarios	1998	2004	Difference		
Scenario 1	0.1859	0.1984	+0.0125		
Scenario 2	0.1571	0.1446	-0.0125		
Scenario 3	0.1561	0.1473	-0.0098		

Note:

Scenario 1 Unallocated direct taxes distributed as personal income tax. Unallocated indirect taxes distributed as sales tax. Unallocated Government revenues distributed as allocated non-tax revenues. All other unallocated sources distributed as weighted average of allocated sources other than Government revenues.

- Scenario 2 Unallocated Federal Government revenues distributed as weighted average of allocated Federal Government revenues. Unallocated private financing sources distributed as weighted average of allocated private financing sources.
- Scenario 3 Unallocated financing sources distributed as weighted average of all allocated sources.

Source: Summarised from Tables 8.12 and 8.13.

8.4 SUMMARY

The main finding in this chapter is that the health financing system in Malaysia has been found to be progressive in 1998 as well as 2004. The progressive health payment distribution in 1998 was due to the progressive distributions of five financing sources, namely personal income tax, sales tax, social security funds, household OOP health payments and private health insurance payments. The sole regressive financing source was that of non-tax Federal Government revenues. In 2004, the distributions of personal income tax, social security funds, household OOP health payments and private health insurance payments were progressive but sales taxes had a proportional distribution and non-tax revenues were regressive. Though overall it can be said that the Malaysian health financing system has been equitable since the system has been found to be progressive in 1998 and 2004, trends in progressivity over time were less easy to interpret since this analysis did not produce a consistent pattern in changes of progressivity over time using different incidence assumptions for unallocated financing sources.

In 1998 and 2004, the largest shares of the total health expenditures in the country came from the Federal Government revenues. However, health financing from this source fell slightly from 55.43 per cent in 1998 to 55.22 per cent in 2004. Of these revenues the largest health financing share came from direct taxes which increased from a 26.12 per cent share of total health expenditure in 1998 to 27.82 per cent in 2004. The sole direct tax assessed in this study had been personal income tax which has been found to be the most progressive source of health financing in this study. In addition, the distribution of personal income tax became more progressive over time from a KI of 0.4361 in 1998 to 0.5051 in 2004. However, during the same period its share of annual total health

expenditures declined from 6.29 per cent to 4.49 per cent. Indirect taxes contributed 16.14 per cent of the total health expenditures in 1998 and 14.05 percent in 2004. The indirect tax payment distribution was assessed through the examination of the distribution of sale taxes which were mildly progressive in 1998 with a KI of 0.0521 and proportional in 2004. Sales taxes made up 5.35 per cent of total health expenditures in 1998 and 4.00 per cent in 2004. Non-tax revenues contributed 12.63 per cent of total health expenditures in 1998 and 4.00 per cent in 2004. Non-tax revenues contributed 12.63 per cent of total health expenditures in 1998 and 13.01 per cent in 2004. Of the non-tax revenues, the distributions of household payments of licenses, permits, service fees, fines and financial penalties were found to be mildly regressive in both years, with a KI of - 0.0404 in 1998 and -0.0824 in 2004.

The second largest health financing source was household OOP health payments, which contributed 32.39 per cent of total health expenditures in 1998 and which increased to 33.75 per cent in 2004. In both years, the payment distribution had been found to be progressive with a similar KI value of 0.1328. The other private health financing source was that of private health insurance premiums which was found to be progressive with a KI of 0.3087 in 1998 and 0.2464 in 2004. Private health insurance premiums contributed 4.74 per cent of total health expenditures in 1998 and increased to 6.01 per cent in 2004.

Household combined social security contributions to EPF and SOCSO remained progressive throughout the period, with a KI of 0.0823 in 1998 and 0.1279 in 2004. However, social security funds only a small share of the total health expenditures, 0.32 per cent in 1998 and 0.48 per cent in 2004.

The progressivity of the six health financing sources were combined to provide an assessment of the overall financing system using a series of incidence assumptions for financing sources that could not be allocated to households. It is important to note that the Malaysian health financing system was consistently found to be progressive in all the analyses. Using incidence scenario (Scenario 1) which placed highest weightage on progressivity of personal income tax, the financing system was found to become more progressive over time from a KI of 0.1859 to 0.1984. However, using the other incidence scenarios in which less weights were given to personal income taxes (Scenarios 2 and 3), the financing system became less progressive over time. Differences in the values of the KI in each incidence scenario over time were very small.

Yu et al (2008) also examined the progressivity of the Malaysian health financing system in 1998 using the same HES 1998/99 dataset as was used in this analysis. The final conclusion reached in that study was consistent with the conclusion of this analysis, that the financing system was progressive. However, there were several differences in methodologies and information on health financing shares used in the progressivity computation between the two studies which may have led to the differences in the degree of progressivity found. In the Yu et al study (2008), progressivity of the entire financing system was based on the combination of progressivity of five financing sources namely personal income tax, sales tax, social security funds, household OOP health payments and private health insurance payments. In this analysis, six sources were examined, the five mentioned in the earlier study and also portion of the non-tax Federal Government revenues that could be allocated to households using the HES. Yu et al (2008) found that four of the five financing sources

to be progressive, the sole regressive source had been sale taxes (KI of -0.0779). In contrast, in the current analysis, five of the six financing sources were found to be progressive with the sole regressive source being for non-tax Federal Government revenues (KI=-0.0404).

Part of the differences in the value of KI for sales taxes found in both studies was due to the different measure of ATP adopted. Yu et al (2008) primarily based their conclusions on the overall financing system by using as the measure of ATP, monthly household consumption per adult equivalent using an equivalent scale that assumed a child's consumption was half that of an adult as in this current analysis but with no economies of scale within the household due to use of public goods.

Similar to the current analysis, Yu et al (2008) assessed the progressivity of the entire financing system using several incidence assumptions for the unallocated financing sources. Using similar incidence assumptions as in Scenario 1 in the current analysis, this study found that the Malaysian financing system in 1998 was progressive with a KI of 0.2166 which was close to the estimate found in this analysis (KI of 0.1859). In addition to differences in the measure of ATP and the additional source of health financing examined in this analysis namely non-tax revenues, Yu et al (2008) also based their study on unpublished 1998 health expenditure estimates which have since been revised. In particular, the shares of different private financing sources used in their study differed significantly from later published figures. In Yu et al's study (2008), the shares of total health expenditures contributed by OOP health payments and private companies were 18.11 per cent and 13.99 per cent respectively. Revised official figures for these financing components were 31.39 per cent and 5.88 per cent respectively

(Ministry of Health Malaysia, 2011) and these revised figures have been used in the present analysis.

The differences in the progressivity estimates found between the study by Yu et al (2008) and the current analysis should not detract from the important conclusion that the Malaysian health financing system in both studies had been found to be progressive. The strength of the current analysis lies in the use of consistent methodologies and estimation procedures across two national household survey datasets and additional refinements to progressivity estimates used in the earlier study. In this analysis, the progressivity of the financing system incorporated the examination of an additional financing source namely non-tax Federal Government revenues. The estimation of progressivity of sales taxes also incorporated information that households in Labuan were exempted from sales taxes, and thus, were excluded from the analysis.

CHAPTER 9 CONCLUSION

9.1 INTRODUCTION

The Malaysian health system has evolved significantly from the public sector dominated delivery system in the 1950's to a more balanced public private health care system found today. Development of these two parallel health sectors has been guided by differing goals, lure of profits in the case of the private sector and welfare based ideals of universal health coverage for its public counterpart. It has been argued that in attempting to ensure accessibility and affordability of care for all within budget constraints, the public sector may have sacrificed some aspects of quality and comprehensiveness of care leading to higher demand for private care, not just among the rich but also among the poor. Hence, this thesis has been motivated by welfare concerns arising from consumption of private health care by poor households, specifically its impact on household welfare caused by OOP payments for private care. This is an important health equity issue since this mode of health payment currently constitutes about a third of the annual total health expenditures in the country.

This concluding chapter begins with Section 9.2 which will briefly review the analytical framework and methodology used in the study. Section 9.3 presents a summary and discussion of the main study results. Policy implications of these findings on local and international health developments will be presented in Section 9.4. The chapter

concludes with Section 9.5 which discusses future research directions based on the findings of this study.

9.2 ASSESSING FAIRNESS IN FINANCING OF HEALTH CARE

The concept of fair financing of health is intimately tied to the larger concept of health equity where it is contended that poor health arising from social and economic discriminations is unfair and unjust (Braveman and Gruskin, 2003). As a consequence, society has an obligation to ensure social systems favour the disadvantaged. In the arena of health and health care, these social systems include the health care delivery and financing systems. By judicious application of John Rawls' theory of 'Justice as Fairness' (Rawls, 1971), Norman Daniels (2001) has argued for society to have a moral obligation to put in place social systems to ensure just delivery and financing of health care be based on the person's need for care and the just financing of health care be based on the person's ATP for care. Basically, this is to ensure that the health needs of poor households can be met without requiring them to fully pay for the health care needed and consumed which they may not otherwise be able to afford.

As health systems evolve over time, it would be prudent to institute regular assessments of fair financing especially if observed changes to the system have the potential to negatively impact the poor. Such has been the case for Malaysia since the private health sector expanded rapidly over the last few decades especially since the 1990's. Private financing of care, especially the OOP health payment component, has also concomitantly increased (Ministry of Health Malaysia, 2011). This thesis examined the extent of fair financing in the country using three comparable nationally representative household expenditure surveys, the HES 1993/94, 1998/99 and 2004/05, which permitted the evaluation to be conducted at three points namely 1993, 1998 and 2004. In addition to examination of fair financing at the national levels, these datasets also allowed for sub-national assessments namely by urban rural strata, by residence in the Peninsular, Sabah or Sarawak, and by the main ethnic groups in the country. The datasets contained information with which to derive household OOP payments as well as household contributions to other sources of health payments namely personal income tax, sales tax, payments towards non-tax government revenues, contributions to EPF and SOCSO, and private insurance premiums. The measure of ATP applied in all study components, with the exception of medical impoverishment because of data issues, was monthly per capita adult equivalent consumption which was derived by adjusting total household consumption with an equivalence scale which took into account household size, composition of adults and children, as well as economies of scale due to use of public goods within the household.

This equity evaluation consisted of two components. The first component is focussed on household OOP health payments. The OOP payment distributions across households of differing ATP were examined to assess the extent to which the distributions favour the rich or the poor. The payment distributions were assessed mainly using the summary measures of CI and KI. The values of CI range from -1 to 1 where a negative value in the case of OOP payments indicates payment concentration among poorer households and a positive value indicating concentration among richer households. The values of KI range from -2 to 1 where a negative value indicates a regressive payment distribution and a positive value indicates a progressive payment distribution. A proportional payment distribution has a KI of zero. Financial risk protection for health was also assessed by comparing households' OOP health payments to two payment thresholds (Wagstaff and van Doorslaer, 2003). Households were deemed to have incurred catastrophic health payments if their OOP health payments exceeded the catastrophic payment threshold, which is a predetermined share of household consumption. This study has been based mainly on the catastrophic threshold level of 10 per cent share of total household consumption. Households were deemed to have been impoverished by OOP health payments if their ATP after deducting OOP health payments fell below the official Malaysian poverty lines. Availability of data allowed financial risk protection to be assessed for the years 1993, 1998 and 2004.

The second component examined is that of progressivity in health financing. Financing of health care according to the person's ATP has been argued to mean a progressive health financing system (Wagstaff, 2007c). In this analysis, the progressivity of six health financing sources, namely personal income tax, sales tax, non-tax Federal Government revenues, social security funds, private health insurance payments and OOP health payments, have been examined singly and in combination using a summary measure of progressivity, the KI (Wagstaff and van Doorslaer, 1992). Progressivity of individual health payments were also assessed visually by comparing concentration curves of health payments and Lorenz curves of household ATP. Availability of data and information allowed progressivity to be assessed for the years 1998 and 2004.

9.3 SUMMARY AND DISCUSSION OF FINDINGS

This thesis was motivated by concerns that increasing private financing of health care, especially the OOP health payment component would likely reduce progressivity in financing and reduce financial risk protection in health over the period from 1993 to 2004. However, the study has yielded mixed results.

The average household OOP health payment burden in Malaysia has been found to be relatively small as compared to countries in the Asia Pacific region (van Doorslaer et al., 2007). The OOP payment share was only 1.41 per cent of household consumption in 1993, with a slight increase to 1.46 per cent in 1998 before decreasing to 1.13 per cent in 2004 (Table 5.4). Other equity enhancing findings included payment distributions which were concentrated among richer households and payment distributions which were progressive (Table 5.5). In addition to these, levels of catastrophic health payments were found to be low with less than two per cent of the population who incurred OOP payments exceeding 10 per cent of total household consumption yearly and these levels decreased from 1.98 per cent in 1993 to 1.95 per cent in 1998 and 1.44 per cent in 2004 (Table 6.3). Moreover those who did incur catastrophic payments were concentrated among the rich. Some households had been impoverished by OOP payments but the numbers were small. A total of 40,392 persons or 0.24 per cent of the population had been impoverished by OOP health payments in 1993, 60,660 persons or 0.35 per cent of the population in 1998 and 29,318 persons or 0.12 per cent of the population in 2004 (Table 7.4). The intensity of poverty caused by health payments were even smaller where those who were impoverished saw their levels of consumption dropping to an average RM0.08 below the poverty line in 1993, RM0.08 in 1998, and RM0.06 in 2004 (Table 7.5).

The progressivity of the small OOP payment burdens, low levels of both catastrophic health payments and medical impoverishment lend support to the conclusions that OOP health payments did not constitute a major financial burden for the average Malaysian household and that these households had been provided with good financial risk protection for health.

In the context of Malaysia, the finding that the poor are being spared high OOP payment burdens can be partially attributed to the extensive network of public health facilities, which provides a wide range of low priced health care services to those in need. Direct household OOP health payments in Malaysia have been found to be almost exclusively for the purchase of private care (Table 5.12). Thus, OOP payment distributions favouring richer households indicate that in general private care has been mainly purchased and consumed by the rich, a finding which should not be surprising since these households are more likely to be able to afford such care compared to poorer ones. However, the overall household OOP payment shares for private care have actually fallen from 1.34 per cent of total household consumption in 1993 to 1.02 per cent in 2004, a decrease of 23.88 per cent (Table 5.12). A possible explanation for this finding in the face of the increasing availability of private health care during this time may be that even the rich could have switched preference from private to public care leading to the observed slight increases in the average household OOP payment shares for public care from 0.07 per cent of total household consumption in 1993 to 0.11 per cent in 2004 (Table 5.12). The lucrative private health industry could then be partly supported by increasing influx of foreign patients.

Despite the many findings suggestive of equitable distributions of OOP health payments in Malaysia, there were some indications that these equitable features have become somewhat diminished with the passing of time.

More than half of the population each year incurred OOP health payments and these population shares have been increasing over the years. In 1993, 59.25 per cent of the population made OOP payments for health care (Table 5.3). In 1998 and 2004, these population shares had increased to 60.53 per cent and 68.21 per cent respectively. Of greater equity concern is that these increases affected the poorest household quintile to a higher degree than the richest quintile. Among those in the poorest quintile, the population shares which made OOP payments increased from 45.62 per cent in 1993 to 62.87 per cent in 2004, an increase of 37.81 per cent. In contrast, among those in the richest quintile, the population shares increased from 68.87 per cent in 1993 to 75.56 per cent in 2004, an increase of only 9.71 per cent. Moreover, although OOP payment distributions remained consistently concentrated among the richer households, poorer households appeared to bear greater payment burdens over time. In 1993, the CI for OOP payments was 0.5518 and this decreased to 0.5060 in 1998 and 0.5034 in 2004 (Table 5.5). The degree of progressivity in payment distributions also decreased over the years from a progressive distribution with a KI of 0.1794 in 1993 to 0.1328 in both 1998 and 2004.

Although levels of catastrophic health payments decreased over time and were found to be consistently concentrated among the rich, more poor households appeared to incur catastrophic payments over time. In 1993, the CI for catastrophic headcounts at the threshold of 10 per cent total household consumption was 0.3491 and this decreased to 0.3247 in 1998 and 0.2785 in 2004 (Table 6.3). Due to the relatively low incidence levels, intensity levels in general were also found to be low. However, the findings of low intensity may not provide an accurate picture of the impact on household wellbeing. Conditional on people who actually incurred catastrophic payments, the intensity of catastrophic payments was manifold higher than that for the average person in the population.

The fees for public health services have hardly changed over the last few decades and mechanisms to waive fees for the poor are present in the public sector. Thus, the use of the low priced public health care cannot fully explain the increasing OOP payment burden faced by the poor. It must then be surmised that over the period of time studied, the poor had increasingly turned to private health care to satisfy their health needs. Indeed, this study has found that though OOP payments for private health care remained consistently concentrated among the rich and were progressive, both the degree of concentration among the rich and progressivity decreased with time. In 1993 the OOP payment CI for private care was 0.5620 and the KI was 0.1896 (Table 5.13). By 2004 the CI had decreased to 0.4899 and KI to 0.1193. There could be many possible explanations for this observed phenomenon.

Since the 1960's, there has been in place a government policy of giving priority to developing public health facilities, especially clinics, in the rural areas which has left a void for public sector primary care services in the urban areas (Jayesuria, 1967, Malaysia, 2001). In 1995, the public clinic to rural population ratio of 1:12,998 indicated a much higher coverage of clinics in rural areas as compared to urban areas where the public clinic to urban population ratio was only 1:22,909 (Malaysia, 2001).

Population growth compounded by increased urbanisation resulted in greater disparities in urban rural distribution of health clinics favouring the rural areas. By 2000, the public clinic to rural population ratio was 1:17,506 which though was lower than that five years earlier was still much better than the public clinic to urban population ratio of 1:30,797 (Malaysia, 2006). This disparity increased over the years such that by 2005, the public clinic to rural population ratio was 1:19,520 and the public clinic to urban population ratio was 1:35,638 (Malaysia, 2006). In addition to the public clinics which are essentially health centres manned by doctors, nurses and other healthcare professionals, an additional mode of delivery of public health care in the rural areas is small community clinics where community health nurses provide care in clinics established close to rural settlements. In 2005, the public community clinic to rural population ratio was 1:5,085. Until 2009, there were no public health facilities comparable to community clinics in the urban areas.

As a result of this increasing urban rural imbalance, urban households, even the poorer ones, may have felt compelled to utilise services provided by private clinics. This supposition is supported by the findings that on average, the per capita OOP health payments in the urban areas were consistently about twice that in the rural areas (Table 5.8). Consequently, levels of catastrophic health payments were higher in urban areas than in rural areas (Table 6.8). Moreover, household OOP payment shares for non-hospital based care were the largest component of total household OOP health payments in 1993 and 1998 and second largest component in 2004 (Table 5.14). The payment distributions for non-hospital based care also became less concentrated among the rich over time with CI decreasing from 0.4948 in 1993/98 to 0.3706 in 2004 (Table 5.15) and the distribution which was progressive with a KI of 0.1224 in 1993 became
proportional in 2004 (Table 5.15). There is now official recognition that affordable public primary care may not be readily available to the urban population, especially the poor. A policy was made in 2009 to establish a new category of public clinics, referred to as 1Malaysia clinics, specifically to target the needs of the urban poor⁵⁴. These new clinics are staffed not by doctors but by medical assistants, a category of paramedical staff trained to provide basic medical care. And to allow for greater accessibility to the public, the clinics are located in housing estates and operate for longer hours than the normal public clinics. The fee for a consultation and medication at these clinics is RM 1, similar to other public clinics.

The higher concentration of public clinics in the rural areas partially explains why the rural populations appeared to enjoy higher financial risk protection than those living in the urban areas. Financial risk protection for health for both the rural and urban areas did deteriorate over time. In both areas, OOP payments became less concentrated among the rich and payment distributions less progressive (Table 5.9). Catastrophic incidence and intensity decreased but also became less concentrated among the rich (Tables 6.8 and 6.9). On the other hand, medical impoverishment declined for both the urban and rural population which may be a reflection of the general decline in the prepayment poverty incidence in the country (Table 7.8). However, the rural areas appeared to fare slightly better in comparison to the urban areas. The rural populations had lower OOP payments (Tables 6.8 and 6.9). Although the OOP payments in the rural areas were less concentrated among the rich and for the payment (Tables 6.8 and 6.9). Although the OOP payments in the rural areas were less concentrated among the rich and the payment distributions were

⁵⁴ The announcement was made in the tabling of the 2010 National Budget by the Prime Minister on 23rd October 2009.

less progressive than those in the urban areas (Table 5.9), it must be borne in mind that there was less disparity in living standards among the rural populations. The only measure of financial risk protection that did not favour the rural population was that of medical impoverishment where health payments appeared to impoverish higher proportions of the rural population than the urban population (Table 7.8). This finding may be related to the higher levels of pre-payment poverty incidence in the rural areas. However, the levels of impoverishment decreased over the years from 0.13 per cent of the rural population (24,552 persons) in 1993 to 0.11 per cent in 2004 (9,682 persons). Moreover, the depth of poverty caused by OOP payments remained small – 0.13 per cent of the poverty line in 1993 and 0.10 per cent in 2004 (table 7.9).

The increased need to purchase health care from private clinics by the urban poor may not be the only explanation for the increasing OOP payment burden among the poor over the years. In 1993 and 1998, OOP payments for non-hospital based care made up the largest component of household OOP payments (Table 5.14). However, in 2004 OOP payments shares for pharmaceuticals obtained from private pharmacies had overtaken shares for non-hospital based care. The OOP payment distributions for purchase of pharmaceuticals had become less concentrated among the rich over the years, exhibiting decreasing CI values from 0.4766 in 1993 to 0.4656 in 1998 and 0.4528 in 2004 (Table 5.15). The payment distribution also became less progressive over the years from a KI of 0.1043 in 1993 to a KI of 0.0925 in 1998 and finally to a proportional distribution in 2004.

Most of the medicines dispensed from public hospitals or clinics are provided free. However, there is evidence to suggest that the availability of these medicines may be poor in public facilities leading to the need to purchase them privately. Babar et al (2007), examined issues related to increasing costs of medicines in Malaysia. The authors conducted a survey of the availability, prices and affordability of medicines in private and public health facilities in Malaysia including 20 public sector hospitals. The study concluded that the availability of medicines was low in the public hospitals even for medicines listed in the National Essential Drug List⁵⁵ and the MOH Drug Formulary⁵⁶ and that this may have implications on patients' access to these medicines since prices for the medicines purchased from private pharmacies were found to be high. The authors noted that a month's supply of common medicines to treat high blood pressure purchased from private pharmacies may cost up to a month's wages for the lowest paid public sector worker in Malaysia. The growing payment burden for purchase of pharmaceuticals among the poor over the years may thus be related to poor availability of free drugs in public health facilities.

One of the surprising observations from this study has been the finding that people impoverished by health payments, as well as those in the poorest household quintile who had incurred catastrophic health payments, were paying for private health care, mainly for private non-hospital based care and for purchase of pharmaceutical products from private pharmacies in 2004 (Tables 6.12 and 6.13 and Figure 7.2), despite the presence of a highly subsidised public system that purportedly serves as a safety net for

⁵⁵ The National Essential Drug List is a list of drugs required for the treatment and management of locally prevalent disease conditions and health needs. The Malaysia list recommends drugs for use in both public and private health facilities. Information available at

http://www.pharmacy.gov.my/index.cfm?&menuid=6&lang=EN.

⁵⁶ The MOH Drug Formulary is a list of drugs which have been approved for use in MOH health facilities and which are usually purchased centrally and provided free to patients. Information available at http://www.pharmacy.gov.my/index.cfm?menuid=7

vulnerable groups in Malaysia including the poor (Rohaizat, 2004). These findings provide more evidence to support the impression that there may be deficiencies within the public system to cover such services for the poor.

As is evident from the description of differences in urban rural distributions in OOP health payments, the general picture of deterioration in financial risk protection for health over the years was not uniformly observed among the different subpopulations examined in this study. Some subpopulations fared better over time, while some did worse.

Among the three regions studied, financial risk protection for health in Sarawak appeared to have improved over time from 1993 to 2004. In contrast, risk protection in the Peninsular and Sabah deteriorated over time, the rate of deterioration was higher in Sabah compared to the Peninsular. The OOP payments were concentrated among the rich in all three regions in 1993 (Table 5.7). However from 1993 to 2004, payments became more concentrated among the rich in Sarawak, less concentrated among rich in the Peninsular and Sabah, but more so in Sabah. The payment distributions were progressive in all regions in 1993 (Table 5.7). Over time, the distribution became more progressive in Sarawak, less progressive in the Peninsular and became proportional in Sabah. The incidence and intensity of catastrophic health payments decreased over time for Sarawak but more significant than this was that these catastrophic impact in the Peninsular also decreased over time but became less concentrated among the rich. In Sabah, there were slight increases in incidence and intensity of catastrophic impact over time and both measures which started off being concentrated among the rich in 1993

had balanced distributions by 2004. Unlike the other two regions, health payments did not impoverish any households in Sarawak in 1993 and 2004 (Table 7.6). In 1998, only an estimated 0.40 per cent of the Sarawak population or 6,039 persons had been impoverished. In contrast, an estimated 0.24 per cent of the population in the Peninsular or 33,696 persons had been impoverished in 1993, 0.23 per cent or 33,218 persons in 1998 and 0.12 per cent or 24,020 persons in 2004. An estimated 0.45 per cent of the population in Sabah or 6,696 persons had been impoverished in 1993, 1.38 per cent or 21,403 persons in 1998 and 0.18 per cent or 5,298 persons in 2004.

Sarawak shares with her close neighbour, Sabah, certain socio-demographic characteristics, which normally would have given portend of poor health system performance. These two states located on the island of Borneo have largely rural populations made up of indigenous tribes sparsely distributed in the densely forested interiors of the land. Geographical access to these groups of people is an issue. The main health care provider is the MOH with a network of hospitals, mobile as well as static clinics but even so, patients may have to travel long distances to obtain health care. The private health sectors in both states are small and located mainly in the larger towns. However, it would seem that here ends the similarities between the two states, with relation to health care.

Among the three regions, Sarawak is the richest. Indeed, this state is one of the richest states in the country due to income generated from her abundant natural resources including petroleum and timber. And as was described earlier, the Sarawak population appeared to enjoy the highest level of financial protection for health and this protection seemed to be improving over time. On the other hand Sabah stands out as the poorest region with the lowest household living standards, the highest disparity in living standards and the highest poverty rates. The financial risk protection for health among the Sabah population also appeared to have declined the most among the three regions in Malaysia. In 1993, Sabah had the lowest OOP payment burdens (Table 5.6), the most progressive payment distribution (Table 5.7) with the lowest catastrophic health payment impacts (Tables 6.6 and 6.7). Whilst the payment burden declined over time from 1993 to 2004 for the Peninsular and Sarawak, the OOP payment burden in Sabah in 2004 did not differ much from that in 1993 such that Sabah no longer had the lowest payment burden that year having been overtaken by Sarawak. More important than the lack of decline in payment burden is the finding that the OOP payment distributions in Sabah for the later years of 1998 and 2004 were no longer progressive but proportional. In respect of catastrophic impact, incidence and intensity declined over time for the Peninsular and Sarawak but increased slightly in Sabah. Thus, though Sabah still had the lowest catastrophic impact among the three regions in 2004, the differentials between Sabah and the other two regions narrowed considerably. To top it all, the catastrophic impact which was found to be concentrated among the rich in 1993 were no longer so in Sabah in the later two years. The situation in Sabah cannot be dismissed by reason that the 1993 baseline findings of OOP payment burden and catastrophic impact were so low signifying extremely good financial risk protection such that further significant improvements could not be achieved. Medical impoverishment in Sabah remained the highest in Malaysia throughout the period 1993 to 2004 though these figures also showed a decline from 1993 to 2004.

What could explain the stark differences in levels of financial protection for health between Sarawak and Sabah? Khoo (2007) has argued that Sarawak's focus on innovations in primary health care delivery of preventive health services is the main reason for the good performance of the state's health system. These innovations included a policy for the state to absorb the cost of transporting patients from the interior to urban health facilities such as through the use of the state provided flying doctor service. In addition to this, mobile clinic services have been instituted to bring health care to the remote areas in the state. Other innovations include providing mothers and their children with home-based health cards in which their medical histories are recorded. Possession of these cards by the household facilitated continuity of care accessed from the public health system for the highly mobile indigenous rural communities. Khoo (2007) further noted that private health care located in urban areas is mainly purchased by the rich. This description of the Sarawak public health system suggests that the poor may have found public care acceptable and available and that it is the rich who opt out of the public system to purchase the higher priced private care. These may provide some explanations for the finding of improving financial risk protection for health in Sarawak.

In contrast to Sarawak, one of the main social challenges faced by Sabah has been the issue of illegal immigration, mainly from the Philippines and Indonesia, which has caused the population to increase at an average annual rate of 4.0 per cent from 1970 to 1991 as compared to 2.6 per cent and 2.9 per cent annually for the Peninsular and Sarawak respectively (Economic Planning Unit Malaysia and United Nations Country Team Malaysia, 2011). It is a possibility that these high numbers of immigrants in the state could have overburdened the public health system forcing households, even poorer ones, to shift demand from public to the private sector. An indication of the numbers of immigrants who make use of the public health services can be obtained from

information of the coverage of the third dose of Diphtheria Pertussis Tetanus (DPT) childhood vaccination rates in the state. In 1996, DPT vaccination rates in Sabah was noted to be above 100 per cent when it was recorded that 110.4 per cent of children aged about three months received the vaccination. As the denominator in the estimation of vaccination rates is the total number of registered births in the year, the higher than 100 per cent vaccination rate is reflective of the high numbers of immigrants who received the vaccination (Abu Bakar and Jegathesan, n.d.). In comparison, the DPT vaccination rates for the same year in the Peninsular and Sarawak were 91.7 per cent and 98.3 per cent respectively.

Among the four main ethnic groups in the country, the financial risk protection of health among the Chinese and the Malays warrant closer attention than the rest because the Chinese have the highest living standards and are mainly urban dwellers, and the Malays form the largest population group in the country and are mainly rural dwellers. Chinese households have the highest OOP payment burdens in the country followed by the Indians, Malays and non-Malay Bumiputeras (Table 5.10). The OOP payments among the Chinese were concentrated among the rich but interestingly, became less concentrated among the rich from 1993 to 2004 with decreasing CIs from 0.5059 to In contrast to the Chinese, the OOP payments in Malay 0.4663 (Table 5.11). households became more concentrated among the rich over time, a CI of 0.4223 in 1993 to a CI of 0.4633 in 2004. In 1993, the OOP payment distributions for the Chinese as well as the Malays were progressive but the distribution for the Chinese with its KI of 0.1644, was more progressive than that for the Malays with its KI of 0.0760. However, in both instances, the OOP payment distribution became proportional by 2004. In general, there was a gradual decline in the incidence and intensity catastrophic payment among the Chinese but these measures became less concentrated among the rich over time such that by 2004 both measures were evenly balanced between the rich and the poor (Table 6.10). In contrast among Malay households, incidence and intensity of catastrophic payments generally increased from 1993 to 2004 but both measures became more concentrated among the rich. Because of low pre-payment poverty incidence, medical impoverishment among Chinese households had been minimal. In 1998 and 2004, OOP health payments did not impoverish any Chinese person (Table 7.10). Though some Chinese persons had been impoverished in 1993, this affected only 0.04 per cent of the Chinese population or 1,728 persons. The pre-payment poverty incidence among the Malays is much higher than for the Chinese and consequently incidence of medical impoverishment was higher. A total of 27,828 persons or 0.32 per cent of the Malay population had been impoverished in 1993, 31,814 persons or 0.34 per cent in 1998 and 23,554 persons or 0.17 per cent in 2004. This general decline in the incidence of poverty caused by OOP health payments for the Malays occurred in parallel to the decline in pre-payment poverty incidence rates.

The OOP payment burden was the highest among the Chinese and likewise the levels of catastrophic payments were also highest in this ethnic group. Previous studies have noted that the Chinese preferred to avail themselves of private health care. In the 1996 NHMS II study, 50.9 per cent of all admissions to hospitals by the Chinese were to private hospitals (Institute for Public Health, 1997). This is in contrast to 24.2 per cent of all Indian admissions, 12.3 per cent of all Malay admissions and 3.5 per cent of all non-Malay Bumiputera admissions. The Chinese preference for private health facilities continued in the 2006 NHMS III study where about 28.4 per cent of all Chinese admissions were to private hospitals, a much higher rate than the Malays (Institute for

Public Health, 2008b). Admissions to private hospitals made up only 11.3 per cent of all Malay admissions. It is not only in hospital care that the Chinese prefer private facilities. In the same NHMS III study, it was found that 80.6 per cent of all clinic visits made by the Chinese were to private clinics as compared to 60.3 per cent for the Malays. The preference for private care as shown by the Chinese could possibly be the explanation for the higher impact of catastrophic payments for this particular ethnic group as compared to the Malays. Despite the higher OOP payment burden among the Chinese, medical impoverishment levels were lower in this ethnic group when compared to the Malays probably due to higher living standards among the Chinese.

Thus far, the results of this study have shown that OOP health payments in Malaysia favour the rich and are progressive, though these features have decreased over the years. Since OOP health payments made up 32.39 per cent of the total health expenditures in the country in 1998 and 33.75 per cent in 2004 (Table 8.3), the progressivity of this source of financing greatly influenced the distribution of the entire financing system in Malaysia. In addition to OOP health payments, the progressivity analysis of the Malaysian health financing system depended on direct assessment of the progressivity of five other health financing sources, namely personal income tax, sales tax, non-tax Federal Government revenues, social security funds and private health insurance payments. In 1998 the distribution of all these health financing sources had been found to be progressive with the exception of non-tax Federal Government revenues which were regressive. In 2004, the distributions of personal income tax, social security funds, household OOP health payments and private health insurance payments were progressive but sales taxes had a proportional distribution and non-tax Federal Government revenues were again regressive.

Federal Government revenues, made up of both tax and non tax-based sources, were the largest single health financing source in the country. In 1998 about 55.43 per cent of total health financing in Malaysia came from this source (Table 8.3). In 2004, the figure was slightly lower, 55.22 per cent. Direct taxes made up the largest component of government revenues and contributed 26.12 per cent of the total health expenditures in 1998 and 27.82 per cent in 2004. The only component of direct taxes that could be assessed directly for this analysis was personal income tax. The personal income tax distributions were found to be the most progressive health financing source in Malaysia and the distributions also became more progressive from 1998 to 2004 (Tables 8.7 and 8.8). However, over this same period, it was noted that the income tax base appeared to have narrowed with fewer households paying income taxes (Table 8.4). Personal income taxes, as a whole, contributed relatively small shares to total health financing compared to other components of direct taxes such as company income tax and petroleum income tax.

Indirect taxes made a smaller contribution towards the financing of health care compared to direct taxes. In 1998, the share of total health expenditures from indirect taxes came to 16.14 per cent and in 2004, the share was lower at 14.05 per cent (Table 8.3). Of the many components of indirect taxes, only sales taxes could be assessed directly in this analysis. The distribution of sales taxes was found to be only slightly progressive in 1998 and proportional in 2004 (Tables 8.7 and 8.8). Taxes based on consumption tend to be regressive or less progressive than direct taxes. The finding that sales taxes were not regressive in Malaysia may be attributed to the tax structure which included features that are protective of the poor such as the tax exemption of many basic

food items such as rice. The lack of such exemptions for the poor for some non-tax government revenues such as the payment of licenses, services, fines and other penalties was the probable reason why there was a regressive distribution for these sources of government revenue in 1998 and 2004 (Tables 8.7 and 8.8).

The social security funds in Malaysia, EPF and SOCSO, do not play a major role in financing health care in the country. The combined contributions of both to total health expenditures were only 0.32 per cent in 1998 and 0.48 per cent in 2004 (Table 8.3). However, these social security funds were found to have a progressive distribution in health financing in both years, more progressive in 2004 than 1998 (Table 8.9). Monthly contributions to the EPF by its members are as a fixed proportion to their salaries with no ceiling cap. The EPF members are also likely to be formal sector employees. In contrast, monthly financial contributions from SOCSO members are not fixed but dependent on a sliding scale based on their wages and membership to SOCSO are for those formal sector workers who earn a relatively lower salary, below RM3,5000 a month. Assessed individually, EPF contributions will likely assume a proportional distribution and that of SOCSO will more likely be a progressive one. Thus, the progressive distribution of the combined EPF and SOCSO funds is likely a reflection of the SOCSO payment distribution.

The two private sources of health financing assessed in this study were OOP health payments and private health insurance payments. Both were found to be progressive (Tables 8.10 and 8.11). The OOP health payments became less concentrated among the rich from 1998 to 2004 but the level of progressivity as indicated by the value of the KI did not change over this period. In contrast the distribution of private health insurance

payments became less progressive from 1998 to 2004. Private health insurance payments became less concentrated among the better-offs indicating that private health insurance was increasingly being taken up by the less well off. Private health insurance in Malaysia is usually bought as a supplementary cover to public health care or in other words purchase of private insurance is mainly to enable access to private health care. Expansion of private health insurance to the less well off over time lends some support to the contention that private health sector is becoming more attractive to those who are less well off probably due to issues with quality of public sector care.

Assessment of the progressivity of the entire Malaysian health financing system was accomplished by combining the progressivity of the six health financing sources discussed namely, personal income taxes, sales taxes, non-tax Federal Government revenues, social security funds, OOP health payments and private insurance payments. The level of progressivity of the system depends on the progressivity of individual health financing source as well as the magnitude of its share in the overall health financing in the country. In addition, this study applied several incidence assumptions to other sources of health financing that could not be assessed such as company and petroleum income taxes. Using consistent sets of incidence assumptions over time, the Malaysia health financing system was first and foremost found to be progressive but it was not possible to determine with certainty whether progressivity increased or decreased over time (Table 8.14). Using the incidence assumption in which the distribution of all financing sources that could not be assessed were assumed to be distributed as those sources that could, the KI decreased slightly from 0.1561 in 1998 to The finding of decreasing progressivity is partially due to the 0.1473 in 2004. decreasing progressivity of private health insurance over time in parallel with increasing private insurance shares of total health expenditures. The distribution of sales taxes also appeared to favour the less well off over time though contribution to total health expenditures decreased slightly over time. In addition, poorer households have also been increasingly burdened by payments of licenses, permits, service fees, fines and other financial penalties from 1998 to 2004. However, using the incidence assumption in which the distribution of direct taxes were assumed to be distributed as personal income tax, the most progressive financing source in the country, the KI increased slightly from 0.1859 in 1998 to 0.1984 in 2004. This finding was mainly due to increasing progressivity of personal income taxes and increasing health financing contributions made by direct taxes from 1998 to 2004.

9.4 SIGNIFICANCE OF FINDINGS

The findings of this study have implications for health care in Malaysia. They also provide lessons for other countries where the balance of public and private provision of care is changing by shedding some light on the linkage between health financing systems and fairness in financing of health care.

9.4.1 Policy Lessons for Malaysia

This study has shown that the Malaysian public health system which provides wide geographical accessibility to low priced relatively comprehensive health care for all in the country has ensured fair financing in health despite growing presence of the private sector. However reassuring this finding may be, the understanding of fair financing in Malaysia cannot just end here because societal acceptance of the current situation as equitable and just also implies acceptance as equitable and just of the current two-tier health delivery system - a public health system which provides lower quality care for the poor and a better quality private health system catering mainly to the demands of the rich. The crux of the issue here is the question of what should be included in the package of health care services which is understood to be the entitlement of all in Malaysia. If it can be shown that the public health system had indeed made such a package universally available then it can be argued that the current two-tier system is equitable since the private system is merely providing services that are over and above the agreed upon minimum package already available to all. Unfortunately, the contents of this 'package of services' have not been openly debated in Malaysia.

In a sense the public health system has been taken for granted by most in the country and the general expectation is that all 'necessary' health care services should be provided at minimal cost to all. This has led to calls for inclusion into the public sector of new technologies initially made available in the private sector despite high costs attached. The most recent example of this would be the provision of blood ABO incompatible kidney transplants through the public health sector a year after such procedures had been made available in the private sector (The Star, 16th July 2011, The New Straits Times, 28th July 2012). These transplants require a regime of anti-rejection drugs that are more expensive than that needed for a normally undertaken ABO compatible transplant. Unless and until there is public debate and consensus is reached as to the scope and contents of this public package of health care services to be made universally available, it will be inevitable that the increasingly well informed Malaysian society will clamour for more and new subsidised health care services. However aside from the arguments of whether new expensive technologies should be subsidised, it can be argued that there have been genuine quality shortages in some areas of public provision of care. These include the lack of even generic medicines for treatment of common diseases like hypertension as was found in the study by Babar et al (2007) and long waiting times for clinic consultations as was cited by NHMS II respondents as the reason for bypassing of public clinics for private ones (Institute for Public Health, 1997). As have been shown in this study on Malaysia, over time quality differentials between the public and private health sectors may increasingly compel poorer households to purchase higher priced private care even at the risk of exposing themselves to financial catastrophe. It can be argued that part of the deterioration in service quality, specifically those relating to the higher levels of skilled health care professionals in the private sector can be traced to the increasingly vibrant private sector in part facilitated by the government encouragement of health tourism in the country. If left unchecked, it is possible distributions of private financing will increasing favour the poor leading to inequitable financing in the country. However, it is also recognised that levelling the field between public and private health sectors would require substantial financial commitments from the Government which may be beyond the capacity of Malaysia's taxation system to cope which leads to a search for new financing sources beyond that traditionally found in the country.

The Government of Malaysia had raised concerns as early as the 1980's that over reliance on taxation to finance adequate health care services was not a sustainable proposition. In the Fifth Malaysia Plan which covered the years 1986 to 1990, mention was made of a commissioned study conducted in 1985, the HSFS, to identify measures to optimise utilisation of available health resources as well as to identify the most

appropriate health financing method (Malaysia, 1986). The HSFS provided wide ranging recommendations to improve the health system. Of these, the main suggestions focussing on the financing of care would be discussed here.

The HSFS noted on the one hand, increasing demand for public health care and on the other, unregulated rapid expansion of the private health sector especially private hospitals (Westinghouse Health Systems, 1985). The uncontrolled development of the private sector had led to geographical mal-distribution of private health care resources favouring urban areas complicated by migration of health care professionals from the public to private sector. Set in the 1980's, the era of emerging privatisation of public services in the country, the HSFS did not entertain the option of curtailing the commercialisation of health care. On the contrary, further expansion of the private sector was accepted as a natural progression of events. However, the study pointed out that private and public provision of health care had to be coordinated well to ensure optimal use of resources. To accomplish this task and to provide additional funds for improvement of the public health sector, the HSFS recommended the establishment of a social health insurance fund as a new financing resource for health care which would lessen reliance on taxation. This fund would pay for a defined package of health care services provided to all Malaysians and legal residents by both public and private sector health care providers. Contributions to the health fund were to be obtained from the formally employed and their employers through payroll deduction, contributions set as a percentage of income from those who were not formally employed and the government to contribute on behalf of those who were unable to pay using funds from general taxation.

There are some merits to the recommendation of a social health insurance system for Malaysia especially in view of the relentless growth of private health sector. This study has shown that the Malaysian health financing system has been progressive and this was mainly as a result of the highly progressive distributions of personal income tax, private health insurance payments and to a lesser extent OOP payments. In order to increase progressivity of the system and along with that to improve fair financing in the country, simplistically it can be argued that health care should then be increasingly reliant on these progressive financing sources. In the case of personal income taxes, the issues as were brought up by Salleh (1977) included evasion of taxes and the rather generous tax exemptions in the current Malaysian tax schedule. These may then restrict the extent to which income tax can become a larger source of health financing. Private health insurance has traditionally been more likely the choice of the rich as a vehicle to enable greater access to private care. This explains the progressive nature of its distribution and its rather small share in total health financing. However, as was seen in this study the increase in private health insurance shares from 1998 to 2004 occurred as a result of uptake of insurance among poorer households leading to higher payment burdens among the poor and reduced progressivity in distributions. Subsequently, private health insurance did not contribute to a higher degree of progressivity in overall health financing despite higher payment shares. Moreover private insurance funds are not channelled to the public sector and thus play a minor role if at all in efforts to improve this sector. Other than personal income tax and private health insurance payments, the other progressive financing source was OOP payments. Despite the overall situation of fair financing as shown in this study, increasing the quantum of OOP financing of health care may at the same time affect the payment distribution. Thus the potential negative welfare impact on fair financing still exists and the option of increasing OOP payments to finance health care should still be treated with caution.

In a health system dominated by private sector providers, the existence of government controlled social insurance fund to reimburse health care consumed can supplement and strengthen existing regulation of the private sector. Social health insurance can thus be thought of as an additional source of funding with less equity issues as say OOP payments and can be used to improve public delivery of care without excessive government investments. However, it must be borne in mind that majority of the countries with social health insurance systems have regressive health financing due in part to income ceilings to contribution rates, fixed co-payment rates leading to large OOP payment shares and limited benefit packages (Wagstaff and van Doorslaer, 1992, Wagstaff et al., 1999, O'Donnell et al., 2008a). Yu et al (2011) used their earlier estimates on progressivity in health financing in Malaysia to show that instead of a flat contribution rate, a social insurance fund with higher rates for high income households and lower rates for low income households can ensure that the Malaysian health financing system can be made nearly as progressive as that of the current mainly taxation-based health system.

Three decades after the HSFS, the public health delivery and financing system has largely remained unchanged. However, partially due to the expansion of the private health sector, there has been a recent revival of government interest in reforming the Malaysian healthcare system (The Star, 3rd December 2011). The MOH concept paper on the new healthcare system, to be named 1Care for 1Malaysia, stated several reasons for the current need for change of which the foremost were "*the rapid rise in health*

care spending and the high out-of-pocket proportion of this spending"⁵⁷ (Ministry of Health Malaysia, 2009a). The MOH had been concerned that the high OOP payment shares would reduce financial risk protection for health but as has been shown in this study, this concern is unwarranted in the current context. The new healthcare financing model proposed under 1Care is almost identical to the one proposed by the HSFS namely that of a single-payer social health insurance fund made up of contributions from the employed, employers and the government (Westinghouse Health Systems, 1985, Ministry of Health Malaysia, 2009a). At this point in time it is not certain whether this new social health insurance scheme would prove to be more equitable than the current taxation-based one as this is heavily dependent on the contribution rates, copayments and benefit entitlements which have not been released. However as has been found in this study, fair financing of health in Malaysia would likely deteriorate further if improvements are not made to the existing public-private health system.

⁵⁷ The statistics that accompanied this statement showed that total health expenditures in the country increased from 3.0 per cent of GDP in 1997 to 5.7 per cent in 2007. The public expenditures shares predominating from 1997 to 2004 but from then on private expenditures overtook public expenditures such that by 2007, public health expenditures were estimated to be 2.1 per cent of GDP while private shares were higher at 2.6 per cent. In 2006, the OOP payment share of total health expenditures was depicted to be 40 per cent. These figures had been based on the MNHA estimates made before 2011. As was discussed in Section 3.3.2 of Chapter 3, revised health expenditure estimates showed that though both private and public expenditures increased from 1997 to 2009, public health expenditures predominated throughout this period. However, although the revised 2006 OOP payment shares were lower than the 40 per cent quoted in the 1Care concept paper, the revised figure of 35.42 per cent was still high and justified the initial equity concerns raised by MOH.

9.4.2 Study Implications for Other Countries

Findings from this study have also contributed towards the theoretical body of knowledge especially the understanding between the balance of public-private provision and financing of health care which lead to two main policy lessons for countries besides Malaysia.

The situation in Malaysia goes against the prevailing understanding of the relationship between levels of private health financing, especially OOP payments, and levels of risk protection. Xu et al (2007) in their study of 89 countries noted a positive correlation between levels of household financial catastrophe and levels of OOP payments in a country and later this was further refined to a general policy advice to countries to lower OOP payment shares to below 15 to 20 per cent of total heath expenditures to ensure low household levels of both catastrophic health payments and medical impoverishments (Xu et al., 2010). However, this study on Malaysia has shown that large OOP payments shares of total health expenditures do not necessarily translate to large welfare impact on the average household especially if OOP payments for private care were mainly a matter of personal choice for those who could afford such care and public sector health subsidies are targeted to the poor⁵⁸ (Meerman, 1979, Hammer et al., 1995, O'Donnell et al., 2007). In contrast to public funds for health, private financing,

⁵⁸ In the case of Malaysia, public health subsidies have been well targeted to the poor where it has been shown that the poorest 20 per cent of the population received more than their population share of subsidies. In 1974, the poorest 20 per cent of the population received 21.16 per cent of total health subsidies whilst the richest 20 per cent received only 17.11 per cent (Meerman, 1979). In 1984, the subsidy shares received by the poorest population quintile increased to about 30.00 per cent and the shares received by the richest reduced to about 10.00 per cent (Hammer et al, 1995). In 1996, the poorest quintile received 22.95 per cent of total subsidies while overall the distribution of public subsidies for health was found to be concentrated among poorer persons (CI of -0.0807) and was regressive (KI of - 0.4493) (O'Donnell et al, 2007).

including OOP payments, was mainly for purchase of private care and thus in most instances, OOP payments for private care were likely to be a matter of personal choice for those who could afford such care. Thus the main theoretical contribution of this study is that it is not so much the quantum of OOP payments that matters but rather the distribution of payments.

The extensive public health sector in Malaysia is highly subsidised through substantial government funding sourced from general taxation. As was discussed in Section 2.5.3 of Chapter 2, taxation draws its fair financing enhancing strengths from its features of pre-payment and risk pooling. Evidence of good financial risk protection for health generated from this study thus lends some empirical support to the theoretical argument that the pre-payment and risk pooling features are equity enhancing.

9.5 LIMITATIONS OF STUDY AND FUTURE RESEARCH DIRECTIONS

This study on fair financing in Malaysia has been based on assumptions that the welfare reduction resulting from ill health is as the result of having to make health payments. This does not necessarily hold true as household welfare can be affected by other aspects of illness as well such as loss of employment. Moreover, there may not necessarily be an immediate linkage between health payments and reduction of welfare. Households facing the need to make health payments can source for funds through mechanisms such as savings, sales of assets or even through borrowing which can maintain welfare at least in the short-run. Moreover it is conceivable that multiple relatively small health payments within a space of time can be catastrophic for poor

households but which would not be captured in cross-sectional surveys such as the HES employed in this study. This study has provided evidence of the levels of fairness of financing in Malaysia. Future research should be directed to understand further the impact of payments on household welfare over time by collecting information on occurrence and quantum of health payments, information on household coping mechanisms such as sales of assets and impact on employment to give a better picture of welfare impact of household health payments, especially among the more vulnerable groups identified in this study such as the urban poor. There are few longitudinal studies of this nature (Russell and Gilson, 2006, Wagstaff, 2007a). What was evident though is that the local health situational context in the countries has had impact on the long-term welfare impact on households. The conduct of such studies in Malaysia will then enhance formulation of effective health policies to ameliorate the welfare impact of health payments.

The quality of health care services received by patients can differ and this difference can have an impact on health outcomes. There is evidence of differences in numbers of medical specialists and advanced medical equipment between the public and private health sectors in the country (Malaysia, 2001). This study on fairness in health financing in Malaysia did not specifically capture differences in the quality of health care received by patients.

Examination of the fairness in health financing contributes to the understanding of fairness in health. The assessment of fair financing in this study focuses on the welfare of households which have made health payments. There may be some poor households who despite having ill members did not obtain health care because they could not afford

to pay, a situation which would not contribute to health equity. Thus, the understanding of fairness in health in Malaysia would be further enhanced by future research into the distribution of health utilisation specifically whether persons in need of health care had received such care. To date, local studies have described national distributions of health care use by socio-economic groupings such as by household income but not after taking into account the need for care (Rozita, 2000). Using data from the NHMS II household health survey conducted in 1996, Rozita (2000)found that the quantum of outpatient health care visits and hospital admissions did not differ significantly across quintiles of households grouped by income. Only by the combined examination of fairness in health financing and fairness in health care delivery can it be conclusively determined the extent and changes in the universal health coverage enjoyed by the population in Malaysia.

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