

# **EQUITABLE FINANCING AND HEALTH FINANCING REFORM**

## **IN A DEVELOPING COUNTRY: MALAYSIA**

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### **WORK IN PROGRESS**

#### **Abstract**

Health financing reform in both developed and developing countries is on the agenda, and in both parts of the world equitable financing as a target has been emphasized. Malaysia as a developing country is considering a new national health financing scheme at this time, therefore an understanding of the equity in financing is crucial for policy purposes. Even though both public and private sectors contribute to the health financing system, ultimately households bear the financial costs of health care services. Private health payments may impose disproportionate financial burden on households whilst public health payments are generally equitable.

The research aims to assess the impact of health payments on Malaysian households and thereafter to explore options to finance health care in an equitable manner. One component of the study has already been carried out to assess the impact of private health payments on households in Malaysia. Vertical equity was measured using the proportion of private health payments by household expenditure groups, producing a concentration curve and calculating the Kakwani's progressivity index. Results showed that private health payments were slightly progressive, with a Kakwani's progressivity index of 0.0386. The parallel existence of public and private health care services and individual's health seeking behaviour might give rise to the mild progressive pattern in Malaysia.

The forthcoming research programme will be to answer the following questions (i) how equitable is the public health payments? (ii) how equitable is the overall health financing system? (iii) what are the options to finance health care in an equitable manner?

#### **ACKNOWLEDGEMENTS**

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## **1. INTRODUCTION**

Health financing reform is on the agenda of developed and developing countries, and in both part of the world equitable financing as a target has been emphasised. Malaysia as a developing country is considering a new national health financing scheme at this time, therefore an understanding of the equity in financing and its impact is crucial for policy purposes. As the development of a national health financing scheme may have a profound impact on the future direction of health care in Malaysia, the government has looked into many models in order to come up with a national health financing scheme that is suitable to the nation's requirements.

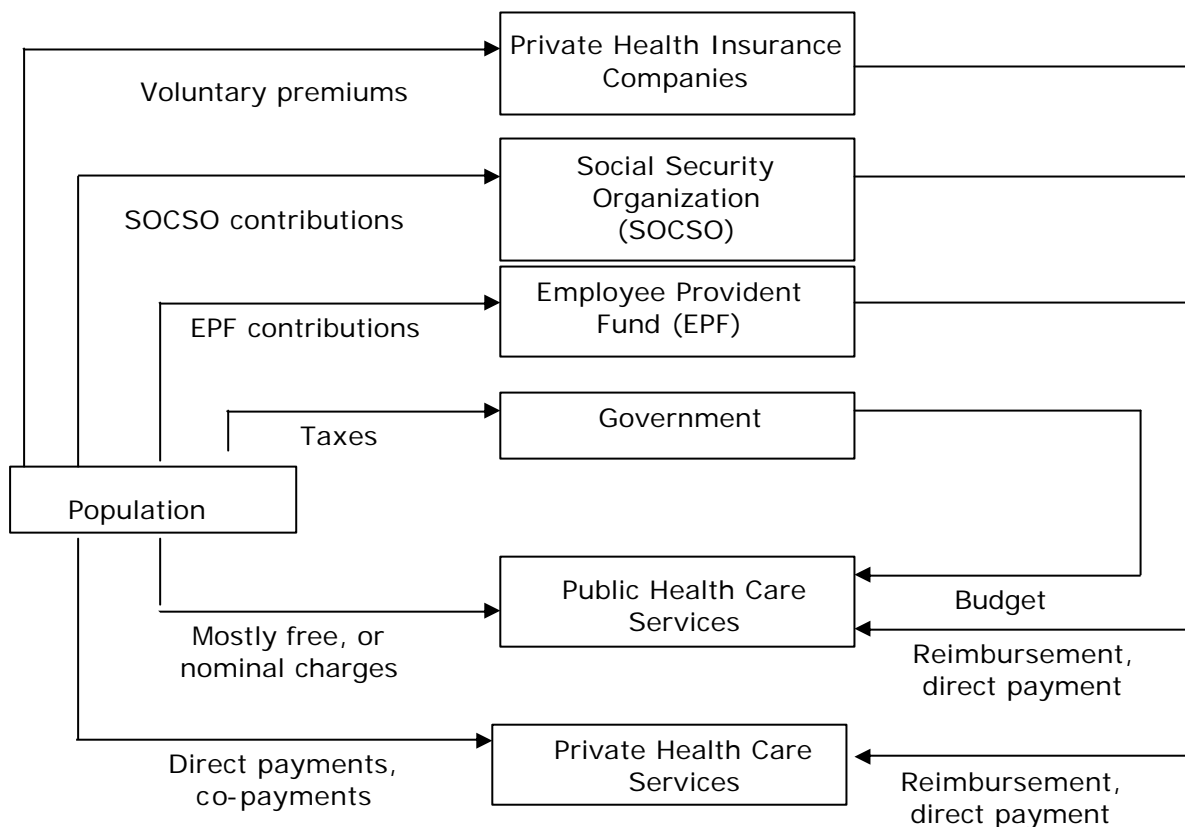
Currently, Malaysian health care services are funded through the general population by paying taxes, contributions to Employee Provident Fund (EPF) and Social Security Organization (SOCSO). On top of these, individuals may buy private insurance and pay premiums, the size of which depend on the type of health insurance and level of coverage. They may also incur out-of-pocket expenses at the point of use at health care facilities. These sources of funding are channelled through various financial intermediaries to either public or private health care services that coexist in parallel. The financial flow of health care system in Malaysia is shown in Figure 1.

General taxes are collected from the population in the form of personal income tax, sales tax and service tax, among various types of direct and indirect taxes levied by the government. The employed population also contributes to EPF, the primary purpose of which is to create savings for old age for the contributor and his family. However, ten percent of the individual's EPF contribution is earmarked for reimbursement of health care expenditure. In addition, the employed population earning less than RM 2,000 (RM 1 is equivalent to US\$ 0.26 or £ 0.14 2004) contributes to SOCSO, which provides disability and medical benefits for work-related injuries of members.

In Malaysia, individuals may seek public health care services which are heavily subsidized by government. Primary care services at health clinics are delivered almost free of charge. Only some nominal charges are levied upon certain services whereby the patients have to pay from out-of-pocket. Each patient is being charged a nominal fee of RM 1 for each outpatient visit

based on Fees (Medical) Order, 1976. Secondary and tertiary care services provided at hospital facilities are also highly subsidized by the government.

Figure 1: Financial Flow of Health Care System in Malaysia



On the other hand, individuals that can afford private health care services have a choice of going either to the public or private sector. They may seek public health care services which are almost free, or private health care services, which involve an out-of-pocket payment or co-payment, if they are under private health insurance coverage. Generally, individuals chose private health care services because of the higher quality or reduced waiting time.

At the moment, the government is considering a new health financing scheme in order to strengthen health financing and to face future challenges. Rising costs of health care services is one of the global concern in many countries around the world. Similarly, Malaysia is coming under increasing pressure to control the escalating costs of health care services, to ensure the adequacy of future funding for health care services and to protect households from catastrophic health payments.

The Eight Malaysia Plan 2001-2005 stated that a national health financing scheme will be introduced based on cost sharing concepts. The scheme is proposed to be financed by taxation from the Federal Treasury and national health insurance contributions from the employed and self-employed. It will also be topped up by supplementary funding from EPF, SOCSO and any third party such as the insurance agencies. As alternative financing strategies are likely to have a substantial impact on households and may impose disproportional financial burden on households, an understanding of the equity in financing is crucial and timely.

Equitable financing is one of the key objectives of most health care system, as evident by various policy documents, policy statements and the work of health economists and policy analysts. Policy-makers in various countries are committed towards financing health care according to ability to pay. This commitment is expressed in the policy statements by linking finance to ability to pay in Denmark and the UK; equity in Ireland, Portugal and Spain; solidarity in Italy and the Netherlands; and tax financing in Switzerland (Van Doorslaer, Wagstaff and Rutten 1993). Also, Hurst (1991a, 1991b) noted that health payments according to ability to pay is regarded as an important objective in the finance of health care in seven countries, namely Belgium, France, Germany, Ireland, the Netherlands, Spain and the UK. Similarly, Ministry of Health Malaysia proposed that the consumer's contribution to the new health financing scheme should be related to ability to pay, affordable and be based on cost-sharing formula (National Healthcare Financing Conference 2002).

The purpose of this study is to investigate the equity of financing in Malaysia health care system and to explore the options to finance health care in an equitable manner. This paper presents the results of a component of the study that has been carried out in assessing the impact of private health payments on household budgets in Malaysia and thereafter outlines the forthcoming research programme. The second section presents a review of studies assessing the impact of health payments on households with different ability to pay using various approaches. The third section examines the impact of private health payments in Malaysia, including the data, methodology, results and discussion. Finally, the paper is concluded with an outline of the forthcoming research programme that aims to assess the impact of public health payments, the overall health financing system and to explore options to finance health care in an equitable manner.

## **2. THE IMPACT OF PRIVATE HEALTH PAYMENTS ON HOUSEHOLDS WITH DIFFERENT ABILITY TO PAY**

Even though both public and private sectors contribute to the health financing system, ultimately households bear the financial costs of health care services. Private health payments may impose disproportionate financial burden on households whilst public health payments are generally equitable. Studies assessing the impact of health payments on households have been done in various countries, employing either one or more of the five following approaches, i. Proportion of health payments by ability to pay quintiles, ii. Tabulations of health payments in relation to ability to pay, iii. Concentration curves, iv. Kakwani's progressivity index, iv. Suit's progressivity index. The first approach, proportion of health payments by ability to pay quintiles is usually employed in country specific studies whilst the fourth approach, Kakwani's progressivity index is usually employed in international comparison studies. In certain occasions, the third approach, concentration curves and the fifth approach, Suit's progressivity index are employed to complement Kakwani's progressivity index. On the other hand, the second approach, tabulations of health payments in relation to ability to pay was less frequently employed and was only mentioned in early studies.

### **2.1. Proportion of health payments by ability to pay quintiles**

In the first approach, health payments are presented as a proportion of income by income quintiles, in order to assess the progressivity or equity of finance sources and financing systems. In 1988, Cantor managed to show that the US financing system is regressive by presenting health payments by income quintile in proportional terms. The proportion of health payments by income quintiles approach is employed in studies on Sierra Leone and Thailand, to address the issue of whether the rich pay a larger proportion of their income on health care than the poor or vice versa. Study on Sierra Leona by Fabricant, Kamara and Mills (1999) focuses on examining the impoverishing effect of health care expenditure of the poor more in depth. It aimed to assess both ability to pay and sources of funds used for fees, in order to develop better policies to protect the poor. They found that the poorest 20% of households spent 25.6% of their current income seeking medical treatment, whilst the average households spent 6.9% of their household income. On the other hand, study on Thailand by Pannarunothai and Mills (1997) assessed the equity of out-of-pocket expenditures on public and private health services

in a major urban area, in order to identify health policies that would lead to a more equitable health service system. They found that high health expenditure per capita was evident in the lowest and the highest income quintiles, which are 1734.9 and 1840.8 baht 1991/2 respectively, compared to the other income quintiles with health expenditures ranging from 325.8 to 482.1 baht 1991/2 only.

In addition, the effect of user fees on equity of health care financing was investigated with proportion of health payments by income quintiles by Fiedler and J. Suazo (2002). The performance and equity in financing of decentralised user fee systems in Honduras were examined. It aimed to identify the specific mechanism in order to improve equity. In summary, the Honduras experience demonstrated that decentralized user fee system was not necessarily an equitable user fees system.

The proportion of health payments or expenditure was also employed in studies to assess the equity impact of changes over time or health care financing reform. Hopkins and Cumming (2001) investigated the impact of changes in private health expenditure on households in New Zealand. They found that out-of-pocket payments are regressive but the regressivity declined in 1993/94 because government targeted subsidies towards lower income households. Rasell, Bernstein and Tang (1994) assessed the impact of health care financing on family budgets in the US, by examining the distribution of health care spending among families by income levels. They found that the distribution of health expenditures is regressive, with low income families paying twice the share of income paid by high income families. Study on Greece was also examined by Liaropoulos and Tragakes (1998), looking into the public and private financing mix and the implications on equity. It evaluated the progress towards greater equity in the financing of health care in Greece during the 1980 and 1990. From the findings, they suggested that the 1983 health care reform have not led to increased equity.

A summary of the studies employing the proportion of health payments by ability to pay quintiles approach is shown in Table 1. This approach, proportion of health payments by ability to pay quintiles is usually employed in country specific studies as it can reveal the actual progressivity pattern in the population. It is however limited to country specific studies as it does not examine the relativities between health care financing systems in different countries.

Table 1: Summary of Studies Employing the Proportion of Health Payments by Ability To Pay Quintiles Approach

Country	Aims of Studies	Findings
US	To assess the equity of financing.	Regressive system.
US	To assess the impact of health care financing on family budgets.	Regressive, low income families paying twice the share of income paid by high income families.
Sierra Leone	To examine the impoverishing effect of health expenditure of the poor.	The poorest 20% households spent 25.6% of their income seeking medical treatment; the average households spent 6.9% of their household income.
Thailand	To assess the equity of out-of-pocket expenditure.	A high health expenditure per capita in the lowest and the highest income quintiles i.e. 1734.9 and 1840.8 baht 1991/2, other income quintiles with health expenditures from 325.8 to 482.1 baht 1991/2 only.
Honduras	To examine the effect of user fees on equity of health care financing.	Decentralized user fee system was not necessarily an equitable user fees system.
New Zealand	To assess the impact of changes in private health expenditure on households.	Out-of-pocket payments are regressive but regressivity declined in 1993/94.
Greece	To evaluate the progress towards equity in the financing of health care.	They suggested that the 1983 health care reform have not led to increased equity.

## 2.2. Kakwani's Progressivity Index

The fourth approach, Kakwani's progressivity index is a single measure of progressivity which is required to compare the health care financing systems in various countries. Wagstaff, Van Doorslaer and Paci (1989) calculated progressivity indices using the Kakwani's progressivity index. The results confirmed the descriptive results for the UK which is progressive, the US which is regressive but showed a mildly regressive system for the Netherlands instead of a proportional system. In 1992, Wagstaff and Van Doorslaer generated empirical evidence on the comparative performance in 10 countries on the issues of how progressive or regressive is the relationship between income and payments towards health care. Wagstaff et al (1999) thereafter presented further evidence on these 10 countries and additional 3 countries, employing improved methodology to achieve comparable results. These comparative studies reflect the differences in the countries' financing systems and the progressivity characteristics.

De Graeve and Van Ourti (2003) reviewed the existing comparative evidence and included Belgium in their study. On top of these comparative studies, four country specific studies on Australia, the Netherland, Colombia and Croatia have also been reported employing Kakwani's progressivity index. A summary of the studies and the respective Kakwani's progressivity indices are shown in Table 2 and 3 respectively.

Table 2: Summary of Studies Employing Kakwani's Progressivity Index

Country	Aims of study	Findings
Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, UK, US.	To present the international comparison of progressivity of health care financing systems.	Progressive in three tax-financed countries (the UK, Finland and Ireland) and one social insurance country (France). Regressive in two social insurance countries (Germany and the Netherlands), one tax-financed country (Portugal) and two private financed countries (Switzerland and the US).
Australia	To assess the equity of financing.	The financing system is slightly progressive.
Netherlands	To examine the progressivity implications of the health financing reform.	The pre-reform financing system is regressive and the overall effect of the reform is reduced regressivity.
Colombia	To assess the equity of out-of-pocket payments.	It suggested that there is a progressive impact of 1993 reform on out-of-pocket financing between 1985 and 2000.
Croatia	To assess the equity of out-of-pocket payments.	Out-of-pocket payments have increased and financial burden is greater on low income groups under reform health care system.

As shown in Table 3, results on 13 OECD countries by Wagstaff et al (1999) and on Belgium by De Graeve and Van Ourti (2003) showed that health care financing is progressive in tax-financed systems such as the UK, Finland and Ireland. It is also progressive in France, which is a social insurance country. However, it is regressive in the other two social insurance countries, Germany and the Netherlands, as higher income groups in these two countries are excluded from the compulsory sickness fund insurance. Even though tax-financed system is usually progressive, it is regressive in Portugal because of the high share of out-of-pocket payments in the country at that time. Finally, health care financing is regressive in the two predominantly privately financed systems, Switzerland and the US.



Country specific study on Australia showed that Kakwani's progressivity index of the total health payments is 0.01, suggesting that the financing system is slightly progressive (Lairson, Hindson and Hauquitz 1995). On the other hand, the progressivity implications of the health financing reform in the Netherlands were examined by Janssen, Van Doorslaer and Wagstaff (1994). Results showed that the Dutch pre-reform health care financing system is regressive and indicated that the overall effect of the reform would be to reduce the regressivity of the present system even though the new system would still be regressive.

Table 3: Kakwani's Progressivity Indices of 18 Countries by Finance Sources

Country	<i>Direct taxes</i>	<i>Indirect taxes</i>	Social insurance	Private insurance	Out-of-pocket payments	Total
Belgium (1997)	0.180	-0.180	0.102	-0.210	-0.260	0.000
Denmark (1987)	0.062	-0.113	n.a.	0.031	-0.265	-0.005
Finland (1996)	0.087	-0.106	0.123	0.000	-0.198	0.050
France (1989)	n.a.	n.a.	0.111	-0.196	-0.340	0.001
Germany (1989)	0.249	-0.092	-0.098	0.122	-0.096	-0.045
Ireland (1987)	0.267	n.a.	0.126	-0.021	-0.147	n.a.
Italy (1991)	0.155	-0.114	0.107	0.171	-0.081	0.041
Netherlands (1999)	0.281	-0.091	-0.094	0.073	-0.074	-0.035
Portugal (1990)	0.218	0.035	0.185	0.137	-0.242	-0.045
Spain (1990)	0.213	0.153	0.062	-0.224	-0.180	0.000
Sweden (1990)	0.053	0.083	0.010	n.a.	-0.240	-0.016
Switzerland (1992)	0.206	0.072	0.055	-0.255	-0.362	-0.140
UK (1993)	0.284	0.152	0.187	0.077	-0.223	0.052
US (1987)	0.210	0.067	0.018	-0.237	-0.387	-0.130
Australia* <sup>^</sup>	0.07	n.a.	0.09	n.a.	-0.15	0.01
Netherlands*	0.1795	-0.0107	0.0164	-0.1588	-0.0740	-0.0928
Colombia*	n.a.	n.a.	n.a.	n.a.	-0.3498	n.a.
Croatia*	n.a.	n.a.	n.a.	n.a.	-0.299	n.a.

(Modified from Wagstaff et al 1999, p 1821;

De Graeve and Van Ourti 2003, p 1467)

\* Results for these four countries are obtained from four country specific studies. The indices may only serve as an indication rather than actual comparison because definitions and methods from these studies might not be comparable.

<sup>^</sup> Index for direct taxes includes indirect taxes, index for out-of-pocket payments includes private insurance, index for workers compensation insurance and third party motor vehicle accident insurance is -0.42 (not shown in table).

Two country specific studies on Colombia and Croatia have looked to address the likely equity consequences of out-of-pocket payments specifically. Studies on Colombia by Castano et al (2002) suggested that there is a progressive impact of 1993 reform on out-of-pocket financing in Colombia between 1985 and 2000. However, it is not conclusive due to issue of incomparability between three surveys used in the study; as they did not ask the same questions, did not use the same reference period and under reported the income. On the other hand, study on Croatia (Mastilica and Bozиков 1999) showed that out-of-pocket payments have increased under reformed health care system in Croatia and led to greater financial burden on low income groups. Results of Kakwani's progressivity indices indicated that co-payments and other out-of-pocket payments are regressive.

### **2.3. Other Approaches**

The second approach, tabulations of health payments in relation to ability to pay was employed in 1989 as an early attempt to assess progressivity. The distributions of health payments in relation to post tax or disposable income distribution for three countries are examined by Gottschalk et al (1989). He compared the financial arrangements of the US, the UK and the Netherlands health care systems. The results showed that the UK has the most progressive method of paying for health care; the Netherlands has a proportional system whilst the US has an inequitable or regressive system.

In certain occasion, the third approach, concentration curves are employed in studies to complement Kakwani's progressivity index. Progressivity can be assessed graphically through comparison of the concentration curve of health payments with the Lorenz curve of the ability to pay variable. Health payments concentration curves are employed in studies on Croatia (Mastilica and Bozиков 1999) to complement Kakwani's progressivity index. They found that the out-of-pocket payments concentration curve lay above the Lorenz curve, indicating a regressive pattern of out-of-pocket payments in Croatia.

The fifth approach, Suit's progressivity index was employed in studies on 10 OECD countries by Wagstaff and Van Doorslaer (1992), in addition to Kakwani's progressivity indices. The results of Suit's progressivity indices are slightly different from Kakwani's progressivity indices as Suit's progressivity indices give greater weight to departure from proportionality that

occur in higher income groups than in lower income groups. Wagstaff and Van Doorslaer (1992) found that Suit's progressivity indices is -0.021 in Denmark (1981), -0.081 in France (1985), 0.017 in Ireland (1983), 0.017 in Italy (1987), -0.046 in the Netherlands (1987), 0.0053 in Portugal (1980), -0.036 in Spain (1980), -0.112 in Switzerland (1981), 0.031 in UK (1985) and -0.160 in the US (1981).

### **3. THE IMPACT OF PRIVATE HEALTH PAYMENTS ON MALAYSIAN HOUSEHOLDS**

Both public and private sector contribute to the funding and delivery of health care services in Malaysia. The public sector funds the public health care services through tax revenue, whilst the private sector operates the private health care facilities through investment of capital and profit. Even though the public sector has provided universal health care services, it is constrained by the queue and waiting lists. Public facilities waiting lists have provided an incentive for individuals to access private health care services. Private health sector comprises medical centres, private hospitals, specialists' clinics and general practitioners' clinics.

Malaysia private health expenditure was estimated as RM 8,448,826,800 in year 1999, based on the population of 22,711,900 and average monthly private health expenditure per household of RM 31. The average monthly private health expenditure per household is represented by the average monthly household medical care and health expenditure recorded in the Household Expenditure Survey (HES). It constitutes 1.9% of total monthly household expenditure for the average households. As private health payments may impose disproportionate financial burden on households with different ability to pay, an understanding of the impact of private health payments is crucial for policy making.

Private health expenditure in Malaysia represents payments for across the counter purchases at pharmacies (medical and pharmaceutical products; therapeutic appliances and equipment), payments for user charges at health facilities (medical and dental services; hospital services and treatment) and payments for private health insurance premiums (accident and health insurance). As private health expenditure includes payments for user charges, which depends on the utilization of health care services, it may impose a disproportionate financial burden on the poor and become a financial barrier in accessing health care services. However, it is also claimed to

provide consumer choice and reduce unnecessary health care consumption. On the other hand, private health expenditure may represent prepayment for health care costs in the form of private health insurance premium. This prepayment system enables households to incur regular and certain amount of premium, rather than unexpected amount of user charges in the utilization of health care services.

### **3.1. Data and Methodology**

Data used in this study was based on the final report of HES Malaysia 1998/99 conducted by Department of Statistics Malaysia (DOS). HES was carried out in the interval of five years to collect information on the levels and patterns of consumption expenditure by households on a comprehensive range of goods and services. The household expenditure data were collected by personal interview and households were asked to record all individual items purchased every day. The sample size of the HES 1998/99 was 10,784 household staying in living quarters (LQs), which is equivalent to 1,321 enumeration blocks (EBs). Households were identified by a stratified multi-stage sampling design, the primary stratum is the states and the secondary stratum is the urban and rural strata within the states.

Household expenditure reported in HES 1998/99 is used as the proxy for ability to pay. The distribution of population by household expenditure in HES 1998/1999 is assumed to be the same as the distribution by household income in Eight Malaysia Plan 2001 for the purpose of this paper. This assumption is made due to data unavailability at this point in time. Private health payments for health care consist of the total amount of medical care and health expenses reported in the HES 1998/99. It includes medical and pharmaceutical products; therapeutic appliances and equipment; medical and dental services; hospital services and treatment; and accident and health insurance. Private health payments are assumed to represent out-of-pocket payments particularly in the discussion of results in this paper. This assumption is made based on the estimates by WHO that 92.8% of private health expenditure represents out-of-pocket payments, and unavailability of disaggregated data at this moment.

In order to assess the vertical equity of private health payments, progressivity was measured from grouped data by three approaches, i. Proportion of health payments by household expenditure groups, ii. Concentration curves, iii. Kakwani's progressivity index.

First of all, the proportion of health payments by household expenditure quintiles approach was employed to assess progressivity directly by examining the health payments as a proportion of household expenditure by each household expenditure quintile (World Bank 2003). If the proportion of health payments increases with the ascending household expenditure quintiles, it indicates some degree of progressivity and vice versa.

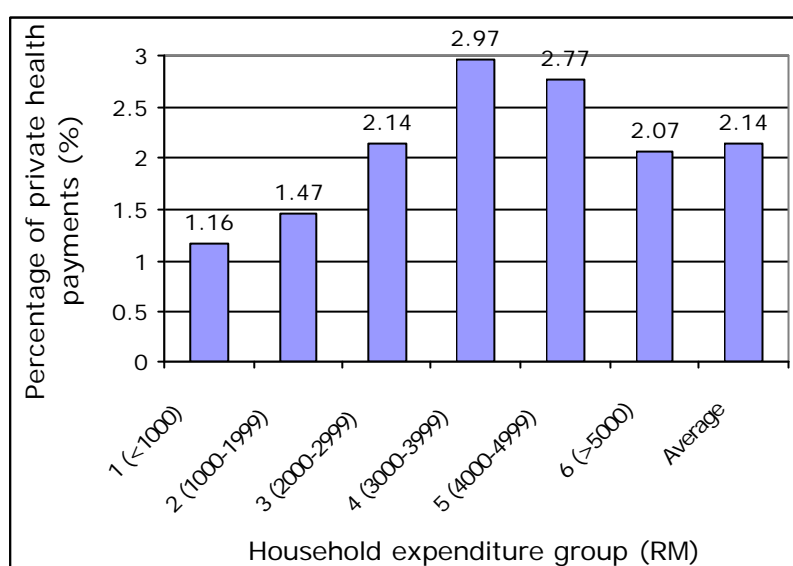
Secondly, concentration curves assess progressivity graphically through comparison of the concentration curve of health payments with the Lorenz curve of the household expenditure. Lorenz curve for income or expenditure plots the cumulative percentage of population, ranked according to income or expenditure against the cumulative percentage of income or expenditure. Health payment concentration curve plots the cumulative percentage of the population, ranked according to income or expenditure against the cumulative percentage of health payments. Line of equality is the 45° line running from the bottom left hand corner to the top right hand corner. If payments as a proportion of income or expenditure rise with income or expenditure, the health payments are progressive and health payment concentration curve lay below Lorenz curve. If payments are regressive, health payment concentration curve will lay above Lorenz curve. The two curves may even coincide under a proportional system. The degree of progressivity can be assessed by looking at the size of the area between health payment concentration curve and Lorenz curve.

Finally, Kakwani's progressivity index is calculated based on the extent to which a source of finance departs from proportionality (Kakwani 1977). It is defined as  $pK = C_{pay} - G_{pre}$ , which is twice the area between Lorenz curve and concentration curve.  $C_{pay}$  is the concentration index for payments and  $G_{pre}$  is the Gini coefficient for pre-payment income.  $pK$  is positive in a progressive system and  $pK$  is negative in a regressive system. If the entire financial burden is concentrated in the hands of the poorest person,  $C_{pay} = -1$ . If the financial burden is concentrated in the hands of the richest person,  $C_{pay} = 1$ . Hence, the value of  $pK$  ranges from  $-1 - G_{pre}$  to  $1 - G_{pre}$ , which are  $-2$  in the most regressive system and  $+1$  in the most progressive system. Kakwani's progressivity index may also be 0, which means the system is proportional and health payments account for the same proportion of income, irrespective of the income.

### 3.2. Results

Results from the proportion of private health payments by household expenditure quintiles is illustrated in Figure 4. They show the relationship between household medical care and health expenditure and total household expenditure by household expenditure groups for year 1998/99. The first group is the lowest household expenditure group and the sixth group is the highest household expenditure group.

Figure 4: Private Health Payments as a Percentage of Total Household Expenditure, 1998/1999.

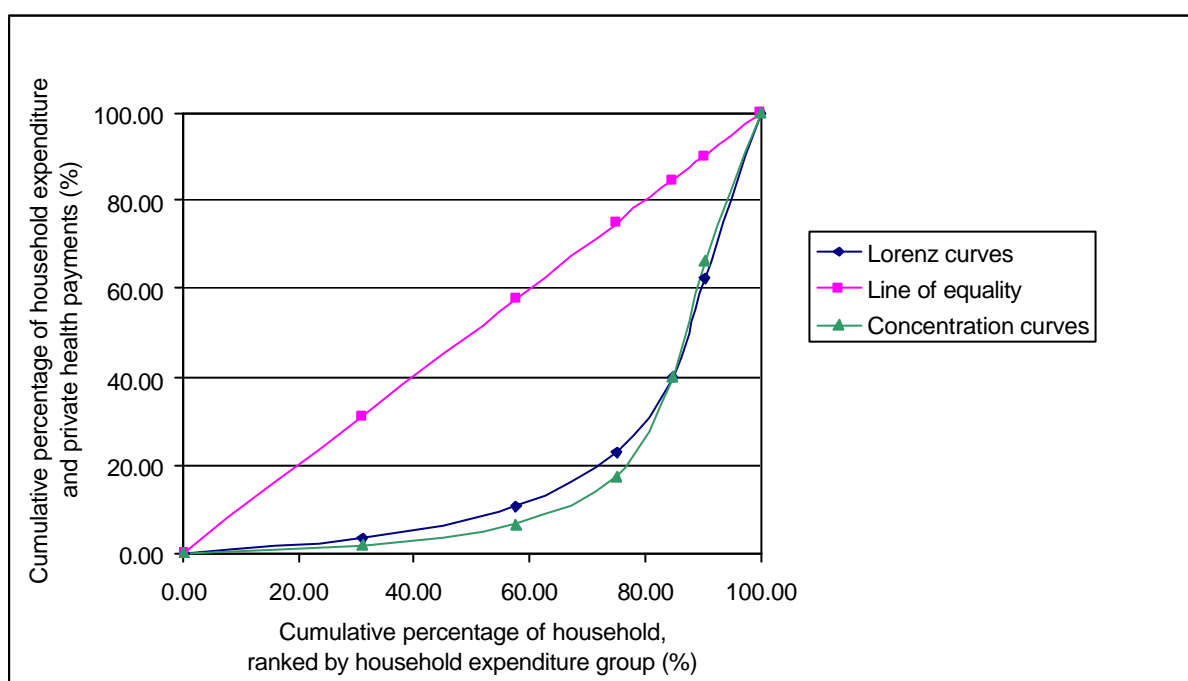


On average, private health payments claim around 2.14% of household expenditure. The lowest household expenditure group spends 1.16% of expenditure on medical care and health, compare to 2.07% for the highest household expenditure group. Generally, the distribution indicates some degree of progressivity from the lowest household expenditure group to the fourth household expenditure group, thereafter regressivity until the highest household expenditure group. There is a tendency for the proportion of health payments to increase speedily with household expenditure from the second to the fourth household expenditure group, indicating a higher degree of progressivity. The percentage thereafter decreases until the highest household expenditure group.

Secondly, results from the private health payments concentration curve, Lorenz curve and line of equality are shown in Figure 4. The private health payments concentration curve for Malaysia lay outside the Lorenz curve, it coincides and crosses the Lorenz curve from below at

the fourth expenditure group. This indicates that private health payments are progressive from the lowest household expenditure group until the fourth household expenditure group and thereafter regressive from the fourth household expenditure groups until the highest household expenditure group. As the size of the area between these two curves is greater when private health payments concentration curve lay outside the Lorenz curve, compare to when private health payments concentration curve lay inside the Lorenz curve, the private health payments are progressive.

Figure 4: Private Health Payments Concentration Curve, Lorenz curve and Line of Equality, 1998/1999



Finally, Kakwani's progressivity index for private health payments are calculated from the concentration index and the Gini coefficient employing grouped data. The private health payments concentration index is 0.6514 and the Gini coefficient for household expenditure is 0.6128. Kakwani's progressivity index (pK) is equivalent to concentration index (Cpay) – Gini coefficient (Gpre), which is 0.6514 – 0.6128, therefore Kakwani's progressivity index for private health payments is 0.0386. The positive value of concentration index and Gini coefficient indicates that both private health payments and household expenditure are concentrated among the higher income groups. The positive value for Kakwani's progressivity index reveals that the private health payments are progressive. Private health payments

increase with household expenditure and financial burden is concentrated among the higher household expenditure groups.

### **3.3. Discussion**

This progressive pattern of private health payments is surprising and contrasts with the regressive findings from previous studies on various countries employing the proportion of health payments by income quintiles approach. In New Zealand, Hopkins (2001) found that the use of out-of-pocket payments to finance health service consumption is imposing a greater burden on low-income households than on high income households. Similarly, Rasell (1994) concluded that the burden of out-of-pocket payments on low-income families were nearly nine times the burden on high-income families. Furthermore, Pannarunothai (1997) found that in Thailand, lower income households without health benefit cover or low-income card faced high out-of-pocket payments in relation to their income. Also, Liaropoulos (1998) concluded that out-of-pocket payments in Greece become an increasingly inequitable form of financing from 1981 to 1994, hitting the low-income families especially hard in 1993/1994. In Honduras, Fiedler (2002) found that persons from the poorest one-fifth of households incur a greater relative burden in paying Ministry of Health user fees than the average Ministry of Health patients. Thus, the progressive pattern of out-of-pocket payments in Malaysia is in contrast with the findings in various countries. Several situations might give rise to this progressive pattern. Individuals in Malaysia might chose to seek health care services depending on their ability to pay, as they may access public health care services which are almost free or private health care services which involve out-of-pocket payments. On the other hand, lower household expenditure groups might not access health care services, whilst higher household expenditure groups might seek private health care services and incur a large amount of out-of-pocket payments.

The study on Croatia by Mastilica and Bozikov (1999) employed health payments concentration curves to portray a graphical picture of progressivity in addition to Kakwani's progressivity index. They found that the out-of-pocket payments concentration curve lay above the Lorenz curve, indicating a regressive pattern of out-of-pocket payments in Croatia. In the case of Croatia, all of the out-of-pocket payments concentration curve lay above the Lorenz curve, compared to the case of Malaysia, where the private health payments concentration



curve initially lay outside the Lorenz curve, then coincides and crosses the Lorenz curve before finally lay inside the Lorenz curve.

The positive value of Kakwani's progressivity index for private health payments in Malaysia is in contrast with previous findings on Colombia and Croatia. In Colombia, Castano (2002) found that Kakwani's progressivity index is negative, -0.0092 in 1984, and moves around proportionality towards a slightly positive value of 0.00026. In 1997, Mastilica (1999) concluded that out-of-pocket payments in Croatia is regressive, as Kakwani's progressivity index is -0.299; and out-of-pocket payments increase under reformed health care system, with greater financial burden on the low income group. In Malaysia, the regressive pattern in higher household expenditure groups was offset by the progressive pattern in lower and middle household expenditure groups. Kakwani's progressivity index is therefore mildly positive. Even though the positive value of Kakwani's progressivity index indicates that out-of-pocket payments are progressive in Malaysia, compare to regressive in Colombia, Croatia and 14 OECD countries, it is not conclusive due to incomparability of results and methodology. Issues on data sources, variable definitions, incidence and assumptions have to be specifically looked into for international comparison studies.

#### **4. FORTHCOMING RESEARCH PROGRAMME**

This paper found that private health payments are progressive, as evident by the Kakwani's progressivity index of 0.0386. The findings on the progressivity of private health payments which includes out-of-pocket payments (92.8%) and private health insurance (7.2%) are particularly relevant for policy-makers. The mixture of progressive and regressive pattern across the household expenditure groups was revealed using the proportion of health payments by household expenditure approach. This understanding will help inform the policy makers in developing strategies to target specific population subgroups if necessary. On the other hand, the Kakwani's progressivity index provides an indication of the progressivity of private health payments in the global picture and may serve as brief international comparison purpose. However, the results of this paper has to be complemented with the results from the forthcoming research programme in order to comprehensively assess the impact of the total health payments on households.

The forthcoming research programme will be to answer the following questions:

- a. How equitable is the private health insurance and out-of-pocket payments (as two separate components of private health payments) ?
- b. How equitable is the public health payments i.e. direct taxes, indirect taxes, EPF contributions and SOCSO contributions ?
- c. How equitable is the overall health financing system in Malaysia ?
- d. What are the options to finance health care in an equitable manner ?

Question a and b will be investigated by the three approaches mentioned in this paper, using micro data instead of grouped data in order to achieve greater accuracy. However, in answering question b, estimation methods have to be established based on available data. The proposed estimation methods based on data from HES for answering question a and b are shown in Table 5.

Table 5: The proposed estimation methods based on data from Household Expenditure Survey 1998/99

Measurement	Estimation method
Ability to pay	Based on household income and household consumption expenditure.
Direct taxes	Allocated according to income tax.
Indirect taxes	Allocated according to sales tax and service tax. Sales tax and service tax estimated from household expenditure.
SOSCO	SOCSO contribution schedule applied on household income.
EPF	EPF contribution schedule applied on household income.
Private health insurance	Based on accident and health insurance.
Out-of-pocket payments	The total of medical and pharmaceutical products, therapeutic appliances and equipment, medical and dental services, hospital services and treatment.

In order to answer question c, Kakwani's progressivity index for the overall health financing system will be calculated. The Kakwani's progressivity index for the overall health financing system may be calculated as the weighted average of the Kakwani's progressivity indices for each health payments. The overall progressivity is dependent on both the progressivity of each health payment and the proportion of each health payment from total finance sources. The weights of health payments are equal to the proportion of each health payments from total finance sources and the best source is National Health Accounts (NHA) (World Bank 2003).

The forthcoming results of Kakwani's progressivity index for the overall health financing system and the results of private health payments in this paper are shown in Table 6.

Table 6: Kakwani's progressivity indices for finance sources and financing system, 1998/99

Household expenditure group (RM)	Household expenditure	Direct taxes	Indirect taxes	EPF	SOCSSO	*Private insurance	*Out-of-pocket payment	Total
1 (<1000)	3.35	?	?	?	?	?	1.75	?
2 (1000-1999)	10.60	?	?	?	?	?	6.36	?
3 (2000-2999)	22.70	?	?	?	?	?	17.54	?
4 (3000-3999)	39.97	?	?	?	?	?	39.69	?
5 (4000-4999)	62.14	?	?	?	?	?	66.23	?
6 (>5000)	100.00	?	?	?	?	?	100.00	?
G/C	0.6128	?	?	?	?	?	0.6514	?
Robust SE	?	?	?	?	?	?	?	?
Share of total finance	-	?	?	?	?	?	**42.97	100.00
Kakwani	-	?	?	?	?	?	0.0386	?
Robust SE	-	?	?	?	?	?	?	?

\* The results for private health payments is presented as out-of-pocket payments here. This assumption is made based on the estimates by WHO that 92.8% of private health expenditure represents out-of-pocket payments, and unavailability of disaggregated data at this moment. As a matter of fact, private health payments include private insurance, as the total amount of medical care and health expenses reported in the HES 1998/99 includes accident and health insurance.

\*\* The proportion of out-of-pocket payments from total finance sources was 42.97% (= 46.3% X 92.8%) in 2001, according to the estimates by World Health Organization in the World Health Report 2003. WHO estimated that 46.3% of the total health expenditure consists of private expenditure and 92.8% of this private expenditure represents out-of-pocket payments. Forthcoming research will involve the calculation of the proportion of each health payments, including out-of-pocket payments, from the overall health care financing system.

As an attempt to understand the distribution of financial burden on Malaysia households more in depth, vertical equity in financing across urban and rural households in thirteen states

including three federal territories will be examined. The Kakwani's progressivity index will be calculated for each of the thirteen states as shown in Table 7.

Table 7: Kakwani's Progressivity Indices for the Thirteen States in Malaysia

State	Population, year 2000 (‘000)	Mean Monthly Household Income, 1999 (RM)	Urban	Rural	Total
Johor	2,721.9	2,646	?	?	?
Melaka	634.1	2,260	?	?	?
Negeri Sembilan	858.9	2,335	?	?	?
Perak	2,109.7	1,743	?	?	?
Pulau Pinang	1,307.6	3,128	?	?	?
Selangor*	4,175.0	3,702	?	?	?
Federal Territory Kuala Lumpur	1,370.3	4,105	?	?	?
Kedah	1,652.0	1,612	?	?	?
Kelantan	1,314.9	1,314	?	?	?
Pahang	1,290.0	1,482	?	?	?
Perlis	204.5	1,431	?	?	?
Sabah**	2,656.4	1,905	?	?	?
Sarawak	2,071.8	2,276	?	?	?
Terengganu	899.0	1,599	?	?	?
Malaysia	23,266.0	2,472	?	?	?

\* Includes Federal Territory Putrajaya.

\*\* Includes Federal Territory Labuan.

Finally, options to finance health care in an equitable manner will be explored in question d. The impact of alternative financing scenarios on Kakwani's progressivity index will be investigated by a pure mechanical analysis and the calculation of Kakwani's progressivity index will be repeated under various financing scenarios.

## DISCUSSION

Any feedback , comments or suggestion on this paper, either on the component of study that has been carried out or on the forthcoming research programme is most welcomed.

Some of the discussion points are as follow:

### A. Methodological

#### 1. Does the choice of measurement of ability to pay matter?

As measurement of ability to pay may be represented by household income, household consumption or household expenditure, the choice of measurement might affect the results.

#### 2. What are the implications of the assumption that ‘the distribution of population by household expenditure the same as the distribution by household income’?

As higher income groups may tend to save more than the lower income groups, the distribution of population by household expenditure might be different from the distribution of population by household expenditure. This assumption might affect the progressivity results.

#### 3. What are the alternative methods to estimate direct tax and indirect tax?

The proposed estimation methods are direct taxes allocated according to personal income taxes, whilst indirect taxes allocated according to sales tax and service taxes, sales tax and service taxes are estimated from household expenditure.

### B. Empirical

#### 1. What is the alternative forthcoming research programme?

The proposed forthcoming research programme is to assess the equity of public health payments, the overall health financing system and thereafter to explore option to finance health care in an equitable manner.

#### 2. What are the alternative ways to explore the options to finance health care in an equitable manner?

The proposed method is to assess the impact of alternative financing scenarios on Kakwani’s progressivity indices and the calculation of Kakwani’s progressivity indices will be repeated under various financing scenarios.

Thank you.

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