Out-of-Pocket Health Expenditure and Catastrophic Effects: Case of Malaysia

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ABSTRACT

The high private health expenditures are also a cause for concern because most of these expenditures are out-of-pocket (OOP) with insurance claims only covering a small segment of the population. More than 94 percent of OOP spending occurred at private facilities. The private hospitals consumed the largest share of OOP. Higher OOP will increase the healthcare cost. Catastrophic OOP payment can lead a household into poverty. To shed some light on the issues above, the aim of this study is to investigate the catastrophic effects of OOP by states in Malaysia. This study used data from the National Health and Morbidity Survey 2015. To evaluate the incidence of catastrophic expenditures, the study used the methodology introduced by the World Health Organisation in 2005. According to World Health Organisation, whenever the health expenditure is equal or exceeding 40 percent of a household non-subsistence income, it is considered catastrophic. Kedah, Malacca and Sarawak are identified as states in Malaysia that faces catastrophic healthcare expenditure. The OOP payments in these three states are relatively higher compared the rest of the states in Malaysia. The government should take a good measure on solving the issue of ballooning of OOP payments, especially in the lower urbanised states. This will solve the problem of catastrophic healthcare expenditure in Malaysia as a whole.

Keywords: Private Health Expenditure; Health Expenditure; Out-of-Pocket; Healthcare Cost; Catastrophic

Penggunaan Duit Poket Untuk Perbelanjaan Kesihatan Dan Kesan *Catastrophic*: Kajian Kes Di Malaysia.

ABSTRAK

Perbelanjaan kesihatan sektor swasta telah menimbulkan kebimbangan kerana kebanyakan perbelanjaan tersebut adalah daripada duit poket (OOP) dengan tuntutan insuran hanya merangkumi sebahagian kecil daripada populasi. Lebih 94 peratus daripada perbelanjaan OOP berlaku di sektor swasta. Hospital swasta merupakan penyumbang tertinggi dalam OOP. Peningkatan dalam OOP akan meningkatkan lagi perbelanjaan kesihatan. *Catastrophic* pembayaran OOP boleh menyumbang kepada kemiskinan sesebuah isi rumah. Bagi memberi pencerahan kepada isu ini, objektif kajian ini adalah untuk melihat kesan *catastrophic* OOP mengikut negeri di Malaysia. Kajian ini telah menggunakan data daripada *National Health and Morbidity Survey 2015*. Bagi mengkaji insiden perbelanjaan *catastrophic,* kajian ini telah menggunakan metodologi yang telah diperkenalkan oleh *World Health Organisation (WHO)* pada tahun 2005.Berdasarkan kepada WHO, apabila perbelanjaan kesihatan adalah bersamaan atau melebihi 40 peratus daripada pendapatan bukan sara hidup, isi rumah dianggap berada dalam keadaan *catastrophic*. Kedah, Melaka dan Sarawak dikenalpasti sebagai negeri – negeri di Malaysia yang menghadapi *catastrophic* perbelanjaan kesihatan. Pembayaran OOP bagi 3 negeri tersebut secara relatif adalah tinggi berbanding negeri – negeri lain di Malaysia. Kerajaan seharusnya mengambil pendekatan yang baik bagi menyelesaikan isu pembayaran OOP yang semakin meningkat, terutamanya di negeri yang dikategorikan sebagai negeri kurang membangun. Hal ini dapat menyelesaikan masalah *catastrophic* perbelanjaan kesihatan di Malaysia secara menyeluruh.

Kata Kunci: Perbelanjaan Kesihatan Sektor Swasta, Perbelanjaan Kesihatan, Duit Poket, Kos Kesihatan, Sara Hidup.

INTRODUCTION

Malaysia is one of the countries that have experienced fundamental changes in the healthcare sector since independence in 1957. The colonial healthcare system in Malaya had originally been developed primarily for the purpose of serving the needs of the civil servants and other government employees and also plantation sector (Harper, 1999), but expanded gradually to meet the needs of the general public. Government healthcare activities encompass curative, rehabilitative, promotive and regulatory concerns. The Ministry of Health (MOH) is the major government agency responsible for the delivery of healthcare in the country. Private sector is also an important player in Malaysia's healthcare delivery system. Rapidly growing private sectors offers mainly curative and rehabilitative services, and is financed strictly fee-for-service basis.

While the government allocated funds to improve the infrastructure by building new hospitals and clinics, the private sector has also played an increasingly important role in the growth of the sector. Indeed, private healthcare sector has become a major player in delivering healthcare services alongside the government healthcare sector. In the era of 1980s, there has been mushrooming of private hospitals and specialist clinics. The unprecedented growth of the private medical centre has had wide-ranging implications for the Malaysian healthcare system.

The private healthcare systems are primarily based on fee-for-services. There have been frequent complaints that the private hospitals are charging excessively high fees. Especially, the large corporations have been aggressively pushing profit margins higher and higher. The threat that OOP payments pose to household living standards is an important issue in Malaysia. The extent to which

such concern is justified depends on the unpredictability of OPP payments and the distributions of the income. Increasing of private healthcare expenditure based on OOP can have a number of undesirable consequences so as to make healthcare services costly, unaffordable and uncertain. OOP expenditure can lead to debt for those who cannot afford it. Catastrophic OOP can lead a household into poverty (Devaraj, 2004).

Hence, there is a serious need to study on the catastrophic effects of OOP health payments in order to generate an elucidating set of findings that can help check the problems currently faced by Malaysia.

This paper is organised into five sections. Section 2 reviews the main articles related to the studies. Section 3 presents the methodology of the paper. Section 4 provides the empirical results and section 5 concludes the paper.

LITERATURE REVIEW

The private healthcare expenditures are one of the causes of concern because most of these expenditures are out-of-pocket payments. According to Arredondo and Najera (2005), in the middle income countries, out-of-pocket payments by consumers of health services have become an important public health issue. Such payments can have catastrophic economic effects on individuals and their approach to healthcare, which has implications for strategies for healthcare reform.

Numerous literatures can be found relating to the catastrophic health payments and the determinants, using different methodologies. Caryn Bredenkamp, et al. (2011) investigated the effect on health expenditure on household welfare in Albania, Bosnia and Herzegovina, Montenegro, Serbia and Kosovo. Two methodologies have been used in this study; namely, the incidence and intensity of 'catastrophic' health care expenditure and the effect of out-of-pocket payments on poverty headcount and poverty gap measures. The results indicate that Albania and Kosovo are facing severe catastrophic and impoverishing effects of healthcare expenditure. Informal payments are particularly higher in Albania.

Ahmad & Mesbah (2015) investigates the catastrophic and the impoverishing impact of OOP health payments in Egypt. They have used poverty head counts and poverty gaps to evaluate impoverishing impact of OOP health payments and multivariate logistic regression to examine the determinants of catastrophic health expenditures. The study found that OOP health expenditures have catastrophic and impoverishing effects in Egypt. The authors suggested that poverty reduction policies in Egypt should target vulnerable households with high risk of experiencing catastrophic health expenditure.

Jeannette Liliana (2016) reveals that 9.6 percent of Colombian households had catastrophic expenditure. The author used probit model to determine the factors influence the probability of catastrophic healthcare spending. The study utilised the data from the Quality of Live National Survey conducted in Columbia in 2011. The higher catastrophic expenditure was found in the Pacifica and Atlantic regions, extended and nuclear families, households with children or elderly adults, located in rural areas and not insured under the healthcare system. The ratios of household members who work have less risk of catastrophic spending.

In another study by Hoang, et al. (2013), they reported that household direct OOP health expenditure as a share of the total in Vietnam has been always high from 50 to 70 percent. Many households were facing catastrophic health expenditure and were pushed into poverty due to the healthcare payments. It was common among the households who had more elderly people and those who leave in rural areas.

Martina, et al. (2017) investigated the effect of catastrophic OOP on the incidence and depth of poverty in Malawi. They have adopted methods suggested by Wagstaff and Doorslear. The results shows that as the threshold increase from 10 to 40 percent, the OOP drives between 9.37 percent and 0.73 percent of households into the catastrophic health expenditure. In poverty estimation, when OOP is accounted, additional 0.93 percent of the population is considered poor and the poverty gap was 2.54 percent. This result indicates that people in rural areas and middle income households have the higher potential of risk of facing catastrophic healthcare expenditure.

In Malaysia, catastrophic healthcare expenditure was explored for acute gastroenteritis requiring hospitalization. The data for this study was collected by conducting two years prospective hospital-based study (2008-2010), comprises urban and rural setting in Malaysia. Finding showed healthcare expenditure due to gastroenteritis had more catastrophic and poverty impact on the urban poor since the urban household are wealthier.

METHODOLOGY

Methodology proposed by the World Health Organisation (2005) will be applied in this study. The data that are required to analyse the catastrophic healthcare expenditure are total household consumption expenditure, food expenditure, household size and out-of-pocket health expenditure

Defining the key variables

(i) Out-of-pocket health expenditure (OOP)
Refers to the payments made by households at the point they receive health services. Typically, this includes doctor's consultation fees, purchases of medication and hospital bills. OOP payments also are net of any insurance reimbursement.

(ii) Household consumption expenditure (exp)
Household consumption expenditure comprises both monetary and in-kind payment on all goods and services, and the money value of the consumption of home-made products.

(iii) Food expenditure (food)
Amount spent on all foodstuffs by the household plus the value of family's own food production consumed within the household. However, it excludes expenditure on alcoholic beverages, tobcco, and consumption outside the home (e.g hotel and restaurant).

(iv) Poverty line (pl) and household subsistence spending (se)
The household subsistence spending is the minimum requirement to maintain basic life in a society. A poverty line is used in the analysis as subsistence spending.
The poverty line for this study is defined as the food expenditure of the household whose food expenditure share of the total household expenditure is at the 50^{th} percentile in the country. In order to minimise the measurement error according to WHO, the average food expenditures of households whose food expenditure share of total household expenditure is within the 45^{th} and 55^{th} percentile of the total sample.

(v) Household's capacity to pay
Refers to effective income remaining after basic subsistence needs have been met. Effective income is taken to be the total consumption expenditure of the household.

(vi) Catastrophic Health Expenditure
Catastrophic healthcare spending can be referred as a relative measurement of a household's payment capacity in a period of time. Catastrophic health expenditure occurs when a household's total OOP health payments equal or exceed 40% of the household's capacity to pay.

Empirical Method

Out-of-Pocket Health Expenditure

Malaysian National Health Accounts (2016) suggested that the best approach to calculate OOP is through a complex method called the integrative method whereby the gross level of direct spending from consumption, provision and financing perspective is collated followed by a deduction of third party financial reimbursements by various agencies to avoid double counting.

> OOP Health Expenditure = (Gross OOP Health Expenditure – Third Party Payer Reimbursement) + OOP Health Expenditure for education and training)

Catastrophic Healthcare Expenditure.

It is important to calculate subsistence expenditure in order to determine whether a household is facing catastrophic health expenditure. World Health Organisation (2005) has published the method on how to calculate the catastrophic healthcare expenditure. It can be calculated as follows:

$eqsize_h = hhsize_h^{\beta}$

$hhsize_h$is the household size. The value of parameter β has been estimated from previous studies by World Bank and it equals to 0.56.

Catastrophic healthcare expenditure can be calculated as follows:

1. $foodexp_h = food_h / exp_h$
   Provides food expenditure share ($foodexp_h$) for each household by dividing the household's food expenditure by its total expenditure.
2. $eqsize_h = hhsize_h^{0.56}$
   Provides the equivalent household size for each household.
3. $eqfood_h = food_h / eqsize_h$
   Household food expenditure is divided with equivalent household size to get equalised food expenditure.
4. Identify the food expenditure shares of total household expenditure that are at the 45^{th} and 55^{th} percentile across the whole sample and these two variables is named as *food45* and *food55*
5. $pl = \mathcal{E}w_h * eqfood_h / \mathcal{E}w_h \; where \; food45 < foodexp_h < food55$
   The formula above calculates the average of food expenditure in the 45^{th} to 55^{th} percentile range. It gives the subsistence expenditure per capita, which is also the poverty line (pl).
6. $se_h = pl * eqsize_h$
   If the total household expenditure is smaller than its subsistence spending, the household is regarded as poor ($poor_h$)
   $Poor_h = 1 \; if \; exp_h < se_h$
   $Poor_h = 0 \; if \; exp_h \geq se_h$
7. The household capacity to pay (ctp)
   $ctp_h = exp_h - se_h \quad if \; se_h <= food_h$
   $ctp_h = exp_h - food_h \quad$ if $se_h > food_h$
   The household's capacity to pay is defined as a household non-subsistence spending.
8. $oopctp_h = oop_h / ctp_h$
   Out-of-Pocket health payments share of household capacity to pay (oopctp)
   The burden of health payments is defined as the OOP payments as a percentage of a household's capacity to pay.
9. $cata_h = 1 \quad$ if $OOP_h / ctp_h \geq 0.4$
   $cata_h = 0 \quad if \; OOp_h / ctp_h < 0.4$

Catastrophic health expenditures occurs when a household's total OOP health payments equal or exceed 40 percent of household's capacity to pay or non-subsistence spending.

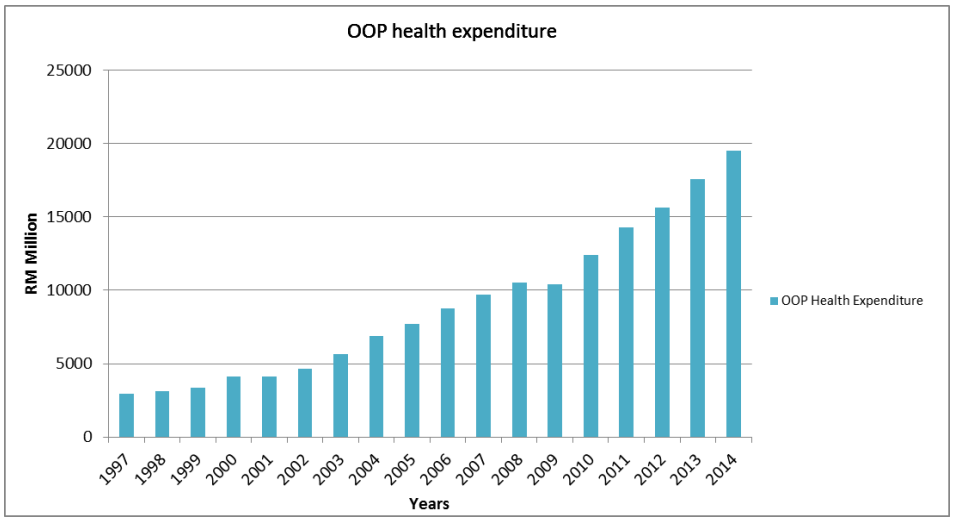
EMPIRICAL RESULTS

Out-of-Pocket Expenditure (OOP)

The OOP expenditure from 1997 to 2014 has increased from RM2, 930 to RM19, 544 which is increase of 567% (see figure 1). The tremendous increase of OOP expenditure can be observed in the year 2000, 2003, 2004 and 2010 when it is compared with the percentage increase of previous years; 22%, 21%, 22% and 19% respectively. 36% of the OOP healthcare expenditure came from the out-patient care services. Higher OOP payment will increase the healthcare cost. Higher cost in private healthcare will give impact to the patients who cannot afford it and this situation may cause inequitable financing and can lead to impoverishment due to catastrophic healthcare expenditure.

The assertively expanding private sector in healthcare is not supported by a well-paced health financing system, which partly explains the ballooning of OOP to finance the use of private medical care. The formalisation of privatisation has sped up the proliferation of private hospitals from the 1990s (Rasiah, et al. 2011). The entry of different national and transnational capital into the private healthcare system has further developed the service capacities of private healthcare. They have greatly influenced the direction and expansion of these private services, while at the same time inflating the cost of healthcare services by offering more sophisticated facilities and newer technology-driven expert care.

Figure 1: Out-Of-Pocket (OOP) Health Expenditure, 1997-2014



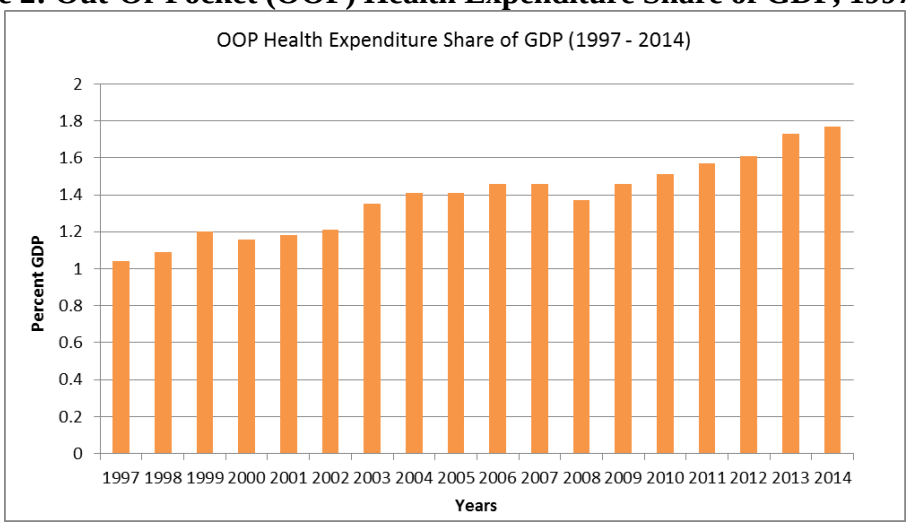
Source: National Health Accounts (2016)

Figure1 shows the OOP healthcare expenditure as the percentage of GDP. The OOP expenditure as a percentage of GDP was 1.04% in 1997 and it increased up to 1.77% in the year of 2014. The tremendous increase of OOP as a percentage of GDP can be observed starting from the year 2003. Clearly, the high pace of expenditure shows a rapid shift towards private healthcare. Government policy introducing health tourism after the Asian financial crisis has increased the OOP expenditure hugely in the year 2000 onwards.

The government subsidies from private sector growth via tax incentives to build hospitals has encouraged more private hospitals in Malaysia and this leads to the tremendous increase in OOP expenditure after the year of 2000. This will give impact to the poor patients. Even though they can get services from the public hospitals with the low payment up-to RM1, the waiting time and sometimes when the appointment in public hospitals drags to a year, it drives the poor households to seek treatment in private hospitals. Some are in debt since they have to pay higher fees in private hospitals.

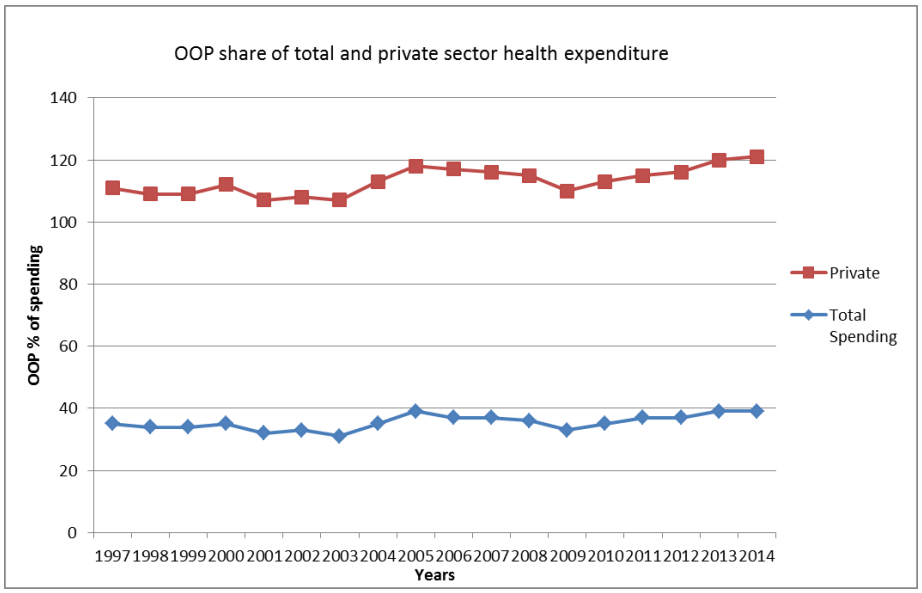
Household OOP expenditure remains the largest single source of funding throughout the period of 1997 to 2014 (see figure 2). Household OOP contributes between 31 to 39 percent of the total expenditure, on average of 78 percent of private healthcare expenditure. Figure 3 above clearly shows that the main revenue for private healthcare expenditure is from the OOP. In addition, there is growing revenue from foreign patients that are also benefitting Malaysian private hospitals. Higher OOP payment will increase the healthcare cost. Higher cost in private healthcare will give impact to the patients who cannot afford it and this situation may cause inequitable financing and can lead to impoverishment due to catastrophic healthcare expenditure.

Figure 2: Out-Of-Pocket (OOP) Health Expenditure Share of GDP, 1997-2014



Source: National Health Accounts (2016)

Figure 3: Out-Of-Pocket (OOP) Share of Total and Private Sector Health Expenditure



Source: Source: National Health Accounts (2016)

Catastrophic Healthcare Expenditure

The results for catastrophic healthcare expenditure were derived from the methodology proposed by the World Bank (2005). Table 1 presents the main statistics in calculating the catastrophic healthcare expenditure by states in Malaysia using the data from the National Morbidity Survey (2015).

Table 1: Catastrophic Healthcare Expenditure by States in Malaysia.

	Total Monthly Household Expenditure (mean) (exph)	Total Monthly Household Food Expenditure (mean) (foodh)	Household size (hhsizeh)	Food Expenditure (foodexph)	Equivalent Household Size (eqsizeh)	Equalised food expenditure (eqfoodh)	Poverty line (pl)	subsistence expenditure (seh)	capacity to pay (ctph)	Oop	Oopctp	Catastrophic health expenditures	Oopctp (%)
Johor	1520.30	647.75	2570.00	0.43	81.20	7.98	7.98	647.75	872.55	144.03	0.17	0	16.51
Kedah	1046.83	459.12	1880.00	0.44	68.16	6.74	6.74	459.12	587.71	298.54	0.51	1	50.80
Kelantan	1364.44	553.68	1887.00	0.41	68.30	8.11	8.11	553.68	810.76	61.92	0.08	0	7.64
Melaka	1422.43	599.75	1730.00	0.42	65.06	9.22	9.22	599.75	822.68	6678.69	8.12	1	811.82
N.Sembilan	1813.77	629.95	1834.00	0.35	67.22	9.37	9.37	629.95	1183.82	232.8	0.20	0	19.67
Pahang	1415.15	616.69	1821.00	0.44	66.95	9.21	9.21	616.69	798.46	138.81	0.17	0	17.38
Pulau Pinang	2134.84	750.69	1878.00	0.35	68.12	11.02	11.02	750.69	1384.15	253.49	0.18	0	18.31
Perak	1506.94	575.23	1976.00	0.38	70.09	8.21	8.21	575.23	931.71	119.01	0.13	0	12.77
Perlis	1400.54	591.64	1814.00	0.42	66.81	8.86	8.86	591.64	808.9	103.74	0.13	0	12.82
Selangor	2335.51	731.24	4117.00	0.31	105.72	6.92	6.92	731.24	1604.27	383.95	0.24	0	23.93
Terengganu	1211.10	431.32	1865.00	0.36	67.85	6.36	6.36	431.32	779.78	80.84	0.10	0	10.37
Sabah	1196.04	497.56	2516.00	0.42	80.24	6.20	6.20	497.56	698.48	102.59	0.15	0	14.69
Sarawak	1091.64	489.03	1769.00	0.45	65.88	7.42	7.42	489.03	602.61	293.86	0.49	1	48.76
WP Kuala Lumpur	2272.61	750.65	906.00	0.33	45.29	16.57	16.57	750.65	1521.96	196.12	0.13	0	12.89
Labuan	1201.95	577.58	94.00	0.48	12.73	45.36	45.36	577.58	624.37	0	0.00	0	0.00
WP Putrajaya	2120.28	589.39	803.00	0.28	42.33	13.92	13.92	589.39	1530.89	150.57	0.10	0	9.84

The highest mean total monthly household expenditure and mean total monthly household food expenditure was spend in Selangor (RM2335.5, RM731.24), followed by Penang (RM2134.84, RM750.69) and Federal Territory Kuala Lumpur (RM2120.28, RM750.65). The distribution of OOP payments across states shows that Melaka, Kedah, Selangor and Sarawak were among the highest compared to the rest of the states in Malaysia. Interestingly, Melaka OOP payment is tremendously high compared to other states in Malaysia. The geographical location and the diversity of some states in Malaysia contributed to the growth of OOP payments.

The incidence of catastrophic healthcare expenditure is considered higher in those states where the share of private out-of-pocket payments in total healthcare expenditure is higher 40% as suggested by the World Bank (2005). Number one (1) in the column of catastrophic healthcare expenditure indicates that there is an incidence of catastrophic and zero (0) indicates that the particular states are free from the catastrophic health expenditure. Kedah, Melaka and Sarawak recorded as the states that encountered catastrophic healthcare expenditure based from the Table 1. The three states' total OOP payments exceed 40% of household's capacity to pay. Remarkably, the data reveals that Melaka was in the top list for catastrophic healthcare expenditure (811%), followed by Kedah (51%) and Sarawak (49%). It is shocking when Kedah and Sarawak which are considered as rural states meanwhile Melaka as semi-urban states faces the incidence of catastrophic of health expenditure. On the other hand, Kelantan (7.64%), Federal Territory of Putrajaya (9.84%) and Terengganu (10.37%) scored the lowest percentage of the catastrophic healthcare expenditure incidence.

Normally, OOP payments are higher in the private healthcare expenditure and lower in public healthcare expenditure. The private sector's concentrations are mostly in higher level of urbanisation compared to the lower level of urbanisation. Selangor and Kuala Lumpur have the highest number of private healthcare and has the tendency for OOP payments to be higher. However, results above indicate the different scenario. Interestingly, Sarawak has the highest number of public hospitals compared to the private hospital; however, it is still considered facing the catastrophic healthcare expenditure.

The government claims that only those who have higher income are going to the private hospitals and the poor are going to public hospitals where the public healthcare has been continuously subsidised by the government, hence the lower income groups are not burdened by the high healthcare cost. However, treatment and medical prescriptions in government hospitals increasingly require payments through insurance or private treatment schemes (Rasiah, Nik Rosnah & Makmor, 2011). Although subsidies were stated for Malaysians who could not afford private insurance or whose employers are unable to cover the costs, preferential treatment given to private payees often left disadvantaged Malaysians waiting in long queues.

Having said that, the waiting time in public hospitals are very long and some of the patients can only get an appointment with the doctor after almost a year, driving the poor patient, especially those who are having serious illness to seek doctors in private hospitals. According to Sau Seng Lum (2012), a leading non-profit health system in Malaysia, the number of individuals suffering from kidney, stroke and diabetes illness is increasing every year in Malaysia and these

individuals are affected with these diseases at a much younger age. An average of more than 3000 kidney failure patients every year but only 10% of the non-government servants are able to seek treatment at government hospitals, whilst the majority of patients have to seek treatment in private hospitals.

The threat that OOP payments pose to household living standards is an important issue in most developing countries, including Malaysia. The extent to which such concern is justified depends on the unpredictability of OOP payments, and the distribution of the income. Catastrophic healthcare expenditure may lead to the impoverishment.

CONCLUSIONS

Catastrophic healthcare expenditure brings a negative impact to the society. The assertively expanding private sector in healthcare is not supported by a well-paced health financing system, which partly explains the ballooning of out-of-pocket payments to finance the use of private medical care. Malaysian private household out-of-pocket spending forms the largest component of private healthcare expenditure. The OOP spending forms the largest component of private healthcare expenditure. The OOP spending can result in catastrophic financial burden on households leading to poverty and if large enough, eventually lead to a poor economic status of a nation.

Interestingly, this study revealed that the lower urbanised states such as Kedah, Sarawak and Melaka is facing the catastrophic healthcare expenditure compared to the urbanised states. According to the literature, out-of-pocket expenditure is higher in private healthcare expenditure which may lead to the catastrophic healthcare expenditure. However, the scenario in this study contradicts since Kedah, Sarawak and Melaka has less private healthcare compared to the urbanised states such as Selangor, Federal Territory, Penang and Johor. This result can be interpreted that even the less income household are looking for the service of private healthcare expenditure.

Baumol (1988) had argued that healthcare cost will always increase at faster rate than the overall economy because like many services industries healthcare is labour intensive. Increase of the healthcare cost can cause the society to suffer. Healthcare is demand inelastic; it is necessity that no matter what cost, people are in need of the services. The healthcare delivery in Malaysia is highly lucrative since the rise and proliferation of private for profit healthcare providers.

In light of the negative consequences of catastrophic healthcare expenditure experienced in the few states in Malaysia, the government should take important measures to handle the ballooning of OOP payments in private healthcare expenditure and maintain the quality of care in public hospitals at all times.

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