

AN EXPLORATORY STUDY ON DETERMINANT OF HEALTH FINANCING BY HOUSEHOLD IN MALAYSIA

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Accepted date: 14-10-2018

Published date: 20-12-2018

To cite this document: Hirnissa, M. T., Zariyawati, M. A., & Diana-Rose, F. (2018). An Exploratory Study on Determinant of Health Financing by Household in Malaysia *International Journal of Accounting, Finance and Business*, 3(16), 20-34.

Abstract: Health financing was introduced in Malaysia to allocate the funds for health care population groups and specific types of health care. However, nowadays Malaysia are facing the rising costs of living which also consist cost for health care. This has brought the effect of decreasing of the investment in health financing among Malaysian. The objective of this research is to analyze the determinants of households' health financing in Malaysia. This research is conducted using survey questionnaire to Malaysia resident that have income. Data collection from the distribution of the questionnaire was analyzed by using the Statistical Package for Social Science (SPSS) 21.0. Three groups of determinants are tested, which include demographic factors, job factors and external factors. By using multiple regression analysis, the result shows that five independent variables are recognised as having the incredible effect on the households' health financing in Malaysia. Gender, age, level of education, monthly income and family and friends influence have significant relationship towards households' health financing in Malaysia.

Keywords: Health Financing, Private Financing, Household Income

Introduction

The adequate health care has become a fundamental necessity for human well-being because our ability to learn, work, achieve our full potential and enjoy our lives mostly depends on our health condition (Hsiao et al., 2001). The wealthier of the people and the more of the proportion of elderly people has influenced the increasing of health care expenditure in developed countries. For instances, from 1980 to 2001, health care expenditure rose from 8.7% to 13.9% in the United States and 7.1% to 9.4% in Canada. Health is the foundation for the quality of human life, the well-being of one's family and also of society as a whole. A healthy society is a foundation for a productive and efficient economy and the development

of a country. Hence, the rapid growth of health expenditure has become a great concern for possessing a healthy society in a country.

The financing of health care becomes a major concern throughout the world. Health financing supports the health services delivery system by fund generation or credit, fund expenditures and flow of funds. It is needed to be specifically planned to let people access to the need sufficient quality of the health services and also to ensure that the use of services does not expose the user to financial hardship (World Health Report, 2010). The main objective of health financing is to generate, allocated and use of financial resources in health systems. In the view from World Health Organisation, health financing policy is focusing on how to move closer to universal coverage with issues related to the way to raise sufficient funds for health, the way to overcome financial barriers that exclude many poor from accessing health services and the way to provide an equitable and efficient mix of health services. This is in line with Malaysia government who concerns to improve the health of the nation. The Ministry of Health stated that the fundamental principle of the Malaysian health care system is that accessibility to health care particularly in the event of sickness. Therefore, health financing has been recognized as an essential part in financing planning among Malaysians.

Malaysian society put a lot of effort on the development and expansion of healthcare. This can be shown as Malaysian society putting 5% of the government social sector development budget into the public health care expenditure, which has an increase of more than 47% over the previous expenditure. This has also meant that an overall increase of more than RM 2 billion in public health care expenditure. The government establishes to improve the health care in many areas because of the rising and ageing of the population in Malaysia. For instances, building new hospitals, refurbishment of the existing hospitals and improvements in the training of medical students.

Other than that, private health expenditure also is categorized under health financing. Private sector funding for health expenditure is RM19,795 million (National Health Report, 1997-2012). The funding is come from private household Out of Pocket (OOP) expenditure (RM15, 584 million), private insurance (RM2, 774 million), all corporations (RM970 million), non- profit organization serving households (RM 363 million), private MCOs and other similar entities (RM103 million) and rest of the world (RM2 million). This has shown that private household out- of- pocket expenditure has the highest funding in the private sector. Malaysia has increased the private health expenditures from 78.0% to 79.9% since 2012 (The World Bank). The OOP expenditure from 1997 to 2013 has increased from RM2, 931 million to RM17, 439 million, from 1.04 per cent GDP to 1.77 per cent GDP (Malaysia National Health Accounts, 1997- 2013). Hence, this reveals that the private sector has invested in health financing and also has taken part in improving their health care life.

However, in 2013, the government has reduced public health expenditures from 55.2% to 54.8% (Malaysia National Health Accounts, 1997- 2013). On 28 January 2016, Prime Minister Datuk Seri Najib Razak announced that the Health Ministry is expected to slash its expenditure by between RM250 million and RM300 million (New Straits Time, 2016). Therefore, the phenomena brought to the increasing of private health expenditure of the private sector from 78.0% to 79.9% since 2012 (The World Bank). The reducing of public health expenditure has influenced the private sector especially households need to pay more and recovers back the expenditure of health care. For example, the out of pocket (OOP) health expenditure by households from 1997 to 2013 has increased from RM2, 931 million to

RM17, 439 million (Malaysia National Health Accounts, 1997- 2013). In short, a lot of households have not concerned about the issue of increasing health expenditure.

However, not all of the households' neglect about the health financing. Some of the households are not concerned about the health care because of the increment of medical costs. In 2014, medicine prices have soared and are expected to continue to rise in the following years. The prices of some drugs increased 20% to 50% this year and this affected most of the companies adjusting the prices twice over the last 12 months (Malaysian Community Pharmacy Guild (MCPG)).

Even though, of the households take the health insurance plans for avoiding the increment of medical costs but not every household are affordable to have the high cost of health insurance plans. Thus, the increment of medical costs and medical insurances, the different level of income among households has influenced the way of households spending in health (Macha et al., 2012). Generally, households are concern about several factors before deciding on health financing. Hence, this study will acknowledge households by understanding the determinants which will influence the decision made by households in health financing. Most of the previous researchers (Hitiris & Posnett,1992; and Moscone & Tosetti, 2010) have highlighted the importance of health financing and factor determinant of public health financing. However, a limited study has been found private or households' health financing. Therefore, the objective of this study is to identify the factors determinants of households' health financing in Malaysia.

Literature Review

The Importance of Health Financing

Plan for financing is very vital for our life, to ensure that we have allocated the money and have used the money adequately in daily life. The way to do financing of healthcare provision is critically dependent on accessing to health (Bisht et al, 2007). The rapid growth of health expenditure has become a great concern not only for the public sector but also for the private sector. The importance of health care financing is to access whether health finance can help household to plan for precautionary saving for emergency health diseases. Health expenditure risks could become serious among specific group of people especially for the uninsured household. Uninsured people receive less medical care. They have worse health outcome and it is a fiscal burden for themselves and their families (Bovbjerg & Hadley, 2007). Health expenditure risks may impact the precautionary saving. Household will have the action for precautionary saving to avoid the uncertainty of future health expenditure (Qiu, 2016). Households with healthier household heads were more likely to save for the future than household heads with poor health. A household who has more financial ability and financially knowledgeable is more likely to have the emergency funds (Barbiaz & Robb, 2014).

In addition, households' health financing mostly is depended on how many amounts of total income that households spend on health expenditure. Poorer households are supposed to pay premiums that are lower in absolute terms than their wealthier because high costs for seeking health care emerged as a key access barrier for poorer groups (Macha et al., 2012). They suggest that private insurance has covered mainly higher-income formal sector employees but limited health insurance coverage for lower-income informal sector groups. Spann et al., (2012) found that income is positively and significantly associated with household health spending and health spending is income inelastic. The improvements in medical technology,

increasing hospitalization, rising income, higher prices, and population ageing are other factors that are attributed to the increase in household health spending.

Lastly, financing in health is important for the government. The relationship between health status and economic development is a positive association (Irene, 2013). Therefore, the financing of health care expenditure has become more essential in many resource constraint countries (Olaniyan, Onisanwa & Oyinlola, 2013). Further, financing for health service is to obtain, plan for and make use of the resources to increase the productivity and value of the business (Nowicki, 2007). The need for healthcare and funding is growing daily due to the high demands of hospitals, long-term care, nursing homes, special practices and assisted living. Funding for health is necessary for of healthcare organizations and there are some governmental hospitals, non-profit and privately funded that need to concern about the changes that are being made financially in the world.

Rational Choice Theory

The rational choice theory is an economic principle that assumes individuals always make prudent and logical decisions that provide them with the greatest benefit or satisfaction and that are in their highest self-interest. Dissenters have pointed out that individuals do not always make rational and utility-maximizing decisions. The field of behavioural economics is based on the idea that individuals often make irrational decisions and explores why they do so. The sociologists and political scientists have tried to build theories around the idea that all actions are fundamentally rational in character and that people calculate the likely costs and benefits of any action before deciding what to do (Browning, Halcli & Webster, 2000). The theory of bounded rationality explained that people are not always able to obtain all the information they would need to make the best possible decision (Simon & Klandermans 2001).

Thus, this study has applied rational choice theory to determine whether the households have made the decision to involve in health financing. This theory can analyse the logical decision making of households for investing a specific amount in health care. Rational choice theory can be linked to this study by understanding the factors that will affect the decision of households when investing in health financing. For instance, households who facing the problem of insufficient of income will be more difficult to make the decision for their financing. Households who have low monthly income may be invested less in the health care expenditures to utilise their spending to the other expenses such as living costs and children education costs. Throughout this study, households will know about the importance of health financing and get to know the cost and benefit of health care is equivalent by applying the rational choice theory.

Health Financing and Demographic Characteristics

One of the factors that affect the benefits from health care is gender and they linked closely together (Gwatkin, Wagstaff & Yazbeck, 2016). Walby (2009) mentioned that the gendering had affected the way of using the household funds. Different gender has differential expenditures of health such as women use specific health care services more than men by psychological need but men use the health service by meaning alone (Weir et al., 1996).

Mohanty, *et. al.* (2016) found a strong and positive gradient of age on per capita household health spending after controlling for income. This indicates that changing age structure is significantly affecting health spending. The older households are having more spending in

health than the younger households. Younger households tend to borrow from the future to fulfil current consumptions but middle-aged households are savers and wealth accumulators (Mitchell & Utkus, 2006).

Race influence the use of health care services in Medicare continuously (Gornick, Eggers & Riley, 2004). Kington and Smith (1997) mentioned that the issue of racial differences had been found in the relationship between socioeconomic status and health even after controlling for household income and education. The problem of the imbalance of health care use among white Americans and black Americans is because of the racial and ethnic disparities (Mayberry et al., 1999).

Level of education also influence the financing behaviours for health (Mitchell and Utkus, 2006). This is similar to the finding of Worthington (2006) that suggests about individuals who have a higher level of education such as university graduates possess the higher financing literacy. Further, recent study by Ahmed et al. (2016) mentioned that worker with primary education is less likely to have lower willingness to pay a percentage for health care cost than a worker who has less than one-year education.

Family size describes individuals have available to use of services and family reduce the amount of spending in health care if there are less total economic resources due to big amount of family size. Damme, *et.al.* (2004) found that family size is a significant variable of household health finance because family size will affect the people's willingness and ability to pay for hospital fees. Additionally, Johnson, Parker and Souleles (2004) also mentioned that the households who have the low expenditures are unusually got larger changes in family sizes. When a household's family sizes increase, demand for leisure will decrease due to the increase of the demand for necessities such as health spending

Job Characteristics

An occupational group among households is the critical factor when deciding on health financing. The Ministry of Health in 2002 reported that have many farmers who get sick ignore to seek for medical treatment due to the fear of the high costs and they have not enough health finance to cover the medical treatment costs. This has influenced the health in the rural state. A lot of farmers in rural residents cannot afford the medical costs at big city hospital because they are self- employed and they are using the out- of- pocket money for their health financing (The World Bank). Jackson, Sleigh, Peng and Li (2005) determined that premiums of health expenditures are hard to collect in rural areas because most people are not wage earners. This is consistent to the study of Ahmed et al. (2016) which found occupational group is significant to the willingness to pay for health care price. For example, shopkeepers and restaurant workers are willing to pay significantly less than rickshaw-pullers.

Company offer is also one of the determinants of households' health financing. Bernard (2002) stated that health plan contributions by employers under current law and in some cases, employees are exempt from payroll and personal income taxation. Economic theory also argues that workers pay for health insurance in the form of lower wages or reductions in other forms of compensation and workers are generally viewed as being paid what they are worth. An increase in one form of compensation, such as adding health insurance benefits must result in a reduction in some other form of compensation (Morrisey, 2002).

Health spending over time and the growth in health financing is related to the increase of the income (Fan & Savedoff, 2014). Income was consistency with health financing among economic factors but income elasticity is found to be of varying degree and the pace of growth of health expenditure, varies according to the level of economic development (Baltagi & Moscone, 2010).

External Characteristics

Location can influence health financing among households. Willingness to pay for health in the sub-district town and district town locations has lower significant compared with the metropolitan city area (Ahmed et al., 2016). Further, Binnendijk et al. (2013) found that there is a significant association between willingness to pay for health care costs and geographical locations such as distinct area or metropolitan area. However, he finding revealed that there is not significant between location and households' health expenditures. This is because the rural poor such as in India still considered health insurance as a necessity good.

Bossyns et al. (2006) determined that there have very few numbers of referrals and hospitals built in the rural areas. This situation is likely because of the deficiencies of physical infrastructure, health care providers, various communication systems and the resources of health care financial (WHO, 1995). Ilboudo, Chou & Huang (2011) stated that there are no private health facilities in the district rural areas and therefore referral compliance for curative care is important to improve health access. Thus, facilities of health care are also one of the important determinants of the households' health financing.

Family and friends influence are the factor that will bring to the different health financing among households. Fortwangler (2007) defined that the main financial donor is influenced by friends. In addition, Ensor and Sanz (1996) identified that much of the borrowing financing sources is from relatives and close friends and some of them have utilized savings. People's decisions are often influenced more by anecdotes from friends and family than they are by evidence-based medicine (Fagerlin, Wang & Ubel, 2005). This is including decision on health financing. For example, purchases of insurances are influenced more by whether friends have experienced the event than by the experience of one's immediate neighbours (Kunreuther et al., 1978).

Methodology

Data

This study is an exploratory study. The quantitative approach was used for this research and primary data collected through survey interviews by using a structured questionnaire. The questionnaires are distributed to a total of 282 respondents which all of them are households in Malaysia. This study uses the judgmental sampling which is the non-probability sampling technique. Hence, the sample based on a personal judgment about some appropriate characteristics of the sample member by research. Thus, the way of health financing of households will be identified by knowing whether they spend for health expenditure before they are qualified as respondents for this research. Data is collected and analyzed by using Statistical Package for Social Sciences (SPSS) which is a statistical software program is used for the process of data analysis.

Model of Health Financing

Figure 1 shows the conceptual framework and the hypothesis used in this study, which derives from several researchers.

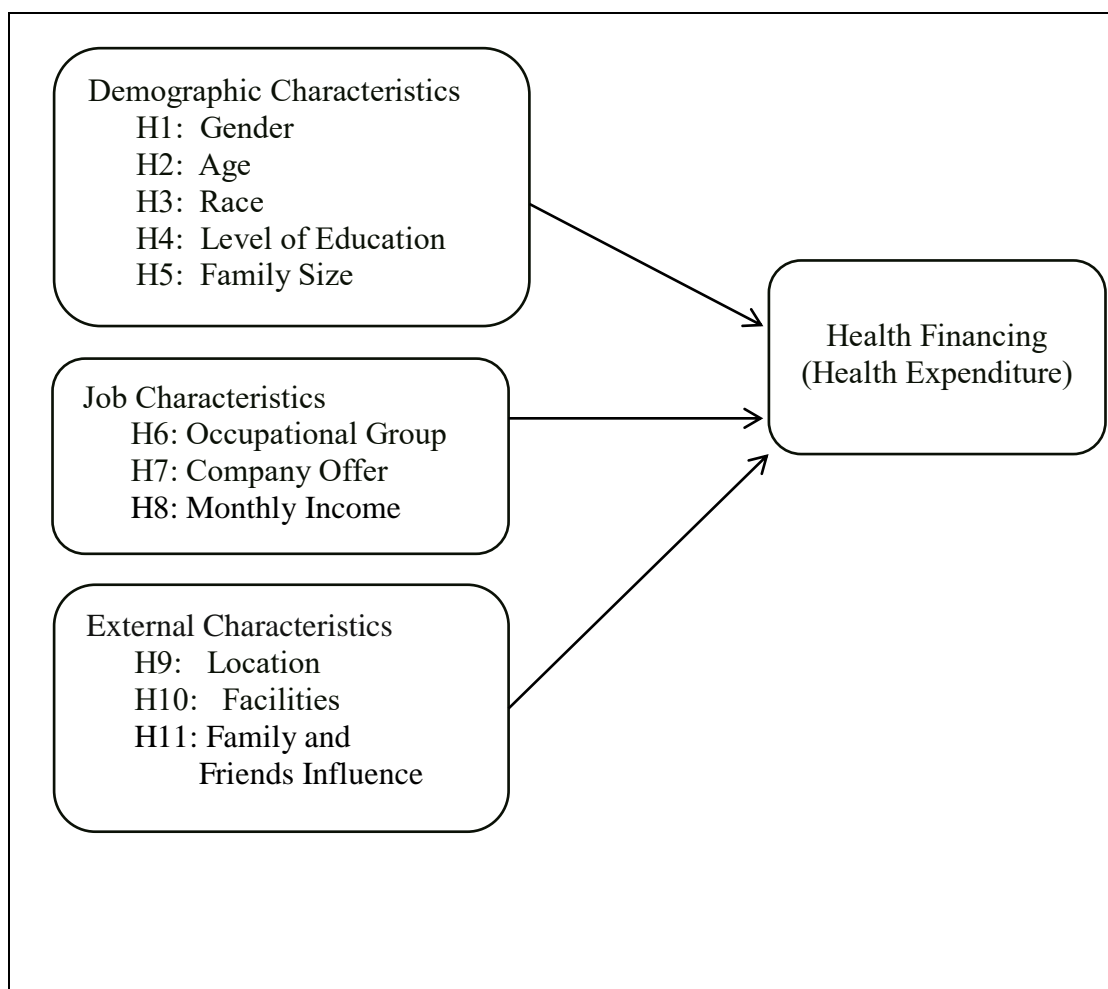


Figure 1: Proposed Conceptual Framework

Hypothesis Development

The determinants of health financing model were analyzed using multiple regression. The dependent variable is health expenditure (HE). The regression model used as below:

Model 1

$$HE = \beta_0 + \beta_1 (GEN) + \beta_2 (AGE) + \beta_3 (RAC) + \beta_4 (EDU) + \beta_5 (FS)$$

Model 2

$$HE = \beta_0 + \beta_1 (OG) + \beta_2 (CO) + \beta_3 (MI)$$

Model 3

$$HE = \beta_0 + \beta_1 (LOC) + \beta_2 (FAC) + \beta_3 (FFI)$$

Where,

GEN – Gender

AGE – Age

RAC – Race

EDU – Level of education

FS – Family size

OG – Occupational group
 CO – Company offer
 MI – Monthly income
 LOC – Location
 FAC – Facilities
 FFI – Family and friend influence

Result and Discussion

Descriptive analysis

The table below illustrated that the details of the respondents' profile. The questionnaires were distributed to the target respondents in Malaysia who are eligible to participate in this research. The total sample size has been collected in 282 respondents.

Table 1: Respondents Frequency Table

Profile		Frequency	Percentage
Gender	Male	176	62.4%
	Female	106	37.6%
Age	Below or equal to 35 years' old	158	56.0%
	Above 35 years old	124	44.0%
Race	Malay	183	64.9%
	Chinese	84	29.8%
	Indian	11	3.9%
	Others	4	1.4%
Level of Education	Tertiary level	184	65.2%
	Non- tertiary level	98	34.8%
Family Size	Less than 3	32	11.3%
	3-5	154	54.6%
	Above 5	96	34.0%
Occupational Group	Self- employed	23	8.2%
	Non-executive	104	36.9%
	Executive	65	23.0%
	Professional	22	7.8%
	Others	68	24.1%
Company Offer	Yes	142	50.4%
	No	140	49.6%
Monthly	Below RM3000	106	37.6%

Income	Above or equal to RM3000	176	62.4%
Location	District	86	30.5%
	Municipality	40	14.2%
	City	156	55.3%
Facilities	Below 5	117	41.5%
	5-10	125	44.3%
	Above 5	40	14.2%
Family and Friends Influence	Yes	216	76.6%
	No	66	23.4%

Multicollinearity Test

According to Hair et al. (2003), the tolerance value must be larger than 0.10 and the maximum acceptance VIF value should be less than 5.0. Therefore, if tolerance value is lesser than 0.10 and VIF value is larger than 5.0, it indicates that a problem with multicollinearity. Based on Table 2, the range of tolerance value was between 0.665 and 0.996, while the VIF values for all of the constructs were less than 5.0. Therefore, the result indicated that the problem of multicollinearity was not significant in this research.

Table 2: Multicollinearity Analysis

Construct	Tolerance Value	VIF
Gender	0.883	1.132
Age	0.665	1.503
Race	0.820	1.220
Level of education	0.696	1.437
Family size	0.992	1.009
Occupational group	0.970	1.031
Company offer	0.952	1.050
Monthly Income	0.925	1.082
Location	0.983	1.017
Facilities	0.981	1.020
Family and friends influence	0.996	1.004

Regression for The Overall Result

Multiple regression analysis tests about the relationship between independent variables to dependent variable when the other variables are held constant. The variables are tested in three categories which are demographic characteristics, job characteristics and external

characteristics by using multiple regression test. The dependent variable in the three categories is health expenditure (HE). Table 3 shows the result for an overall of study.

Table 3: Result of Regression Analysis, R Square and ANOVA for Demographic Characteristics, Job Characteristics and External Characteristics

	Model 1		Model 2		Model 3	
	<i>Demographic</i>		<i>Job</i>		<i>External</i>	
	Coefficien t	P- Value	Coefficien t	P- Value	Coefficien t	P- Value
Gender	0.175	0.023**				
Age	0.077	0.002**				
		*				
Race	0.012	0.842				
Education	0.121	0.001**				
		*				
Family size	0.003	0.962				
Occupational Group			0.024	0.353		
Company Offer			-0.086	0.213		
Monthly Income			0.180	0.000**		
				*		
Location					-0.014	0.726
Facilities					-0.037	0.475
Family and Friends Influence					-0.288	0.001**
						*
Constant	1.342	0.000	1.641	0.000	2.204	0.000
R	0.267		0.344		0.213	
R Square	0.071		0.118		0.045	
Adjusted R Square	0.054		0.109		0.035	
Std Error	0.584		0.567		0.590	
F-Value	4.223		12.457		4.384	

P-Value	0.001	0.000	0.005
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Note: *** significant at 1% confidence interval, ** significant at 5% confidence interval, * significant at 10% confidence interval

Regression for Demographic Characteristics

Table 3 shown the result strength in relationship on demographic characteristics. The change of health expenditure is explained 7.1% by a combination of a demographic characteristic. While for job characteristic, the change of health expenditure is explained 11.8% by a combination its variables. However, the smallest changes combination is external characteristics at 4.5%. Even though, the r square is small but it does not mean it is unworthy. This is because the small effect sizes can also have scientific significance as not all of the independent variable might affect households' health expenditures. R square is small but it is reliable relationship in the results.

From the result above, regression analysis shows gender is significant to health expenditure at 5% significant level. Therefore, gender has to be taken into consideration for an effective understanding of the determinant of households' health expenditure. It is consistent with the hypothesis where the female will have better households' health expenditure. The result is similar with the most of the researchers such as Gwatkin, Wagstaff and Yazbeck (2016), Weir et al. (1996), and Walby (2009). Women face the problem of user fees when seeking health care because of the inequitable decision-making power among gender. Therefore, gender is one of the significant factors that influence health expenditure among household in Malaysia. Thus, H1 is accepted.

Since significant values of age and level of education are less than 0.01, H2 and H4 are accepted. Age is identified as one of the significant determinants of households' health expenditure in this research. Households who have higher age are expected to be invested more in the health expenditures. This result is consistent with the finding of Fan and Savedoff (2014). This proved that changing age structure is significantly affecting health spending. This indicates that age is a significant factor that influences health expenditure among household in Malaysia.

While the level of education, the most critical determinant in demographic characteristic in households' health expenditures. A higher level of education such as university graduates possesses have the higher financing literacy. Individuals who have more educated will have better decisions about their health spending. Therefore, a household with higher education level tends to have more financial knowledge that can impact the financial practices. The significant result is similar to the study carried out by Mitchell and Utkus (2006) and Worthington (2006). However, the other variables which are race and family size are not significant. This indicates that the H3 and H5 are rejected. Therefore, it means that race and family size is not the predictors to the health expenditure.

Table 3 also show the result for model 2 on job characteristics factors. Monthly income is significant to health expenditure at 1% significant level. Therefore, households will consider their income when making decision on health expenditure. The higher the monthly income will lead to a better households' health expenditure. The results are support by preVIOUS researches such as Fan and Savedoff (2014) and Galbraith et al. (2005). Health spending over time and the growth in health financing is related to the increasing of the income. Households with higher incomes possess to have the higher spending on health expenditures. Therefore,

monthly income is one of the significant factors that influence households' health expenditure in Malaysia.

However, the other variables which are occupational group and company offer are not significant with health expenditure. This indicates that H6 and H7 are rejected. The reason is that most of the households' health expenditure in this study is depend on the income rather than occupational group. Lots of households have searched for part-time jobs because they want to get the better health spending in their life. The occupational group does not mean that the economic situation of households is stable or not. It does not affect the spending decisions of households for health expenditure because they are not alerted with the important of health financing. Therefore, occupational group among households is not the critical factor when making the decision of health financing. Meanwhile, there is also no evidence that the company offer will significantly on health expenditure among households in Malaysia. In this study, the households still invested in health financing such as buying the health insurance because the company health offer limited coverage such as a certain part of the company pay hospital bill for employees if they injured during working hour. For knowledgeable households, they still invested part of their income for health expenditures as they knew that health care offer by company is not the full life for protecting their health. In short, company offer does not have an impact when households deciding on health financing.

Moreover, external characteristics show only one variable is significant which is family and friend influence at 1% level. To sum up, family and friends influence is negatively significant to the households' health expenditure at the level of significance at 0.01. Most of the respondents' families and friends have not invested in health expenditures; therefore, they just followed their family and friends because still have a lot of people do not concern about the important of health financing in Malaysia. They still think about the government subsidies for health can cover their health expenditures when they are getting injured. Hence, the higher the family and friends influence, the lower the health expenditure. Therefore, family and friends influence are one of the significant factors that influence households' health expenditure in Malaysia. Hence, H11 is accepted.

Results of Model 3 in Table 3 also shows that external factors which are location and facilities are not associate with households' health expenditure. Hence, H9 and H10 are rejected. This finding is in line with Binnendijk et al. (2013). Malaysian households do not invest in health financing even though they are from urban areas. They also do not care about to spend for health financing whether the availability or no health facilities like government hospital or clinic in surrounding their living area. This reveals that lack of awareness about the important of health expenditure among Malaysian household.

Conclusion

To sum up, five out of eleven hypotheses were supported in the research findings namely are gender, age, level of education, monthly income and family & friend influence. Health financing is being concerned in the world today. It has been recognized as vital financing among households in Malaysia. The different level of income among households has influenced the way of households spending in health because of the increment of medical costs and medical insurances. The study is beneficial to a different group of societies. For example, households have better understanding and aware regarding the important of health financing. Hence, they will consider several factors before making decision on how much they supposed to spend on health expenditure. Further, the decision assists them for

precaution planning on health financing such as buying health insurances. Health financing is an essential part when planning and managing for personal financing. Households' health financing mostly is depended on how much income that households spend in health expenditure. Poorer households are supposed to pay premiums that are lower in absolute terms than their wealthier because of high costs for seeking health care.

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