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A Cross-sectional Household Analysis of Household Consumption Patterns: An Indirect Approach to Identify the Possible Factors of Personal Bankruptcy

(Analisis Keratan Rentas Corak Penggunaan Isi Rumah: Satu Pendekatan Tidak Langsung untuk Mengenalpasti Faktor Kebankrapan Individu)

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ABSTRACT

Although the standard of living has consistently improved, personal bankruptcy remains an uncommon issue in Malaysia. This paper investigates the relationship between consumption patterns and income of Malaysians by examining income elasticity using the Engel curve. Data were collected from the Household Expenditure Surveys of 2004, 2009, and 2014 and analysed using ordinary least square regression and the Working-Leser model. The results showed that out of 12 expenditure components, three were found to be necessity goods: food and non-alcoholic beverages, clothing and footwear, and housing and utility. It was found that households led by youths spent more on luxury goods compared to those led by heads aged 40 and above. Males, Bumiputeras, and households living in urban areas spent more on luxury goods. Tobacco, alcoholic beverages, hotels, private education, and private healthcare were considered as luxury goods for Malaysian households. This study suggests that the public, especially the younger generation, should be exposed more to the knowledge and awareness of debts, bankruptcy and lifestyles.

Keywords: Consumption pattern; income elasticity; Engel curve; personal bankruptcy

ABSTRAK

Individu muflis adalah perkara normal di Malaysia, ekoran daripada perubahan taraf hidup dan pembangunan negara. Kertas ini mengkaji hubungan antara corak penggunaan dengan pendapatan rakyat Malaysia dengan mengunakan keanjalan pendapatan dalam rangka kerja keluk Engel. Data Penyiasatan Perbelanjaan Isi Rumah pada tahun 2004, 2009 dan 2014 telah digunakan dan dianalisis menggunakan model regresi dan model Working-Leser (1963). Keputusan kajian ini menunjukkan bahawa daripada 12 komposisi perbelanjaan, 3 didapati merupakan barang keperluan, iaitu makanan dan minuman jenis bukan alkohol, pakaian dan kasut, serta perumahan dan utiliti. Hasil kajian juga mendapati isi rumah yang diketuai oleh belia membelanjakan lebih banyak ke atas barang mewah berbanding dengan ketua rumah yang berumur 40 tahun ke atas. Penemuan kajian juga menunjukkan golongan lelaki, Bumiputra, dan mereka yang tinggal di kawasan bandar lebih cenderung untuk membelanjakan ke atas barang mewah. Pengunaan ke atas rokok, minuman keras, hotel, sekolah persendirian dan perubatan swasta adalah dianggap sebagai barangan mewah di Malaysia. Kajian ini mencadangkan persekitaran yang positif dengan pengetahuan dan kesedaran tentang hutang, muflis dan gaya hidup harus disebarkan kepada masyarakat terutama kepada golongan muda.

Kata Kunci: Corak penggunaan; keanjalan pendapatan; keluk Engel; kebankrapan individu

INTRODUCTION

Malaysia is an upper-middle income developing country that stands out in the international market, where the standards of living of the nations are expected to improve as income increases. In 2016, Malaysia's gross domestic product (GDP) per capita was RM38,887 (Department of Statistics 2017). In addition, according to the Report of Household Income and Basic Amenities Survey 2016, the income distribution among Malaysian households has improved, as indicated by the decline of the Gini coefficient from 0.401 in 2014 to 0.399 in 2016. Despite so, personal bankruptcy remains uncommon among Malaysian households. According to the Malaysia Department of Insolvency (MDI), personal bankruptcy is defined as a process wherein a debtor is declared bankrupt pursuant to an Adjudication Order made by the High Court against the debtor if he is unable to pay his debts of at least RM30,000.00.

In 2017, bankruptcy cases in Malaysia occurred in approximately 0.056% of the total population, or 5.6 people in 10,000. Statistics from the Malaysia Department of Insolvency showed that a total of 18,227 bankruptcy cases were registered during the same year.

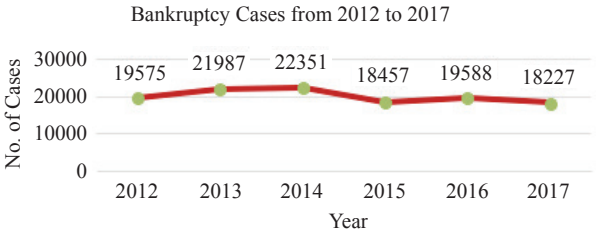

FIGURE 1. Trend of Personal Bankruptcy from 2012 to 2017

The number of personal bankruptcy cases filed follows a stable pattern with a slight decrease in recent years (Fig. 1); yet, this issue still caught the attention of the central bank to set up the Credit Counselling and Debt Management Agency (AKPK), which actively promotes its free financial advisory services. According to Ntsalaze and Ikhide (2017), an appropriate level of debt may help improve household welfare, but exceeding it could leave households to vulnerable to unexpected changes in interest rates and income.

Apart from the main figures of personal bankruptcy cases, gender, ethnicity, age groups, and factors of bankruptcy were also inspected by MDI. It was identified that males are twice more likely to be declared bankrupt than females. From 2013 to 2017, males made up 69.11% of total cases, while female 30.89%. From the aspect of ethnicity, Malay constitutes the highest percentage of bankruptcy cases filed at 54.21%, followed by Chinese at 27.66%, Indians at 12.73%, and others at 5.4%. It is also important to look at which age group contributes the highest bankruptcy rates. As defined by the 1997 National Youth Development Policy, youth ranges between the age of 15 to 40. Youths form approximately 60% of total bankruptcy cases, while retirees are less likely to go bankrupt (Table 1).

Personal bankruptcy happens when financial liquidity and turnover are stunted, causing incapability in settling debts. There are several main determinants for having debts, such as consumption patterns, behavioural issues, and occurrence of adverse events in life. These factors are further discussed in the literature review section. Based on MDI's survey, most Malaysians mainly filed for bankruptcy due to their incapability to repay debts, most commonly taking the form of hire-purchase of vehicles (26.44% of total debt), followed by personal loans (25.78%), house loans (16.71%), and business loans (10.23%). From here, it is apparent that typically, Malaysians are financially tied to car loan instalment. Surprisingly, 0.06% bankruptcy declaration was caused by the inability to repay study loans. The aforementioned factors suggest that bankruptcy is mostly filed due to a high consumption of transportation, housing, personal loans, etc. High proportions of spending on heavily weighted expenditure compositions, such as necessities, could cause households to have less disposable income for their wants. This situation is worsened when households choose to purchase luxury goods on credit, which, if they are unable to manage their finances well, would lead them to bankruptcy. Failure to allocate household budget appropriately signifies unfavourable consumption patterns that may lead to bankruptcy.

Consumption pattern is defined as the budget allocation of an economic consumption unit, such as individuals, households, or geographical regions, among different need categories like food, housing, etc. (Firat 1977). Household consumption or expenditure patterns may reveal the types of excessively-demanded goods and services that could lead to bankruptcy. Consumption patterns are expected to change in line with the rise in income brought about by economic growth and development. Based on the 2016 Household Expenditure Survey (HES), households spent 24% of their total consumption, the highest amount, on housing and utility, 18% on food and beverages, 13.7% on transportation, and 13.4% on restaurants and hotels (Department of Statistics Malaysia 2017). Consumption may have increased due to the changes in income. Keynesian consumption theory posits that a growth of income is accompanied by a growth of consumption, albeit to a lower proportion of total consumption, and by the increase of savings (Tulai 2015). This postulation is supported by the increase in mean monthly household income for Malaysians by 6.2% in nominal value from 2014 to 2016, from RM6,141 to RM6,958. At the same time, the mean monthly household consumption expenditure rose at a rate of 6% from RM3,578 in 2014 to RM4,033 in 2016 (Department of Statistics Malaysia 2017).

TABLE 1. Personal Bankruptcy by Age Group from 2013 to 2017

Age Group	2013	2014	2015	2016	2017	Total
Below 25	208	635	122	91	80	1,136
25-34	5,212	4,822	4,648	5,183	4,785	24,650
35-44	7,616	7,641	6507	6601	6241	34606
45-54	5973	6223	4744	4967	4628	26535
55 and above	2818	2867	2299	2536	2354	12874
No info	160	163	137	210	139	809
Total	21987	22351	18457	19588	18227	100610

Source: Malaysian Department of Insolvency

Personal bankruptcy is a concerning issue because it reflects the well-being of the population, which in turn directly influences the growth of the country. Well-being is highly associated with income and consumption. Based on the raised issues, this study attempts to investigate the relationship between consumption patterns and income of Malaysian households. Besides, we attempt to relate personal bankruptcy and consumption patterns via an indirect approach. This study seeks to contribute to the extant literature by looking in detail the changes in consumption patterns and the dependency of certain groups on consumption components that may affect disposable income, indirectly providing an insight into one of the contributors of personal bankruptcy. The findings would also give a better understanding on the consumption patterns of Malaysian households in the context of the expenditure compositions.

Furthermore, this study will fill the research gap concerning consumption patterns in Malaysia by examining the income elasticity of household consumption compositions. Although a large number of empirical studies regarding consumption patterns and income elasticity have been conducted, studies within the Malaysian context remain limited. In addition, most of these studies focus on the expenditure elasticity of food consumption, or only on a specific type of consumption component. However, this study is not without a limitation, since personal bankruptcy could not be included as the main variable (though it is indirectly measured by linking consumption patterns to income) due to the absence of data. Data provided by MDI were aggregated data (not households data) and they were not recent.

The remainder of the paper is organized as follows. The next section presents a review of literature pertinent to this study. The third and fourth sections discuss the methodology and results, while the final section conclusion and recommendations.

LITERATURE REVIEW

Personal bankruptcy causes micro- and macroeconomics issues as it relates to income. It should be further investigated to look for a better solution for better development. As discussed previously, personal or household bankruptcy is affected by income. Hussain (2002) has found that higher household indebtedness leads to higher personal bankruptcy. In the short run, individual bankruptcies are sensitive to the growth of unemployment rate and real disposable income. There are several determinants of personal bankruptcy, such as family profile, adverse events, and environment, but the most significant driver is consumption and behaviour.

Consumption is one of the factors that causes bankruptcy due to income distribution. A study done by Zhu (2011) showed that household consumption or expenditure on durable consumption goods, such as houses and automobiles, contribute significantly to personal bankruptcy filings. He revealed that medical conditions also lead to personal bankruptcy filings, but other adverse events, such as divorce and unemployment, have marginal effects. Consumption patterns make households financially overstretched and more susceptible to adverse events, which increases bankruptcy filings due to their incapability to repay debts. The findings of Gross and Notowidigdo (2011) indicated that medical costs are an important driver of household bankruptcies, especially among low-income families. The results revealed that a 10% increase in Medicaid eligibility reduces personal bankruptcies by 8%. This result is supported by Shrime et al. (2018), that 31.3% of the American population values cure at all costs, including financial solvency, especially for those who suffer from serious diseases. Apart from medical expenses, housing and mortgage loans are one of the reasons leading to personal bankruptcy, as the proportion of spending on housing is among the highest. According to Desai (2016), mortgage delinquency increases personal bankruptcy filings.

High spending on medical costs could be related back to unhealthy behaviours, such as smoking and overweight. Adams et al. (2014) investigated the effect of smokers towards personal finance. They found a significant relationship, at a 10% alpha level, between a daily smoker and bankruptcy filing. The results suggest that smokers make poor decisions and experience worse personal finances outcomes compared to non-smokers. At the same time, Guettabi and Munasib (2015) pointed out that the impact of obesity on bankruptcy is both statistically and economically significant. There is evidence that obesity increases medical costs and morbidity. Other than health-impacting effects, other behavioural factors, such as gambling and access to gambling facilities, can also increase the rate of personal bankruptcy filings (Boardman & Perry 2007; Daraban & Thies 2011; Garrett & Nichols 2008).

Some evidence links between personal bankruptcy and consumption. The renowned theory of consumption function, introduced by John Maynard Keynes in 1936, is primarily employed across the world. Fundamentally, the consumption function is a macroeconomics instrument that describes the relationship between disposable income and consumption. Under this theory, consumption has a positive relationship with income, indicating that the increase in income will drive consumption upwards. Besides, Keynes also noted the tendency for the marginal propensity to consume to decrease as income increases. Any additional increases in disposable income will lead to diminishing increases in consumption expenditures.

Macroeconomic determinants, especially household income, have the most direct impact on consumption. Varlamova and Larionova (2015) did a dynamic

household expenditure analysis on OECD countries and found that changes in household expenditures can happen under the influence of the disposable income of households. Verte and Osakwe's (2014) study also showed similar results; the net disposable household income has a significant impact on household spending. Chen (1994) also verified that income has a significant influence on consumption in urban and rural areas. Hwang and Lee (2017) found that an increase in the Gini coefficient decreases household expenditure. A research carried out by Hori and Shimizutani (2012) investigated the reactions of households on consumption smoothing to an anticipated income change. They found that the monthly patterns of household expenditure are significantly affected by the anticipated large changes in income pattern, which is to say that consumption is not smoothed when households are expecting a large income change.

Unexpected events outside of economic crisis, such as layoffs, may also affect consumption. Unemployment influences consumption as there will be no or less income to sustain the previous consumption level. Alegre and Pou (2016) found that only the main breadwinner's unemployment transition affects household consumption. When the breadwinner is unemployed, consumption level falls and continues on a declining pattern.

Furthermore, credit accessibility could also affect the changes in income. Easier access to credits, like credit cards, could increases disposable income, but at the same time it could also foster compulsive buying and money anxiety (Fogel & Schneidel 2011; Modesto Veludo-de-Oliveira et al. 2014). Income or budget allocation is a crucial element in influencing consumption choice. A study of correlations between the distribution of durable and nondurable goods was done by Barigozzi et al. (2012). The results showed that both are negatively correlated, indicating that an increase in a household's relative expenditure on durable goods would cause the reduction of its relative expenditure on nondurable goods, including food. Chen (1994) also found that a shift in the relative importance of consumer durable goods will show significant change in the structure of consumption.

One of the widely used theory in consumption pattern research is Engel's law. Engel's law states that as income rises, the proportion of income spent on food falls, even if absolute expenditure on food rises. An Engel curve can be used to describe how household expenditure on a particular good or service varies with household income. The budget share Engel curve describes how the proportion of household income spent on a good varies with income.

Wan (1996) estimated income elasticity by fitting Engel functions to a set of household expenditure data. The results indicated that staple food, clothing, and fuel are necessities, while housing, eating-out, entertainment and culture, non-staple food, and service are luxury goods. Besides, it was found that high-income regions tend to have relatively higher values of Engel elasticity. Income elasticity is important to determine the relationship between the changes in income and consumed goods and services. Ahmad et al. (2015) also discovered that rural and urban households have different food consumption patterns.

In addition to income, demographic and socio-economic factors such as household size, age, gender, and geographical areas could also affect the level of consumption. Shamim and Ahmad (2007) estimated household consumption patterns in urban and rural regions using Engel curve, and found that changes in total expenditure and household size significantly affect the consumption patterns of food and non-food items. Moreover, the findings of Ishida, Law, and Aita (2003) suggest that the share of food away from home (FAFH) will increase along with income growth and urbanisation. This result is supported by that of Tey et al. (2009), who stated that both income and household size are positively associated with FAFH expenditure. Furthermore, Benda-Prokeinová et al. (2017) demonstrated that households' food expenditure has a negative correlation with the number of children.

Seale Jr et al. (2012) have verified the presence of Engle's law: expenditure for food will increase at a decreasing rate when income and total food expenditure rise. Besides that, income growth will raise food consumption and lead to more nutritionally diverse diets, where food items that make up a basic diet tend to have lower income elasticities compared to luxurious food items (Colen et al. 2018). In addition, a study by Yusof and Dusa (2010) showed that household demographic characteristics are an important determinant of consumption patterns. This study, done in Malaysia, indicated that young adults aged less than 35 years old allocate a larger proportion of their total expenditure on luxury goods like clothing, holidays and entertainment, and personal care items.

The above discussion clearly points out that income plays an important role in influencing consumption patterns. Studying income elasticity is useful in capturing consumer behaviours and designing better tax policies and demand systems. Other than that, by analysing the household consumption patterns, we will be able to figure out the relative importance of goods and services among households, enabling the estimation of the reasons for personal bankruptcy from the aspect of consumption.

METHODOLOGY

This study adopted Engel's law as its theoretical background to estimate the reaction of household's consumption patterns on income changes, while also incorporating some demographic information. As

maintained by the consumption theory, consumption tends to increase in line with the rise of disposable income, showing a positive relationship between the two variables. As many past studies had employed it, the Engel curve was seen as appropriate to estimate the allocation of household budget with the changes in income. The curve describes the relationship between consumer consumption of certain goods and variations in the total expenditure on all goods or income. The consumption patterns were then used to identify the possible factors of personal bankruptcy.

Income elasticity of demand is defined as the relative change in quantity demanded in response to a relative change in income (Pindyck & Rubinfield 1998). This concept is important as it explains that the type of goods and services consumed varies with income. Income elasticity is the percentage change in quantity demanded with respect to a percent change in income (Obayelu et al. 2009).

DATA DESCRIPTION

This study used cross-sectional data for three different years for its statistical analysis. The data were requested and obtained from the Department of Statistics Malaysia (DOSM) and Universiti Putra Malaysia (UPM) library database. In this study, the secondary data of Household Expenditure Survey (HES) of 2004, 2009, and 2014 were used. The chosen sample country was Malaysia, since the study aims to understand and investigate the consumption patterns and their relation to personal bankruptcy of Malaysians. This study used the updated large-scale Malaysia Household Expenditure Survey data to provide empirical evidence and address this knowledge gap.

The data consisted of 4225, 6495, and 14838 households for 2004, 2009, and 2014 respectively, constituting 30% of the whole survey population and sufficiently representing the entire population of Malaysia. Expenditure composition and household's demographic information were extracted from HES. This study referred to paper from Acar, Gunalp, & Cilasun (2016) where they analysed the sample size for three different years. The expenditure composition was grouped into 12 categories: food and non-alcoholic beverage; alcoholic beverages and tobacco; clothing and footwear; housing, water, electricity, gas and other fuels; furnishings, household equipment and routine household maintenance; health; transport; communication; recreation services and culture; education; restaurants and hotels; and miscellaneous goods and services. This grouping followed the Classification of Individual Consumption According to Purpose (COICOP) developed by the United Nations Statistics Division (UNSD) and was made with the aim of classifying and analysing individual consumption expenditure incurred by households.

Descriptive statistics in this study included mean, median, maximum value, minimum value, and standard deviation to understand the data characteristics of the variables (refer Appendix A). The expenditure share of each commodity was calculated as the ratio of average household monthly expenditure to average household monthly income. In 2004, 2009, and 2014, the expenditure component with the highest mean value was food and non-alcoholic beverages (25.02, 24.88, and 23.91, respectively), followed by housing and utility (22.55, 24.87, and 23.77, respectively). The standard deviations were widely dispersed, which means that each household spent accordingly to their income.

EMPIRICAL METHODOLOGY

Based on Engel's law, income has a positive relationship with the expenditure of goods and service. Generally, the framework of Engel's function can be expressed as:

$$y_{ih} = f(x_h, z_h) \tag{1}$$

where y_{ih} represents the expenditure by household h on the i^{th} good, x_h is the total expenditure by household h, and z_h is the socio-demographic characteristics of household incorporated in the model.

Previous studies tested various functional forms for the Engel curve methodology, such as linear, semi-logarithmic, double-logarithmic, addilog model, and Working-Leser model. In this study, the Working-Leser specification was chosen. Working-Leser shows that budget shares are linear in the logarithm of total expenditure (Deaton & Muellbauer 1980). According to Delgado and Miles (1997) and Leser (1963), the Working-Leser model provides a more flexible budget share form, which allows the estimation of how elasticities change as expenditure changes. The Working-Leser model is suitable for household demand analysis as it is price independent. The model only accounts for variation in income but not price (Muellbauer 1976), which means that every household receives the same set of prices. The model can also be extended to include the effect of household size. According to Houthakker (1961), household size and total expenditure are positively correlated, and the coefficients of household size presents a combination of 'specific effect' and 'income effect'. When the 'specific effect' exceeds the 'income effect', the coefficient of household size is expected to be positive. Studies from Tey et al. (2009) and Acar et al. (2016) have evinced that income and household size are significant to household consumption. Below is the Working-Leser form adapted from Seale Jr et al. (2012) and Dudek (2011):

$$w_i = \alpha_i + \beta_i \, Log\, x + \gamma_i \, Log\, n + \varepsilon_i \tag{2}$$

where $w_i = x_i/x$ is the budget share of the i^{th} good, x is the total expenditure of household, n is household size, α_i, β_i and γ_i are the parameters, and ε_i is the disturbance term. The Working-Leser model is considered as a reliable model. As proven by Acar et al. (2016), regression

using other forms did not change the types of elasticity of the items, only the values. The Working-Leser model was regressed using the ordinary least square (OLS) estimator.

Income elasticity was derived from the Working-Leser model below:

$$e = \left(\frac{\partial x_i}{\partial x}\right)\left(\frac{x}{x_i}\right) = \left[\alpha_i + \frac{\beta_i Ln\, x + \beta_i}{w_i}\right] = 1 + \frac{\beta_i}{x_i} \quad (3)$$

where e is the total household elasticity of i^{th} good expenditure and β_i is the coefficient of $Ln\ x$. This expression shows that a commodity with positive β will have an income elasticity larger than 1 and vice versa.

VARIABLES

The dependent variable of this study was the expenditure on 12 categories of goods and services, calculated by dividing the expenditure of each category by the total expenditure of the household. Meanwhile, the independent variables were total household expenditure and household size. Total expenditure is a commonly used proxy for income in Engel curve studies because it is a better indicator of permanent income and suffer less from measurement errors (Acar et al. 2016; Wan 1996).

In this study, household demographic information was also included as dummy variables to study the influence of demographic characteristics on the expenditure on the i^{th} category of goods and services. Demographic variables were included because the consumption patterns of households also respond to demographic and socioeconomic variables, in addition to income (Yusof & Duasa 2010). Behavioural changes in the consumption patterns were also expected. Six dummy variables were extracted from the information of the household heads: age, gender, ethnicity, strata of living area, marital status, and educational attainment.

As for age, recalling the definition of youth from the 1997 National Youth Development Policy, those aged from 15 to 40 was labelled as "1" while above 40 "0". For gender, male took up the value of "1" while female "0". Under ethnicity, Bumiputera, also known as the natives, was given the label "1", while other races such as Chinese and Indian "0". Households living in urban areas were denoted as "1", while those in rural areas "0". Married head of the family was marked as "1", whereas other marital status like single, divorce, bachelor, and widow "0". Lastly, household heads with secondary and above educational attainment were labelled as "1" and "0" otherwise.

MODEL SPECIFICATION

The model used in this study is specified in the econometric form below:

$$EXP_i = \beta_0 + \beta_1 Log\ Y_i + \beta_2 Log\ HHS + \beta_3 AGE + \beta_4 MALE + \beta_5 BUMI + \beta_6 URBN + \beta_7 MARD + \beta_8 SEDU + \varepsilon_i \quad (4)$$

where EXP_i is the share of expenditures on i^{th} commodity in the total expenditure of a household, *Log Y* total household expenditure, *Log HHS* household size, *AGE* the age of household head, *MALE* the dummy variable "1" in gender, *BUMI* the dummy variable "1" in ethnicity, *URBN* the dummy variable "1" in the strata of living area, *MARD* the dummy variable "1" in marital status, and *SEDU* the dummy variable "1" in educational attainment.

Based on the model, as *Log Y* increases, *EXP* was expected to increase because the rise in income would lead to higher spending. It was also expected that the increase in *Log HHS* would cause *EXP* to rise for necessity items but fall for luxury goods, as the people or dependents of the household will consume more necessity goods, resulting in less disposable income for luxury goods. The coefficient of household size would be positive when 'specific effect' exceeds 'income effect'. For income elasticity, food and non-alcoholic beverages, clothing and footwear, housing and utility, education, and healthcare were expected to be necessity goods because those are basic needs; meanwhile, alcoholic beverages and tobacco, furnishings and household equipment, communication, transport, restaurants and hotels, recreation services and culture, and miscellaneous goods and services were expected to be luxury goods, where the quantity consumed is sensitive towards the changes in income.

RESULTS AND DISCUSSION

This section discusses the income elasticity of the 12 categories of expenditure composition, as well as the incorporated demographic characteristics. Tables 3 and 4 below show the regression results and the income elasticities concerning the relationship between consumption categories and income, household size, and some demographic characteristics. Based on the obtained results, transport was found to have the highest income elasticity in 2004, but it was taken over by recreation services and culture in 2009 and 2014. Transport was revealed to be a luxury good for households from 2004 to 2014. Income elasticity for transport was 1.62 in 2004 and dropped to 1.37 in 2014. The rise in income had a weak effect on the consumption of transport, suggesting that transport is becoming more important in daily life. Transport was the third largest component in household consumption, constituting about 15.91% in 2004, but fell to 14.51% in 2009 and 2014 (refer Table 2). In 2004, a 1%

increase in income would increase the expenditure share on transport by 7.65%; however, the figure decreased to 4.79% in 2014.

From the aspect of household demographic characteristics, it was found that an increase in household size would negatively affect the share of expenditure on transport, but the negative consumption has decreased in recent years. A possible reason for this trend is that a larger household size would require the family to purchase a bigger vehicle. Males and Bumiputeras were found to spend more on transport compared to females and non-Bumiputeras. Married household heads were also found to spend more on transport. On the contrary, urban households tended to spend less on the share of transport compared to those staying in rural areas, perhaps due to the accessibility and availability of modes of transportation, lowering transportation costs. Recreation services and culture owned the highest income elasticity in 2009 and 2014. There was an upwards pattern from 1.59 in 2004 to 1.62 in 2009, before falling slightly to 1.42 in 2014. The component was considered as a luxury commodity for households, indicating that slight changes in income would lead to a great response on the quantity demanded. The findings of Boman et al. (2013) also showed that outdoor recreation is a luxury good. Recreation services and culture had the highest value of income elasticity among luxury goods, probably because it is not something that people need in daily life. As shown in Table 2, this component only accounts for 4.83% of total household expenditure in 2014.

However, the elasticity has decreased slightly in recent years, implying that people are slowly realising the importance of recreation services and culture, especially for kids to learn and accumulate knowledge outside of formal education, as well as hobby cultivation. Unsurprisingly, household heads with a secondary level or above education tended to spend more on recreation services and culture compared to those with lower educational attainment level. In addition, household size was found to have a negative relationship with the share of recreation services and culture. Males and non-Bumiputeras also had a significant share of consumption on recreation services and culture.

TABLE 2. Share of Expenditures (%)

	2004	2009	2014
Alcoholic Beverages & Tobacco	1.9214	1.9522	2.3306
Clothing & Footwear	3.4448	3.2594	3.3872
Education	1.8599	1.3975	1.0659
Food & Non-alcoholic Beverages	20.687	20.690	20.188
Housing & Utility	20.934	22.8576	23.427
Miscellaneous Goods & Services	8.3260	8.3738	7.3129
Healthcare	1.4075	1.4057	1.5799
Furnishings & Household Equipment	4.5858	3.9155	3.8965
Communication	5.1392	5.5842	5.1796
Recreation Services & Culture	4.4598	4.4179	4.8323
Transport	15.917	15.172	14.512
Restaurant & Hotels	11.315	10.972	12.286

Another highlight is that the income elasticity for food and non-alcoholic beverages was the lowest among all other compositions. It was 0.55 in 2004, 0.54 in 2009, and 0.59 in 2014. Within expectation, the results suggest that food and non-alcoholic beverages are necessity items, which are similar to the findings of Wan (1996), Tey et al. (2009), Yusof and Duasa (2010) and Seale Jr et al. (2012). The rise in income elasticity shows that expenses are becoming more sensitive to income changes. Food and non-alcoholic beverages were found to be the most important necessity for households due to its less-elastic properties. Undeniably, food is a non-durable necessity good; therefore, it was expected that the expenditure share on food to be high. This statement is supported by the statistics in Table 2, which show that food constituted the second largest spending share in Malaysian households at around 20.18% in 2014. Based on the regressed demographic characteristics, household size was found to be positively correlated with the share of expenditure on food and non-alcoholic beverages, demonstrating that the increase in household size would increase the spending on food. Household heads older than 40 years old, females, married, attained lower than secondary level education, and stayed in rural areas spent more on food and non-alcoholic beverages. There was an interesting finding here: non-Bumiputeras spent more on food in 2004, but their position was replaced by Bumiputeras in 2014. The changing trend relating to ethnicity is something that can be further studied on. Besides that, the presence of Engel's law has been verified using the Working-Leser specification form, indicated by the negative coefficients of household income. It was found that when income rose, the proportion spent on food and non-alcoholic beverages declined, even though the absolute value increased.

Apart from food and non-alcoholic beverages, the results of this study showed that clothing and footwear, as well as housing and utility, were necessity goods. Both of these commodities are considered as durable goods that can be related to the expenditure proportion. Clothing was found to occupy only approximately 3.38% of overall consumption in 2014 because it is durable in nature and the prices are relatively cheap. Similar to food, as household size increased, the spending on clothing would increase as well. Highly educated and younger household heads would spend more on clothing, possibly due to fashion trends. Bumiputeras were also found to spend more on clothing and footwear compared to non-

TABLE 3. OLS Regressions

VAR	Alcoholic Beverages & Tobacco			Clothing & Footwear			Education		
	2004	2009	2014	2004	2009	2014	2004	2009	2014
LY	-0.0925	-0.0502	0.0657	-0.5349	-0.3763	-0.3749	0.5507	0.5298	0.2382
	(0.1128)	(0.0721)	(0.0585)	(0.0723)***	(0.0602)***	(0.0402)***	(0.0916)***	(0.0660)***	(0.0441)***
LHHS	-0.4972	-0.2524	-0.1844	0.7724	0.7676	0.8361	0.7655	0.6180	0.6503
	(0.1531)***	(0.1127)***	(0.0737)**	(0.0809)***	(0.0696)***	(0.0434)***	(0.1002)***	(0.0668)***	(0.0366)***
AGE	0.2015	0.5077	0.3842	0.0499	0.1976	0.0875	-0.0295	0.0875	-0.2794
	(0.1343)	(0.1021)***	(0.0698)***	(0.0841)	(0.0687)***	(0.0436)**	(0.1196)	(0.0800)	(0.0434)***
MALE	2.5808	2.3796	2.1838	0.0556	-0.2351	-0.0038	-0.1022	-0.1413	-0.1833
	(0.2526)***	(0.1660)***	(0.1008)***	(0.1346)	(0.1128)**	(0.0593)	(0.1841)	(0.1328)	(0.0550)***
BUMI	-2.3922	-0.6166	-0.3483	0.0758	0.6591	0.6810	0.5622	-0.3667	-0.3749
	(0.4519)***	(0.1170)***	(0.0740)***	(0.2041)	(0.0694)***	(0.0430)***	(0.1734)***	(0.0830)***	(0.0521)***
URBN	-0.6232	-0.7108	-0.5728	0.0455	-0.1653	0.0102	0.2805	0.2120	0.2616
	(0.1516)***	(0.1190)***	(0.0807)***	(0.0931)	(0.0776)**	(0.0489)	(0.0933)***	(0.0727)***	(0.0410)***
MARD	-1.7878	-1.3743	-0.8410	-0.2694	0.0556	0.0890	-0.1007	0.0315	0.3061
	(0.2876)***	(0.1915)***	(0.1099)***	(0.1276)**	(0.1034)	(0.0558)	(0.1662)	(0.1182)	(0.0472)***
SEDU	0.1130	0.2423	-0.6910	0.3491	0.1111	0.3153	0.0565	-0.0140	0.2672
	(0.1259)	(0.0971)**	(0.0984)***	(0.0840)***	(0.0646)*	(0.0527)***	(0.1153)	(0.0770)	(0.0490)***
C	5.3646	2.4594	2.0403	6.4486	4.9964	4.5632	-4.1540	-3.5249	-2.0211
	(0.8112)***	(0.5321)***	(0.4354)***	(0.4876)***	(0.4325)***	(0.2955)***	(0.5514)***	(0.4302)***	(0.3209)***
R^2	0.0695	0.0530	0.0409	0.0326	0.0541	0.0609	0.0460	0.0418	0.0477
Adj R^2	0.0677	0.0518	0.0404	0.0308	0.0530	0.0604	0.0450	0.0406	0.0472
N	4225	6495	14383	4225	6495	14383	4225	6495	14383

VAR	Food & Non-Alcoholic Beverages			Housing, Water, Electricity, Gas & Other Fuels			Miscellaneous Goods & Services		
	2004	2009	2014	2004	2009	2014	2004	2009	2014
LY	-11.3213	-11.3753	-9.5698	-3.5200	-5.5958	-2.9214	1.8797	2.5580	1.6522
	(0.2930)***	(0.2219)***	(0.1410)***	(0.3616)***	(0.2680)***	(0.2197)***	(0.2161)***	(0.1951)***	(0.1297)***
LHHS	8.5153	7.7099	5.2484	-2.8164	-2.4988	-3.6824	1.1215	1.1771	0.8136
	(0.3311)***	(0.2613)***	(0.1629)***	(0.3801)***	(0.2682)***	(0.1965)***	(0.2084)***	(0.1807)***	(0.1053)***
AGE	-2.7845	-1.7798	-0.6142	-0.9870	-1.4175	-0.6665	0.2443	0.5119	0.3274
	(0.3319)***	(0.2509)***	(0.1555)***	(0.3837)**	(0.2592)***	(0.1807)***	(0.2515)	(0.1597)***	(0.0966)***
MALE	-2.6908	-3.2302	-1.1428	-2.9930	-1.8539	-2.0138	-1.5692	-0.9753	-0.8267
	(0.5779)***	(0.4196)***	(0.2421)***	(0.6564)***	(0.4639)***	(0.2825)***	(0.3330)***	(0.2984)***	(0.1402)***
BUMI	-5.8585	-0.2298	0.8321	1.9375	-2.9379	-2.4240	1.4852	0.5399	0.0164
	(1.0851)***	(0.2627)	(0.1606)***	(0.9513)**	(0.2776)***	(0.1946)***	(0.3597)***	(0.1682)***	(0.1091)
URBN	-2.2513	-2.4909	-2.9262	3.0045	4.4836	3.1667	-0.4289	-0.3959	-0.0353
	(0.3802)***	(0.2992)***	(0.1793)***	(0.3818)***	(0.2778)***	(0.1938)***	(0.2164)**	(0.1817)**	(0.1181)
MARD	4.7680	3.2739	0.7279	2.3184	0.1318	-0.4797	0.9483	0.1355	0.8942
	(0.5797)***	(0.4116)***	(0.2239)***	(0.6388)***	(0.4296)	(0.2546)*	(0.3006)***	(0.2903)	(0.1285)***
SEDU	-1.5908	-1.3730	-2.4827	-1.1159	-1.0998	-0.2528	1.1908	0.1131	0.2576
	(0.3154)***	(0.2494)***	(0.2094)***	(0.3615)***	(0.2525)***	(0.2235)	(0.2050)***	(0.1619)	(0.1395)*
C	103.9305	103.5275	96.7888	49.6576	71.2806	53.8670	-9.1133	-13.1208	-7.9077
	(2.1818)***	(1.6406)***	(1.0700)***	(2.4525)***	(1.59168)***	(1.6045)***	(1.3418)***	(1.24680)***	(0.9089)***
R^2	0.4262	0.4013	0.3807	0.0927	0.1946	0.1166	0.0873	0.0845	0.0519
Adj R^2	0.4251	0.4005	0.3803	0.0910	0.1936	0.1161	0.0855	0.0833	0.0514
N	4225	6495	14383	4225	6495	14383	4225	6495	14383

VAR	Health			Furnishings, Household Equipment & Routine Household Maintenance			Communication		
	2004	2009	2014	2004	2009	2014	2004	2009	2014
LY	0.5038	0.4999	0.5457	1.2490	1.2724	1.1178	1.5998	1.5725	1.0391
	(0.0855)***	(0.0749)***	(0.0521)***	(0.1328)***	(0.0880)***	(0.0732)***	(0.1274)***	(0.0948)***	(0.0623)***
LHHS	-0.4216	-0.3331	-0.6717	0.0143	-0.4012	-0.5133	-1.0256	-0.7026	-0.3456
	(0.1010)***	(0.0733)***	(0.0671)***	(0.3161)	(0.0989)***	(0.0673)***	(0.1513)***	(0.1036)***	(0.0655)***
AGE	-0.2966	-0.3965	-0.1887	0.7196	0.4577	0.4786	-0.3944	0.4102	0.2073
	(0.1094)***	(0.0775)***	(0.0589)***	(0.1639)***	(0.1100)***	(0.0759)***	(0.1484)***	(0.1064)***	(0.0647)***
MALE	-0.2032	-0.6023	-0.3074	-1.0529	-0.5333	-0.4703	0.4896	0.5974	0.0011
	(0.1649)	(0.1589)***	(0.0961)***	(0.2515)***	(0.1566)***	(0.1023)***	(0.2418)**	(0.1814)***	(0.0888)
BUMI	-0.1109	-0.3965	-0.1857	0.5941	0.9717	0.7717	0.5212	-0.2660	-0.1292
	(0.2403)	(0.0837)***	(0.0671)***	(0.2662)*	(0.1061)***	(0.0721)***	(0.3413)	(0.1141)**	(0.0678)*
URBN	-0.0048	-0.1085	-0.0914	-0.4299	-0.4254	-0.1678	0.4568	0.3329	0.5944
	(0.1130)	(0.0744)	(0.0638)	(0.1541)***	(0.1205)***	(0.0755)**	(0.1614)***	(0.1172)***	(0.0656)***
MARD	-0.0350	0.0785	-0.0606	1.1544	1.1763	0.6023	-0.5873	-0.7477	-0.1876
	(0.1649)	(0.1268)	(0.0880)	(0.2224)***	(0.1381)***	(0.0945)***	(0.2489)**	(0.1810)***	(0.0852)**
SEDU	-0.0093	-0.0993	-0.2793	0.1675	-0.2681	-0.2056	0.2094	0.0465	0.5264
	(0.1048)	(0.0756)	(0.0794)***	(0.1518)	(0.1026)***	(0.0815)**	(0.1467)	(0.1025)	(0.0722)***
C	-1.4560	-1.1410	-1.1632	-5.7709	-6.3566	-5.0534	-6.3672	-5.8228	-3.6071
	(0.5770)**	(0.4823)**	(0.3887)***	(0.7977)***	(0.5985)***	(0.5313)***	(0.8236)***	(0.6733)***	(0.4657)***
R^2	0.0129	0.0275	0.0201	0.0454	0.0522	0.0302	0.0643	0.0690	0.0608
Adj R^2	0.0110	0.0263	0.0196	0.0435	0.0510	0.0297	0.0625	0.0679	0.0603
N	4225	6495	14383	4225	6495	14383	4225	6495	14383

VAR	Recreation Services & Culture			Transport			Restaurants & Hotels		
	2004	2009	2014	2004	2009	2014	2004	2009	2014
LY	2.1612	2.2574	1.7969	7.6588	7.0885	4.7905	-0.1341	1.6192	1.6198
	(0.1395)***	(0.1020)***	(0.0818)***	(0.4256)***	(0.3478)***	(0.2113)***	(0.2861)	(0.2040)***	(0.1367)***
LHHS	-1.1657	-1.0302	-0.8823	-1.7833	-1.9785	-0.8730	-3.4791	-3.0758	-0.3956
	(0.1736)***	(0.1081)***	(0.0808)***	(0.3780)***	(0.2568)***	(0.1619)***	(0.3602)***	(0.2472)***	(0.1477)***
AGE	-0.0731	0.0543	-0.2235	1.7606	0.2243	0.0886	1.5892	1.1427	0.3987
	(0.1640)	(0.1057)	(0.0734)***	(0.3631)***	(0.2421)	(0.1518)	(0.3241)***	(0.2334)***	(0.1448)***
MALE	0.3914	0.1150	0.2567	1.7343	0.7692	1.1415	3.3597	3.7101	1.3645
	(0.2387)	(0.1652)	(0.1092)**	(0.5432)***	(0.3876)**	(0.2176)***	(0.6186)***	(0.4196)***	(0.2222)***
BUMI	0.3808	-0.8995	-0.7086	1.5155	3.0887	1.3638	1.2894	0.4536	0.5057
	(0.3340)	(0.1153)***	(0.0826)***	(0.6827)**	(0.2482)***	(0.1621)***	(0.9975)	(0.2503)*	(0.1454)***
URBN	-0.0652	-0.1280	-0.1287	-2.3466	-2.3755	-1.2890	2.3625	1.7718	1.1786
	(0.1643)	(0.1186)	(0.0829)	(0.3586)***	(0.2637)***	(0.1752)***	(0.3262)***	(0.2524)***	(0.1544)***
MARD	-0.3273	0.3158	-0.0271	-0.0827	1.4557	0.6612	-5.9991	-4.5327	-1.6846
	(0.2619)	(0.1622)*	(0.1089)	(0.5683)	(0.3390)***	(0.2047)***	(0.6409)***	(0.4355)***	(0.2100)***
SEDU	0.0251	0.1339	0.2561	0.2423	1.3572	1.1225	0.3625	0.8500	1.1665
	(0.1568)	(0.1040)	(0.0993)***	(0.3452)	(0.2330)***	(0.1862)***	(0.3022)	(0.2239)***	(0.1797)***
C	-11.0066	-11.7150	-8.5570	-43.4521	-41.3272	-26.3989	15.9188	0.7444	-2.5505
	(0.9139)***	(0.6726)***	(0.5773)***	(2.6099)***	(2.3246)***	(1.5093)***	(2.0203)***	(1.5586)	(1.0331)**
R^2	0.0777	0.1195	0.0734	0.1839	0.1910	0.1059	0.1381	0.0996	0.0413
Adj R^2	0.0760	0.1185	0.0729	0.1824	0.1900	0.1054	0.1364	0.0985	0.0408
N	4225	6495	14383	4225	6495	14383	4225	6495	14383

TABLE 4. Income Elasticity

	2004	2009	2014
Alcoholic Beverages & Tobacco	0.9577	0.9761	1.0267
Clothing & Footwear	0.8538	0.8909	0.8936
Education	1.3784	1.4925	1.2760
Food & Non-alcoholic Beverages	0.5475	0.5427	0.5997
Housing & Utility	0.8439	0.7750	0.8771
Miscellaneous Goods & Services	1.2568	1.3579	1.2503
Healthcare	1.4004	1.4164	1.3680
Furnishings & Household Equipment	1.3086	1.3640	1.3086
Communication	1.3414	1.3024	1.2151
Recreation Services & Culture	1.5928	1.6225	1.4217
Transport	1.6251	1.5861	1.3721
Restaurant & Hotels	0.9888	1.1490	1.1372

Note: negative e represents inferior goods; $0 < e < 1$ represents necessity goods; $e > 1$ represents luxury goods

Bumiputeras. On the other hand, housing and utility was found to form the highest spending proportion among consumption compositions with 23.42% in 2014, an approximately 2.5% rise compared to 2004. Although houses are also a durable good, they can be used as investment assets, which could explain the high spending proportion on housing. Household size was negatively associated with the share of expenditure on housing and utility. The reason could be that a house can fit a certain number of people, but purchasing extra houses is not an option when there is an increase in household size. It was also found that household heads older than 40 years old, females, and households residing in urban areas would spend more on housing and utility. In 2004, married household heads spent more on housing just for living, but in 2014, unmarried heads were spending more on housing, probably for investment purposes. Other than that, there are sign changes for ethnicity. In 2004, Bumiputeras spent more on housing and utility, but in 2009 and 2014, non-Bumiputeras expended more. This situation could be resulted from the subsidy advantage that Bumiputeras gain. Moreover, household heads with lower educational attainment were also found to spend more on housing and utility.

Another interesting finding of this study was that education and healthcare were revealed to be luxury goods. The expenditure proportion of both components was the lowest amongst the 12 categories, which was 1.06% and 1.57% in 2014, for education and healthcare respectively. The reason is perhaps the low cost of public education and healthcare services in Malaysia, as the government heavily subsidises both sectors. Additionally, since these two components are found to be luxury goods, a slight increase in income would cause the households to opt for private education and private healthcare services. The value of income elasticity for education was decreasing, which possibly means that education in the future may become a necessity good for Malaysians. From the aspect of household demographic characteristics, gender, age, marital status, and education attainment of household heads did not seem to have a significant influence on education expenditure. In line with initial expectations, households living in urban areas spent more on education compared to those in rural areas. Job competition is higher in urban areas; thus, education is highly emphasized. Despite the importance of education, aggregate expenditure on education was only about 1% of total expenditure, as the government provided free education at primary and secondary levels. Household size was positively related with education expenditure, which means that an increase in household size will lead to an increase in education expenditure. There is a significant sign change for Bumiputeras in their consumption of education. Bumiputeras spent more on education in 2004, but in 2009 and 2014, non-Bumiputeras tended to spend more on education, perhaps on private education.

Healthcare is needed by everyone, but this study found that it was a luxury good. Expenditure on healthcare was one of the highly elastic items, apart from transport and recreational services and culture. Its elasticity was 1.39, 1.41, and 1.36 in 2004, 2009, and 2014, respectively. Expectedly, household heads aged 40 and above spent more on healthcare compared to those aged 15 to 40. Besides that, it was found that household size was negatively associated with the share of expenditure on healthcare. Females and non-Bumiputeras were also found to be spending more on healthcare. The reason was that females face higher health risks relative to males, and they have a longer life expectancy. In addition, they are also charged with a higher health insurance premium. According to the Abridged Life Tables released by DOSM, life expectancy at birth in Malaysia was expected to be 76.8 years for females and 72.1 years for males in 2011. The statistics also showed that in 2017, Chinese and Indian had a longer life expectancy compared to Bumiputeras.

Two components exhibited special cases in this study, as they transformed from necessity to luxury goods during the ten years period. The two components were restaurants and hotels, and alcoholic beverages and tobacco. Income elasticity for restaurants and hotels was 0.98 in 2004 but switched to 1.14 and 1.13 in 2009 and 2014. It was the fourth largest component spent by households, which was around 12.28% in 2014. A high expenditure proportion and income elasticity indicate that the component is highly sensitive to changes in income. A small rise in income over the years would increase a great amount of the quantity demanded for

restaurants and hotels. Possibly, due to the rising cost of living, households could not afford the component as a necessity item. However, its income elasticity has marginally decreased, but it was still a luxury good. This situation may be caused by lifestyle changes. More individuals begin to value the importance of leisure activities. Plus, with the lower cost of travel, tourism demand, where eating out and accommodation are necessary, may climb. According to the Domestic Tourism Survey 2014, expenditure on food and beverages and accommodation accounts for 23% of the total expenditure of domestic tourists. Based on the estimated demographic variables, household heads aged 15 to 40 would spend more on restaurants and hotels compared to those who are older. Other than that, heads who are males, Bumiputeras and attained secondary education and above, and households staying in urban areas were found to be spending more on restaurants and hotels. Married household heads also tended to spend less compared to heads with other marital status. Furthermore, this study found that as household size increased, the expenditure on the share of restaurants and hotels would decrease.

Alcoholic beverages and tobacco, the second special case, were a necessity in 2004 and 2009, with income elasticities of 0.95 and 0.97. However, the component changed into a luxury good in 2014, with an income elasticity of 1.02. It is not surprising that alcoholic beverages and tobacco were considered as necessities as they are addictive. Therefore, it is difficult for a drinker and or smoker to quit drinking and smoking in the short-run despite their harm to the body. The change from necessity to luxury goods could perhaps be caused by the quicker rise in consumption of the goods (due to addiction) compared to the increase in income. According to The Star Online in 2015, about 20,000 people die annually from smoking, and the highest number of smokers are men between the ages of 15 and 24. The fact is in line with this study, where household heads aged 15 to 40, males, and unmarried were found to be spending more on alcoholic beverages and tobacco. In recent years, due to stronger public awareness and inflation, alcoholic beverages and tobacco have become luxury goods, which means that an increase in the quantity consumed is greater than the increase in income. Conversely, it also means that when there is a slight decrease in income, there will be a large fall of quantity demanded on alcoholic beverages and tobacco. Unsurprisingly, education plays an important role in creating awareness and changing the consumption behaviour of alcohol and tobacco users. In 2009, it was found that household heads with secondary education and above were spending more on alcoholic beverages and tobacco. Yet, in 2014, those with lower educational attainment occupied this position. Income was found to be insignificant for the share of expenditure of alcoholic beverages and tobacco, probably because the majority of Malaysians are Muslims, who are not allowed to consume alcoholic beverages, causing the data to be insufficient for the regression. The results further showed that Bumiputeras spent less on alcoholic beverages and tobacco compared to non-Bumiputeras. Besides that, we contend that the insignificant value for the income variable is because of addiction, where consumption is independent of income, a phenomenon known as autonomous consumption. Consumers addicted to alcohol and tobacco will find ways to obtain them regardless of their income level. It was also found that rural households spent more on alcoholic beverages and tobacco, perhaps as a way to relax after work.

All other expenditure components such as furnishings and household equipment, communication, and miscellaneous goods and services were found to be luxury goods for Malaysian households. Although the income elasticities were greater than one, the values displayed a downwards trend for all luxury goods. This finding indicates that the consumption of these components is becoming less sensitive to income changes. These components may become necessity goods in the future according to the income elasticity trend found in this study. The regression results evinced that as income increased, expenditure on all luxury items followed suit. Aggregately, households spent about 5.17% of their total consumption on communication in 2014. Household size had a negative relationship with the share of expenditure on communication. Besides that, it is found that males, non-Bumiputeras, and unmarried heads with secondary education level and above residing in urban areas were most likely to spend on communication. In 2004, household heads aged 40 and above spent more on communication, but from 2009, those aged from 15 to 40 began to spend more. The increasingly digitised world has driven the younger generation to use the internet and smartphones for socialising and working purposes.

Moreover, furnishings and household equipment were found to be classified as luxury goods as well. The results showed that an increase in household size would decrease the expenditure on furnishings and household equipment. Household heads that were females, Bumiputeras, married, attained below secondary education, aged 15 to 40, and staying in rural areas were found to be spending more on furnishings and household equipment. Lastly, miscellaneous goods and services like personal care, insurance, and financial services were considered as luxury goods. However, the value of elasticity was decreasing. A consistent downwards trend may cause the items to change from luxury to necessity goods. Expenditure on miscellaneous goods and services was found to be positively affected by household size. Household heads aged 15 to 40, females, Bumiputeras, married, attained secondary education and above, and lived in rural areas were found to spend more on miscellaneous goods and services.

There are many important findings obtained from this study that should be emphasised upon. Firstly, in conformity with past studies, the independent variables, income and household size, were proven as significant factors in influencing household consumption patterns. The finding of this study is consistent with Keynes' theory of consumption, whereby income is positively related to expenditure, especially on luxury goods. As for household size, it had a positive relationship with necessity goods, except for housing, and a negative relationship with luxury goods, except for education and miscellaneous goods and services. All examined expenditure composition returned income elasticity values of greater than zero, which means that no inferior goods were detected. Besides, this study also fulfilled the theoretical framework of Engel's law, whereby income increases cause the expenditure proportion on food to decrease.

Consumption patterns can be indirectly linked to personal bankruptcy by investigating the household demographic variables. This study found that households led by youth aged 15 to 40 years old tended to consume more luxury goods like alcoholic beverages and tobacco, furnishings and household equipment, communication, transport, restaurants and hotels, and miscellaneous goods and services. The exception was clothing and footwear, both of which were considered as necessities. In 2014, the total aggregate expenditure on those luxury commodities accounted for approximately 45% of total expenditure. Focusing a high spending share on luxury goods may be the reason why personal bankruptcy among youths are the highest across all age groups. Consumption patterns are assumed to have an impact on personal bankruptcy (Adams et al. 2014; Guettabi & Munasib 2015; Shrime et al. 2018; Zhu 2011).

Furthermore, statistics from MDI showed that males are twice more likely than females to declare bankruptcy, which may be due to the types of consumption. Males were found to be spending more on luxury goods such as transport, alcoholic beverages and tobacco, communication, restaurants and hotels, and recreation services and culture. Consumption on luxury goods could also be the reason behind the incurrence of debts, considering that a small increase in income would cause them to consume a greater quantity of these luxury goods. According to MDI, expenditure on hire and purchase of vehicles was the most common cause of personal bankruptcy, which was about 30.43% in 2014.

Apart from that, from the aspect of ethnicity, Bumiputeras were found to be spending more on two out of three necessity goods, which were clothing and food. A high proportion of spending on necessity goods could reduce their disposable income. However, the findings showed that Bumiputeras were also spending more on luxury goods like furnishings and household equipment, transports, restaurants and hotels, miscellaneous goods and services compared to non-Bumiputeras. Extra spending on these unnecessary goods and services may cause them to face financial difficulties, leading to debts and bankruptcy.

Finally, this study also found that households living in urban areas spent more on housing and utility, education, communication, and restaurants and hotels, all of which were luxury goods. According to MDI, more developed states such as Selangor, Kuala Lumpur, Pulau Pinang, Ipoh, and Johor Bahru exhibit higher filed bankruptcy cases compared to rural areas. MDI statistics showed that housing loans are the third highest factor of personal bankruptcy, accounting for 17.36% of all cases in 2014. Observed from the expenditure proportion trend, spending on housing and utility has been increasing since 2004. Housing loans could be one of the reasons for households in urban areas to have a higher tendency to file bankruptcy, considering the elevated housing prices in urban areas.

CONCLUSION

This section reiterates and synthesizes the facts and key findings found in this study. Recommendations are suggested based on observations and evidences obtained from the findings.

As supported by the literature, consumption patterns influence personal bankruptcy filings. This study used data from Malaysia Household Expenditure Survey from 2004, 2009, and 2014 to analyse the consumption patterns of Malaysian households. Expenditure proportions and income elasticities were analysed, compared, and linked to the statistics and characteristics of personal bankruptcy to identify the potential determinants for bankruptcy.

The objectives of the study were met. Income was found to be significant in influencing the share of expenditures on all components of expenditure, except alcoholic beverages and tobacco. Income did not significantly affect consumption of alcoholic beverages and tobacco, possibly due to their addictive nature. Regardless of their income level, consumers of both will try to obtain the goods. Next, income was found to have a positive relationship with all luxury goods, except for alcoholic beverages and tobacco. The findings of this study are consistent with Keynes' theory of consumption, whereby income is positively related to expenditure. As for necessity goods, an increase in income would cause the share of expenditures to decline, verifying the existence of Engel's law. The first objective of this study, which is to investigate the relationship between consumption patterns and income in Malaysia, was achieved.

The second objective is to examine the income elasticity of the expenditure composition of Malaysian households. Based on the results, food and non-alcoholic beverages, housing and utility, and clothing and footwear were found to be the necessities for Malaysian

households. Meanwhile, education, healthcare, transport, communication, furnishings and household equipment, restaurants and hotels, alcoholic beverages and tobacco, recreation services and culture, and miscellaneous goods and services were luxury goods. There were two special cases where alcoholic beverages and tobacco, as well as restaurants and hotels, switched from necessity goods to luxury goods. This situation could probably be explained by the rising living cost, requiring households to transfer most of their disposable income to necessity goods. Other than that, there was an interesting finding where education and healthcare were not found to be necessity items for Malaysian households. Possibly, as income increases, households tend to acquire better options like private education and private healthcare services.

To link between consumption patterns, income, and personal bankruptcy filings, the income elasticities of the expenditure composition and proportions were analysed together with household demographic variables. According to the statistics from MDI, youths made up the majority of bankruptcy filings. Households led by youths, who were aged from 15 to 40, tended to spend more on luxury goods compared to those led by heads older than 40 years old. In 2014, the former approximately spent 45% of total expenditure on luxury goods. Males are twice more likely than females to declare bankruptcy, probably because of their high expenditure on luxury goods, which was about 40% of total expenditure in 2014. Bumiputeras were found to be spending more on necessity goods like food and non-alcoholic beverages and clothing and footwear compared to non-Bumiputeras. At the same time, Bumiputeras also spent more on certain luxury goods. The households' disposable income may not be sufficient to support all their needs and wants, causing financial difficulties that may lead to debts and bankruptcy. Lastly, households residing in urban areas also tended to spend on luxury goods, especially on housing and utility. Expensive housing prices and high proportion of spending on housings could result in personal bankruptcy filings.

Overall, the results of this study pointed to a clear conclusion: income is a crucial element that determines the consumption patterns of Malaysian households. On the other hand, consumption patterns also influence income, where the financial status of households depend on their consumption patterns. Bad consumption patterns can cause households to fall into debt traps, increasing the probability of declaring bankruptcy.

Based on the expenditure shares, Malaysian households spent quite a high proportion on housing and utility, food and non-alcoholic beverages, transport, and restaurants and hotels. Accounting for household demographic factors, those who were more likely to file for bankruptcy shared a common characteristic: high expenditure share on luxury goods like transport and restaurants and hotels. The Malaysian government has provided subsidies to help people to cope with the rising cost of living. Subsidies are distributed into many sectors, such as transport, education, and healthcare, as well as ensuring essential items like sugar, rice, flour, cooking oil and cooking gas are sold at controlled prices. Moreover, the government also produces and subsidises on low cost housing to lighten the burden of the people.

However, inflation and taxes caused people to still suffer and live under a standard of living lower than what Malaysia's GDP per capita indicates. This is caused, presumably, by the high percentage of middle- and low-income families in Malaysia, who constitute around 80% of the nation. From here, it is suggested that the government revise the current tax and subsidy policies to ease the life of the people in order to become a high-income and well-developed nation. Reductions or exemptions in income tax for fresh graduates and low-income households would ease the burden of the people. Besides, the government should allocate the national budget effectively and efficiently to help reduce the cost of living.

In addition, more studies should be done on the demand systems to adjust and control price and inflation. The consumption patterns of Malaysian households exhibited high spending on housing and utility, food and non-alcoholic beverages, transportation, and restaurants and hotels. Policymakers could target on these expenditure components and design appropriate policies to better control inflation and price hikes. The central bank should also monitor and control credit systems because personal loans, including credit cards, were the second highest factor of bankruptcy, as surveyed by MDI. Lastly, public awareness of debt and bankruptcy should be improved, and more channels should be provided to enable individuals to reach out for assistance.

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APPENDIX A: DESCRIPTIVE STATISTICS

	2004					2009					2014				
Var	Mean	Min	Max	SD	N	Mean	Min	Max	SD	N	Mean	Min	Max	SD	N
Alcohol & Tobacco	2.1852	0.0000	47.6374	4.2400	4225	2.1035	0.0000	37.5933	3.9725	6495	2.4638	0.0000	46.3900	3.9877	14838
Clothing & Footwear	3.6589	0.0000	21.4535	2.6015	4225	3.4495	0.0000	40.3489	2.6570	6495	3.5253	0.0000	32.4200	2.4716	14838
Education	1.4552	0.0000	68.3413	3.3752	4225	1.0757	0.0000	46.6245	3.0143	6495	0.8631	0.0000	67.5800	2.5092	14838
Food & Non-Alcoholic	25.0229	0.0000	90.0816	13.2674	4225	24.8781	0.0000	85.9339	12.4170	6495	23.9062	0.0000	78.2200	10.9714	14838
Housing & Utility	22.5509	0.0000	77.8801	11.6865	4225	24.8678	1.7895	81.8365	11.0847	6495	23.7663	0.0000	92.1200	10.6604	14838
Miscellaneous	7.3193	0.0000	80.4197	6.4236	4225	7.14625	0.0000	77.2344	6.6270	6495	6.6011	0.0000	89.5200	5.6329	14838
Healthcare	1.2579	0.0000	61.3809	3.2407	4225	1.2008	0.0000	63.1340	2.9601	6495	1.4826	0.0000	64.4800	3.2718	14838
Furnishings & Equipment	4.0472	0.0000	48.1530	4.7037	4225	3.4950	0.0000	64.4772	4.2040	6495	3.6223	0.0000	61.6000	3.9457	14838
Communication	4.6853	0.0000	41.8120	4.6476	4225	5.2001	0.0000	32.5418	4.2052	6495	4.8317	0.0000	48.5000	3.5523	14838
Recreation & Culture	3.6452	0.0000	69.9614	4.9576	4225	3.6261	0.0000	42.2058	4.3582	6495	4.2614	0.0000	56.7800	4.3627	14838
Transport	12.2500	0.0000	82.3242	11.4900	4225	12.0932	0.0000	85.3059	10.2311	6495	12.8735	0.0000	83.6400	8.8522	14838
Restaurants & Hotels	11.9214	0.0000	82.4472	10.2423	4225	10.8636	0.0000	82.2931	9.4099	6495	11.8028	0.0000	72.5100	7.9689	14838
LY	7.3184	4.3399	9.8257	0.6796	4225	7.4855	4.1946	10.5862	0.6422	6495	7.9337	5.8618	10.7970	0.5900	14838
LHHS	1.3149	0.0000	2.9444	0.5949	4225	1.2813	0.0000	2.8903	0.5863	6495	1.3414	0.0000	3.1355	0.5209	14838
AGE	0.3633	0.0000	1.0000	0.4810	4225	0.3755	0.0000	1.0000	0.4843	6495	0.3511	0.0000	1.0000	0.4773	14838
MALE	0.8350	0.0000	1.0000	0.3711	4225	0.8386	0.0000	1.0000	0.3678	6495	0.8478	0.0000	1.0000	0.3592	14838
BUMI	0.9519	0.0000	1.0000	0.2138	4225	0.6438	0.0000	1.0000	0.4788	6495	0.6818	0.0000	1.0000	0.4658	14838
URBN	0.6721	0.0000	1.0000	0.4694	4225	0.6925	0.0000	1.0000	0.4614	6495	0.6905	0.0000	1.0000	0.4623	14838
MARD	0.8007	0.0000	1.0000	0.3995	4225	0.7826	0.0000	1.0000	0.4125	6495	0.7909	0.0000	1.0000	0.4067	14838
SEDU	0.4520	0.0000	1.0000	0.4977	4225	0.5028	0.0000	1.0000	0.5000	6495	0.7800	0.0000	1.0000	0.4143	14838

Note: Expenditure components = actual monthly expenditure of each component / monthly income, LY is log income, LHHS is log household size, AGE is household heads aged within 15-40 as "1", MALE is household heads are male as "1", BUMI is household heads are bumiputra as "1", URBN is households stay in urban areas as "1", MARD is household heads that are married as "1", SEDU is household heads with secondary education and above as "1". income.