

## EXPLORATORY DATA ANALYSIS ON HOUSEHOLD EXPENDITURE SURVEY 1998 AND 2014

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Submitted: 24-08-2018

Revised edition: 01-12-2018

Accepted: 25-02-2019

Published online: 15-06-2019

### ABSTRACT

*Household Expenditure Survey (HES) was utilized to accumulate information on the level and patterns of consumption expenditure of private households. It was additionally used to update the weighting patterns and to decide the items in the basket of goods and services for the compilation of the Consumer Price Index for Malaysia. The primary goals of HES are to assemble information on the level and pattern of consumption expenditure by household on a comprehensive range of goods and services. It additionally to decide the goods and services to be included into the basket of the Consumer Price Index (CPI) and to update the CPI weights which is a proportion of expansion rate in the country. Hence, this study is conducted based on HES information gathered on 1998 and 2014. The objectives of this study are to implement Exploratory Data Analysis (EDA) approach on HES data for the year 1998 and 2014 and to define who is the good spender and the bad spender is based on their income and expenditure.*

**Keywords:** Household Expenditure Survey (HES), Exploratory Data Analysis (EDA), expenditure, income

## **1.0 INTRODUCTION**

### **Definition of Household Expenditure Survey (HES)**

Household spending is the total value of last consumption expenditure made by resident households to meet their regular needs, for example, food, clothing, housing or rent, energy, transport, durable goods (notably, cars), health costs, leisure, and miscellaneous services. It is regularly around 60 percent of gross domestic product (GDP) and is thusly a fundamental variable for economic analysis of demand. Household spending, including government exchanges, is the genuine individual consumption that equal to households' consumption expenditure in addition to those (individual) expenditures of general government and non-benefit institutions serving households (NPISHs) that specifically give benefit to households, for example, health care and education (The Organization for Economic Co-operation and Development [OECD], 2015).

Malaysia's average monthly household expenditure developed at a quicker rate than average monthly household income in the initial six months of 2014 (Department of Statistic [DOS], 2014). The report depends on information gathered from 42,000 households all through the country in the initial six months of the year. The survey will cover on 83,456 households by the end of the year. As indicated by the report, the median monthly household income rose 8 percent yearly to RM4,258 in 2014 from RM3,626 in 2012 while the mean monthly income became 8.4 percent to RM5,919 from RM5,000 in a similar period (World Bank, 2018). Therefore, the question is what are the attributes and patterns of HES data for the year of 1998 and 2014?

In spite of higher incomes, the increasing cost of living remained a significant concern for Malaysians. The average monthly household expenditure expanded by 8.8% yearly to RM3,496 in 2014 from RM2,254 in 2009. The main contributors to household expenditure were housing, water, electricity, gas and other fuel categories (22.8%), followed by food and non-alcoholic beverages (18.1%), transport (15.4%) and restaurants and hotels (12.3%). The study demonstrated that urban and rural households in every one of the states profited from the income development with overall incidence of poverty diminishing to 1% in 2014. All states aside from Sabah recorded a poverty incidence of underneath 2 percent. Nonetheless, this study will answer the

question regarding who are the good spenders and the bad spenders based on their income and expenditure.

The economic report includes that the government will keep on tending to the issue in a holistic and coordinated way, through the execution of the policies and programs of the different ministries and agencies involved in reducing the burden of the people. Datuk Seri Najib Tun Razak who was a former Malaysian Prime Minister said that the government has been providing subsidies to decrease the expenses of goods, for example, rice and petroleum products, and services but has complained that the subsidies are straining its fiscal position (The Star, 2014).

The primary objectives of the study is to implement EDA approach on HES data for the year 1998 and 2014 and to define who is the good spender and the bad spender based on their income and expenditure. A significant and strong relationship among income and types of household expenditure is explored from the socioeconomic view. This will assist us to investigate how the living standards of those families are influenced due to many changing situations for example, economic recession, government interventions and changes in social and economic situations. Short and long-term income elasticity of some consumption items using such panel data on households would be a great interest in making proper appropriate policies (OECD, 2015).

This study also proposes household expenditure information would be beneficial so as to be better conduct survey studies over nations and after some time that to be urged to save for their future needs. To put it plainly, figuring out how to deal with the money wisely requires time and effort. Doubtlessly, it relies upon individuals in the society and their acknowledgment of the significance of saving. A generous bit of household income devoted to productive loans characterizes most Malaysians as the economy advances to a progressively advance stage.

## **2.0 METHODOLOGY**

### **2.1 Research Design**

The research mainly focuses on exploratory data analysis (EDA). EDA is an approach of data analysis. A good analysis must first undergo EDA process. The purpose of EDA is to provide a deep understanding about data of our interest. Then a better statistical analysis can be executed. The right understanding of data, the right statistical analysis, will provide accurate results to avoid abuse of statistic.

### **2.2 Background of the Data**

The data used in this study are micro-level data from the Household Expenditure Survey 2014 and 1998-1999 conducted by the Department of Statistics Malaysia. The survey covers randomly chosen household from all regions of Malaysia. Survey units are randomly chosen from the selected municipalities and six two-or-more-person households are randomly chosen in each survey unit from 16 states which are Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Penang, Perak, Perlis, Selangor, Terengganu, Sabah, Sarawak, Federal Territory of Kuala Lumpur, Federal Territory of Labuan and Federal Territory of Putrajaya.

The data set consist of three blocks, in which block 1 is about the details of the households. Details of state, area, strata, ethnicity, the household monthly expenditure and additional information on household income for 2014 are also included.

Second block of HES is the details of the household members. Variables involve are number of household members, the relationship with household leader, the gender, age, marital status, educational background, employment status, and occupation. The third block consist of details of the household expenditure.

### **2.3 Summary of Data**

#### **1. Block I: Household Details**

Block 1 is about the details of the households. It generally include all the details about total number of household, state, area, strata, ethnicity,

the household monthly expenditure and additional information on household income for 2014 are also included.

Table 1: Table of household details background data

No	Data	Type of Data	Continuous/ Discrete	Level of Measurement
1	Household ID	Qualitative	Discrete	Nominal
2	Weighted	Quantitative	Continuous	Ratio
3	Household No.	Qualitative	Discrete	Nominal
4	Total No. of Household	Quantitative	Discrete	Ratio
5	Area/ District	Qualitative	Discrete	Ordinal
6	State	Qualitative	Discrete	Nominal
7	Strata	Qualitative	Discrete	Ordinal
8	Ethnic	Qualitative	Discrete	Nominal
9	Total Household Expenditure	Quantitative	Continuous	Ratio
10	Total Household Income	Quantitative	Continuous	Ratio

## 2. Block II: Details of Household Members

Block II of HES is the details of the household members. Variables that involve are number of household members, the relationship with household leader, the gender, age, marital status, educational background, employment status, income recipient and occupation.

Table 2: Table of household members background data

No	Data	Type of Data	Continuous/ Discrete	Level of Measurement
1	Household ID	Qualitative	Discrete	Nominal
2	Household No.	Qualitative	Discrete	Nominal
3	Relationship to Head of Household	Qualitative	Discrete	Nominal
4	Gender	Qualitative	Discrete	Nominal
5	Age	Quantitative	Continuous	Ratio
6	Ethnic	Qualitative	Discrete	Nominal
7	Nationality	Qualitative	Discrete	Nominal
8	Marital Status	Qualitative	Discrete	Nominal
9	Education Status	Qualitative	Discrete	Ordinal
10	Highest Certificate Obtained	Qualitative	Discrete	Ordinal
11	Activity Status	Qualitative	Discrete	Nominal

12	Income Recipient	Qualitative	Discrete	Nominal
13	Industry	Qualitative	Discrete	Nominal
14	Occupation	Qualitative	Discrete	Nominal

### 3. Block III: Household Expenses

Block III consists of details of the household expenditure. It presents Malaysian Household ID, what kinds of items that they have spent and the amount on every each of the items.

Table 3: Table of household expenses background data

No	Data	Type of Data	Continuous/ Discrete	Level of Measurement
1	ID	Qualitative	Discrete	Nominal
2	Item	Qualitative	Discrete	Nominal
3	Amount	Quantitative	Continuous	Ratio

## 3.0 DATA ANALYSIS AND FINDINGS

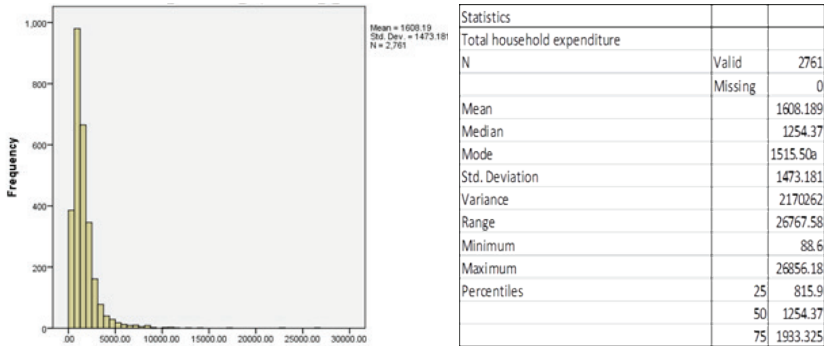
### 3.1 Data Analysis

In this study, we focused more on descriptive analysis. The range for each group of expenditure such that low, medium and high for the year 1998 and 2014 are not the same. There is a 16 years gap in between those two years. So, the cost of living has increased dramatically. The economic environment also changing that it is not comparable with the same expenditure range. If the same range is used for both years, then the skewness of the data will increase.

#### **Household Expenditure Survey for the year 1998**

The total households' expenditure is divided into three groups which are low, medium and also high expenditure. The groups were divided after calculating the quartiles of expenditure data. The range for low is below RM900 (first quartile) while for medium is between RM900 to RM2000. As for the high expenditure, the range is RM2000 (third quartile) and above. The exploratory data analysis on the year of 1998 is discussed afterwards.

Table 4: Table summary of expenditure in 1998



### Analysis for Low Expenditure In 1998

The data for low expenditure group are balance. The mean is reliable to represent the data of the group. This group average spending expenditure is RM617.81.

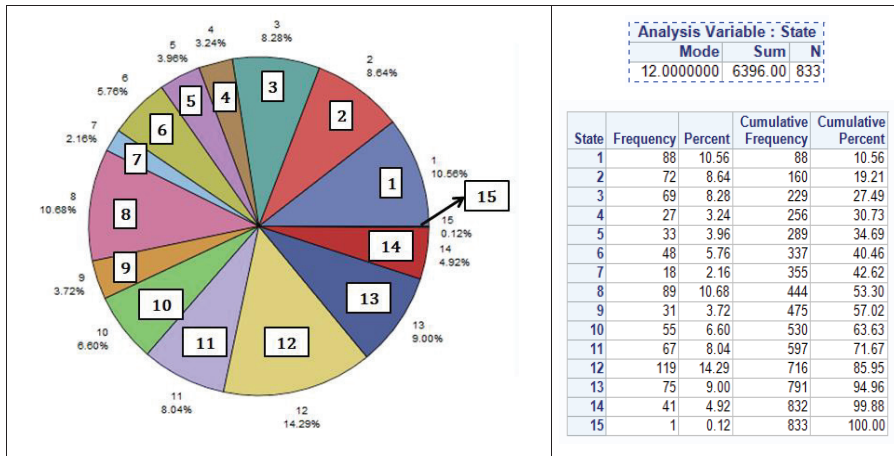
Table 5: Table summary of low expenditure in 1998

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	617.8183
Std Dev	Sigma	192.5665

### Analysis by State (Low Expenditure in 1998)

Majority of the low expense group are from Sabah. The reason behind this is Sabah is a less develop state in 1998. The cost of living in Sabah is low. Many of them are living in the remote area where they live on the natural resources as their food sources. The main economic activity in 1998 was farmer. They grow crops for their living. Some of them are from fisherman for the people who live by the sea. This part of Sabah depends on the sea produce as their food sources.

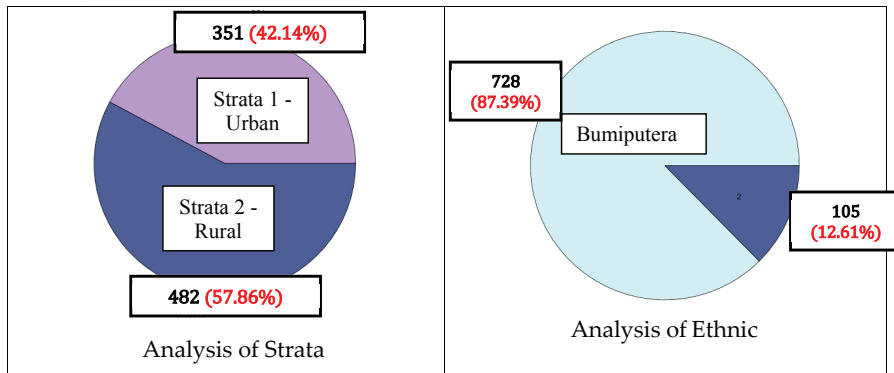
Table 6: Table summary of state for low expenditure in 1998



**Analysis by Strata and Ethnic (Low Expenditure in 1998)**

Percentages of living in rural area are higher. The cost of living is lower in the rural area, providing them to spend less. Consider there is no supermarket and shopping mall in the rural area. Meanwhile, the pie chart for analysis of ethnic shows that 728 of respondents are Bumiputera, while 105 of them are non-Bumiputera. Bumiputera is placed in the rural area since the British era. They are practicing the traditional economic of farming in rural area. Their income level is low, effect the low expenditure by this group.

Table 7: Table summary of strata and ethnic for low expenditure in 1998





### Analysis by Total Household Member (Low Expenditure in 1998)

Most of the lower expenditure groups have one, two or three members per household only. Basically, less member, the expenditure of the household is low compared to bigger household. Their total everyday needs depend on the number of household member.

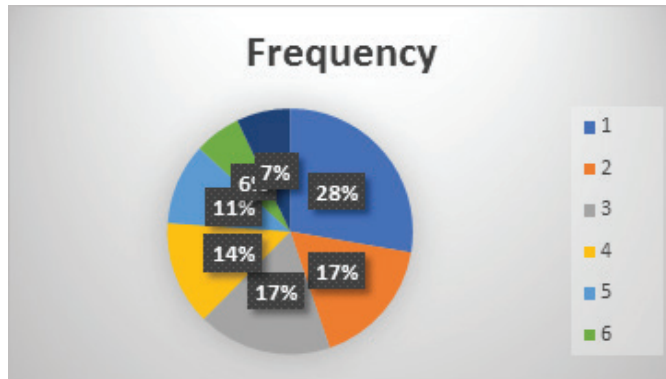


Figure 1: Pie chart of total household member for low expenditure in 1998

### Analysis for Medium Expenditure in 1998

This group average spending expenditure is RM1361.26 while the median is RM1327. This group expenses range from RM900-2000.

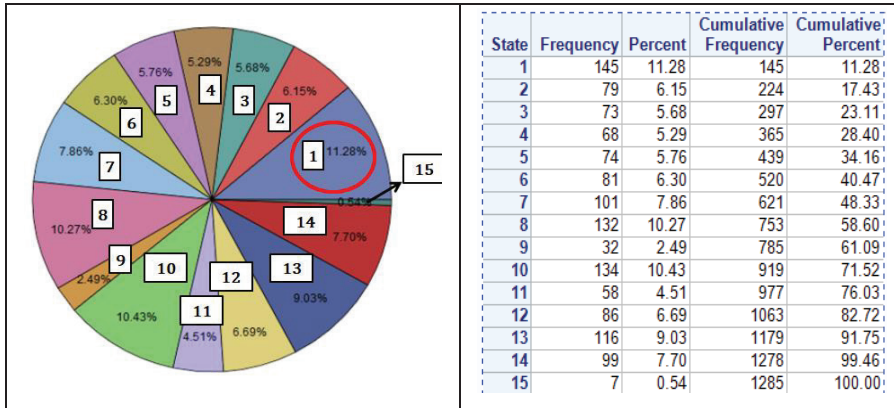
Table 8: Table summary of medium expenditure in 1998

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	1361.262
Std Dev	Sigma	301.2592

### Analysis by State (Medium Expenditure in 1998)

The biggest portion of the medium expenditure subgroup is from Johor. This is because Johor started to become industrial-based state. Many industries were set up in Johor. The economy shifted from traditional economy to industrial economy. Same thing happen to the 2nd highest frequency that happen to be in Selangor.

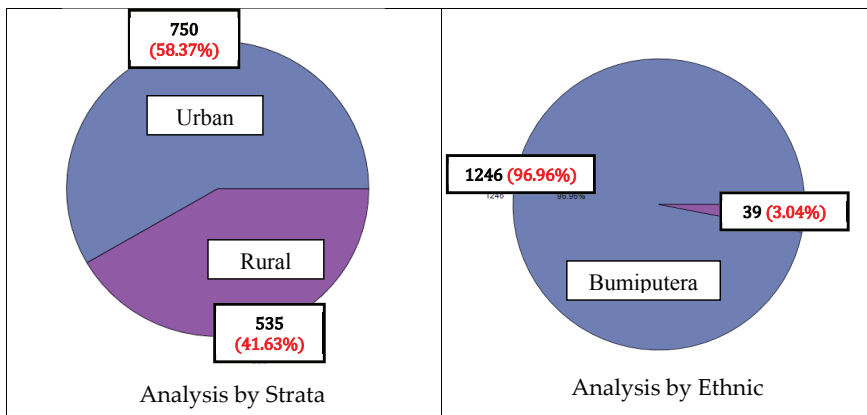
Table 9: Table summary of state for medium expenditure in 1998



**Analysis by Strata and Ethnic (Medium Expenditure in 1998)**

By analyzing the strata for medium expenditure, the percentage of living in urban area is higher compare to rural area. The cost of living is slightly higher in the urban area. The expenditure of this medium group is higher than the lower expenditure group since they experience higher cost of living. There are many facilities, goods and services available in the urban area such as movie cinema, shopping mall and other entertainment park. Meanwhile, the pie chart for analysis of ethnic shows that a majority with 97 percent of the respondents are Bumiputera and others are non-Bumiputera. The Bumiputera were prioritized by the government. Bumiputera were provided with many assistance aids from the government.

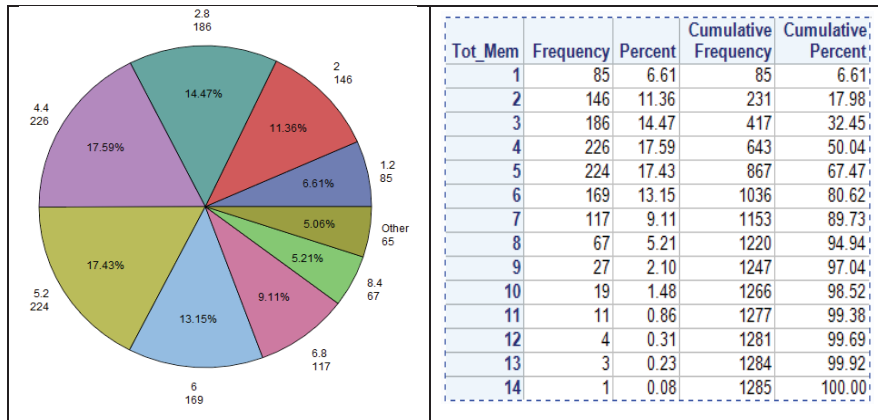
Table 10: Table summary of strata and ethnic for medium expenditure in 1998



### Analysis by Total Household Member (Medium Expenditure in 1998)

Most of respondent are having four or five members per household. The expenditure is moderate; the spending is for necessity only not for luxury. Those we can specify that the medium expenditure groups are good spender provided that their spending are optimum.

Table 11: Table summary of total household member for medium expenditure in 1998



### Analysis for High Expenditure in 1998

For the group, median is more reliable as the indicator for the majority since there are few extreme value of expenditure. The median for the group is RM2687.39. The highest amount of expenditure is RM26,000.00.

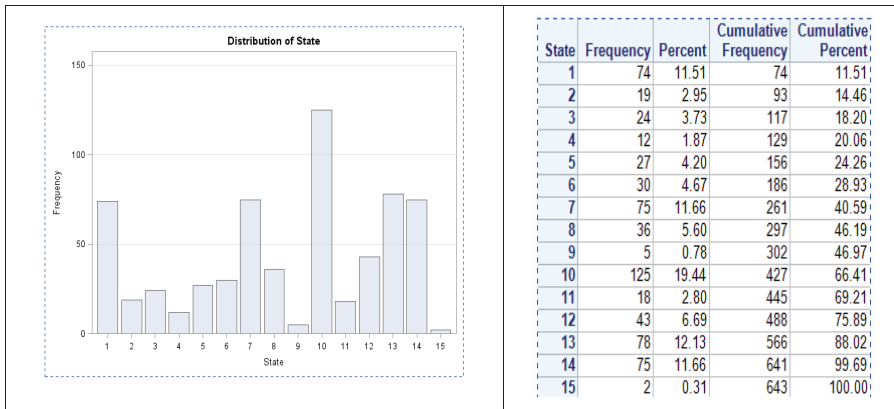
Table 12: Table summary of high expenditure in 1998

Basic Statistical Measures			
Location		Variability	
Mean	3384.674	Std Deviation	2132
Median	2687.390	Variance	4545031
Mode	2689.190	Range	24854
		Interquartile Range	1358

### Analysis by State (High Expenditure in 1998)

The highest number of high expender comes from Selangor. Selangor is a developed state where many big companies were set up in Selangor. The high-income people are from Selangor. High income leads to high expenditure.

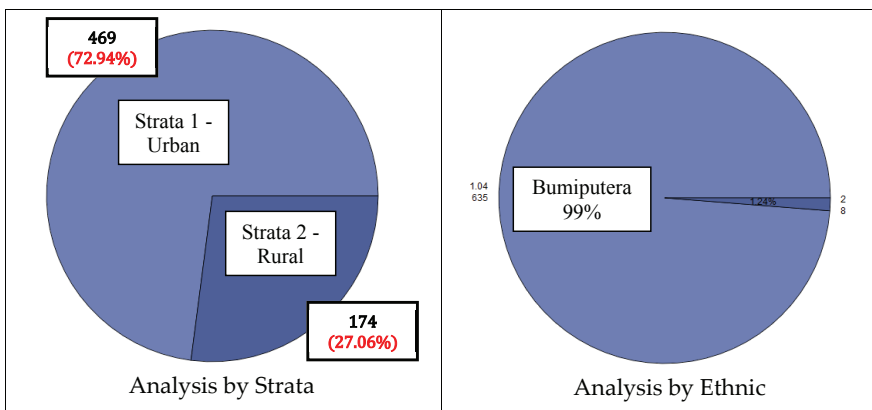
Table 13: Table summary of state for high expenditure in 1998



### Analysis by Strata and Ethnic (High Expenditure in 1998)

The percentages of living in urban area are high. The cost of living is slightly higher in the urban area. There are many facilities, goods and services available in the urban area. Meanwhile, the pie chart for analysis by ethnic shows that majority with 99 percent are Bumiputera and only 1 percent is non-Bumiputera. The Bumiputera were prioritized by the government. Bumiputera own the wealth and luxury in their own country.

Table 14: Table summary of strata and ethnic for high expenditure in 1998



### Analysis by Total Household Member (High Expenditure in 1998)

Most of respondent are having five and six members per household. Bigger household needs larger amount of expenditure. This shows that the medium and high expenditure are having about the same number of household member. Then we can come to a decision that this group member is having the expenditure above the average. The spending is not only for their necessity but also include their desire. The reason is maybe because they are having higher income. The extreme expenditure of 26K is assumed as bad spender because the spending is beyond the necessity and they should having part of the expenditure as a saving.

Table 15: Table summary of total household member for high expenditure in 1998

Tot_Mem	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	21	3.27	21	3.27
2	50	7.78	71	11.04
3	57	8.86	128	19.91
4	111	17.26	239	37.17
5	130	20.22	369	57.39
6	126	19.60	495	76.98
7	66	10.26	561	87.25
8	31	4.82	592	92.07
9	19	2.95	611	95.02
10	16	2.49	627	97.51
11	8	1.24	635	98.76
12	3	0.47	638	99.22
13	3	0.47	641	99.69
14	1	0.16	642	99.84
15	1	0.16	643	100.00

### Household Expenditure Survey for the Year 2014

The total households' expenditure is divided into three groups which are low, medium and also high expenditure. The groups were divided after calculating the quartiles of expenditure data. Low expenditure is defined by the households with expenditure less than or equal to RM1900.45. Medium expenditure is defined by the households with expenditure between RM1900.45 and RM4053.35. Last but not least, the high expenditure group is specified by households who spend more than or equal to RM4053.35. The median for the household expenditure for the year 2014 is RM2773.71. This shows that majority of Malaysian household expenditure is in the medium group.

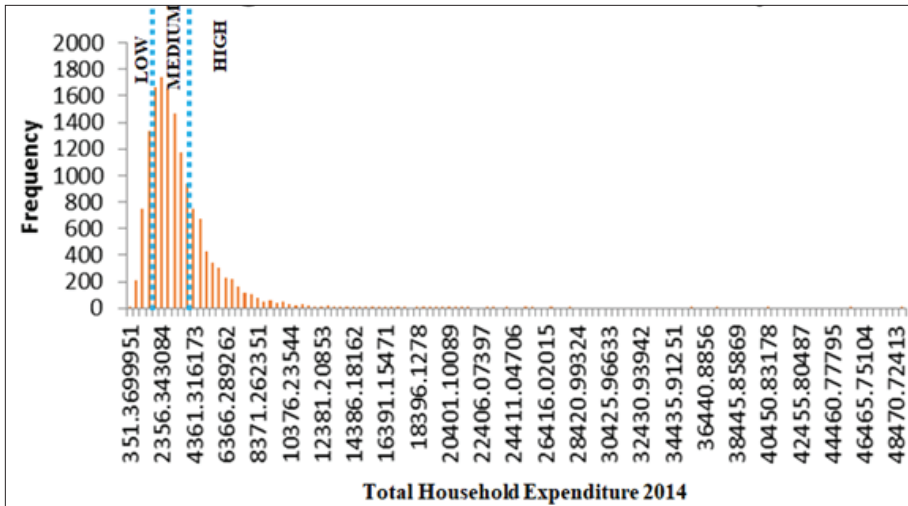


Figure 2: Histogram of total expenditure in 2014

Table 16: Table summary of total expenditure in 2014

N	Valid	14838
	Missing	0
Mean		3345.9251
Median		2773.7100
Mode		1567.16 <sup>a</sup>
Minimum		351.37
Maximum		48871.72
Sum		49646837.28

### Analysis for Low Expenditure in 2014

As for 2014, the data present for low expenditure group are quite balance. The mean is reliable to represent the data of the group. This group average spending expenditure is RM1,387.51. The minimum expenditure is RM351.37. This shows that every household in Malaysia will at least spend to support their life. The low expenditure group will be explained by other variables such as total household member, state and total gross income. This is because the variables do obviously explain and show differences in regard of the expenditure of the group.

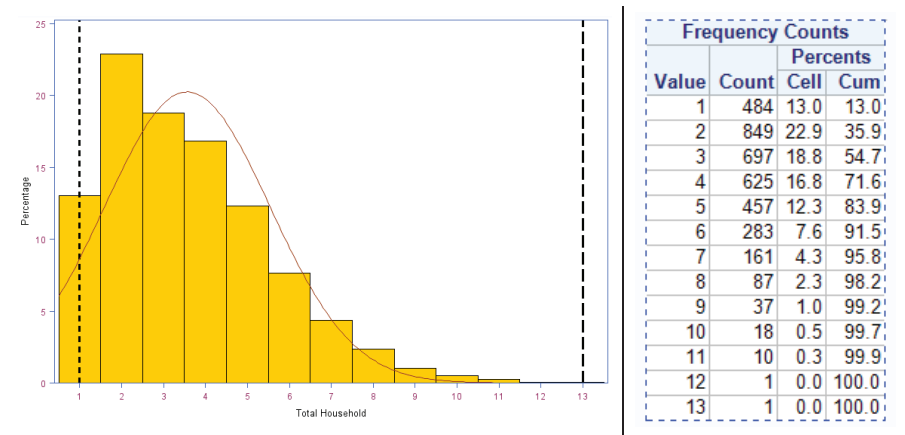
Table 17: Table summary of low expenditure in 2014

Mean	Std Dev	Minimum	Maximum	Mode	Range	N	Median
1387.51	351.5630679	351.3699951	1900.45	1567.16	1549.08	3710	1437.91

**Analysis by Total Household Member (Low Expenditure in 2014)**

As for 2014, most of the lower expenditure group have two, three or 4 members per household only. Basically, the less member of the household, the expenditure for the household is lower compared to bigger household. Their total everyday needs depend on the number of household member. The majority of the household member for low expenditure is 2 members per household. The lower the total household member, the lower the total expenditure. Despite that, there are also household that although they have lower total members, but their spending is higher than others. This is probably because of their needs.

Table 18: Table summary of total household member for low expenditure in 2014

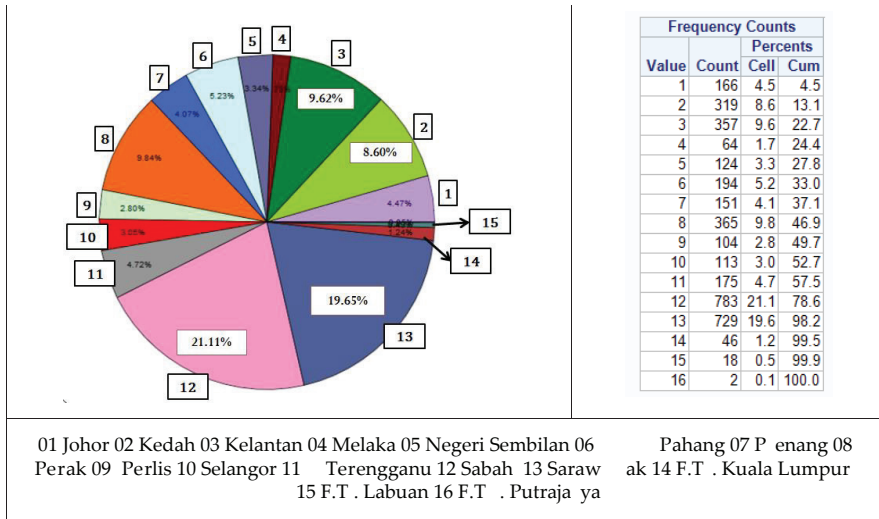


**Analysis by State (Low Expenditure in 2014)**

As for 2014, Sabah is the state that spends the lowest compare to other states. The reason is Sabah is a less developed state. Though Malaysian governments have done so many things to develop this state but it still considered as semi-developed state. The cost of living in Sabah is low. Many of them are living in the remote area where they live on the natural resources as their food sources. The main occupation in 2014 was service and sales workers. This part of Sabah depends on their sales for their expenses. Sarawak also shows

a high frequency in terms of low expenditure. The reasons are the same as Sabah since they are neighbor in which it is a semi-developed state. Sabah and Sarawak are very large and have high populations. This can also be the reason why the frequency is high. Meanwhile, although Federal Territory of Labuan is located in Sabah, but the frequency of low expenditure is very low with 0.5 percent of total low expenditure group. The frequency of low expenditure in Federal Territory of Putrajaya is the lowest because the living cost in the area is really high.

Table 19: Table summary of state for low expenditure in 2014



**Analysis for Medium Expenditure in 2014**

Referring to Table 20, the histogram created is for medium expenditure group. The range for medium expenditure is defined between RM1,900.45 and RM4,053.35. For the group, median is more reliable as the indicator for the majority since there is few extreme value of expenditure. This group average spending expenditure is RM2,837.93 and the median for the group is RM2,773.71. This group expenses range is RM2,152.58. From the histogram, we can see that majority of the household spending is in between of RM2,250 and RM2,450. The analysis of household medium expenditure in 2014 by variables such that total household member, strata and state will be shown afterwards.



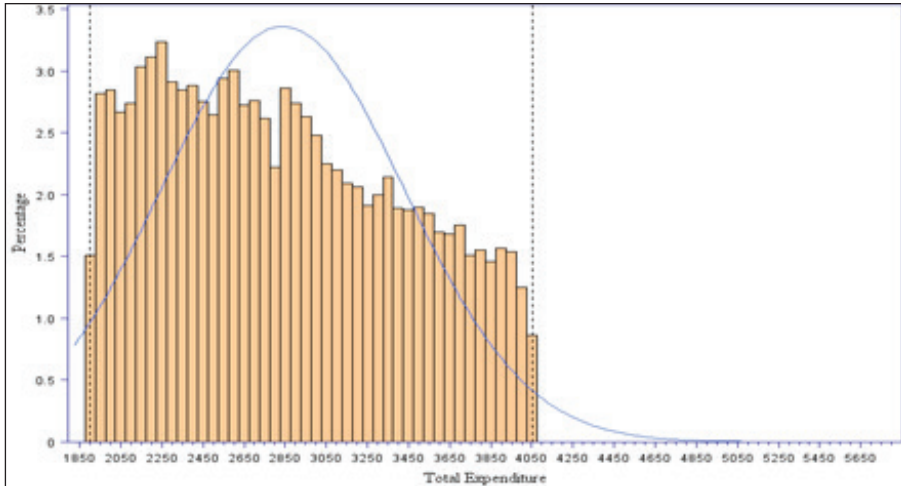


Figure 4: Histogram of Medium Expenditure in 2014

Table 20: Table summary of medium expenditure in 2014

Mean	Std Dev	Minimum	Maximum	Mode	Range	N	Median
2837.93	593.7782111	1900.75	4053.33	2191.46	2152.58	7418	2773.71

**Analysis by Total Household Member (Medium Expenditure in 2014)**

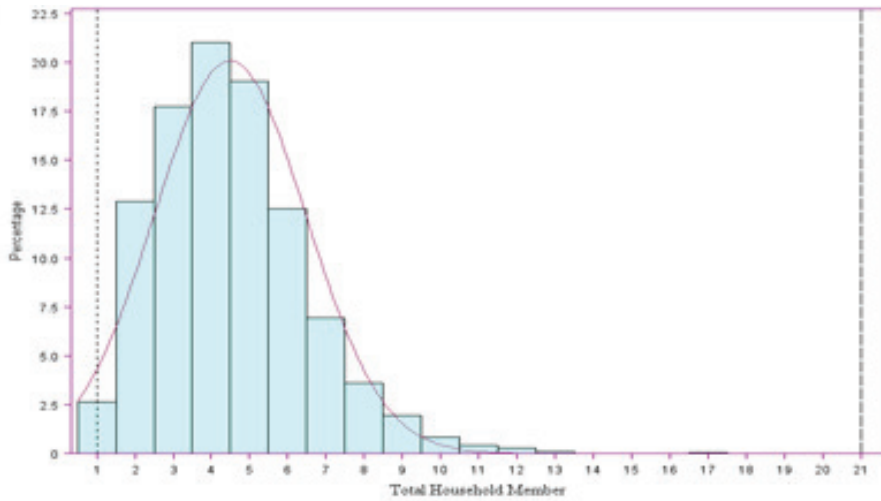


Figure 5: Histogram of total household member for medium expenditure in 2014

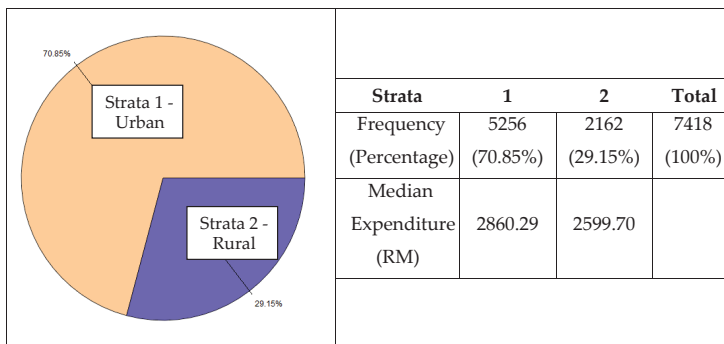
**Analysis by Strata (Medium Expenditure in 2014)**

Most of the respondents are having four or five members per household. The majority is four household members with a percentage higher than 20 percent.

This is followed by five household members and three household members respectively. The total household member for medium expenditure is slightly higher than low expenditure which is two members. This is because the higher the total members in a household, the higher the expenditure. There are also two households with 17 total household members in the medium expenditure group. This shows that although they have a very high total member of household, but their expenditure is RM2,791.57 and RM3,260.51 respectively. Both of them are from urban area in Sabah. This can be because although the total member is high but they are only kids and do not require much spending. The expenditure is moderate as the spending is for necessity and not for luxury.

Percentages of living in urban area are higher. The cost of living is slightly higher in the urban area. The expenditure of this medium group is higher than the lower expenditure group since they experience higher cost of living. The median expenditure for strata 1 which is urban area is RM2,860.29 while for strata 2, rural area is RM2,599.70. Although the frequency shows quite a difference in between rural and urban area, but the expenditure is actually not that large in difference. Even though the living cost in rural area should be much lower than urban area, but that is not the case nowadays since most of the product prices are standardized. So, the expenditure will be quite the same in terms of daily goods, clothing and other items. Price of land is the only 'item' that has a lower price in rural area compare to urban. Despite that, there are many facilities, goods and services available in the urban area compared to rural that makes urban become a choice to most people. This will affect their daily expenditure since they will go out and have fun utilizing the facilities given.

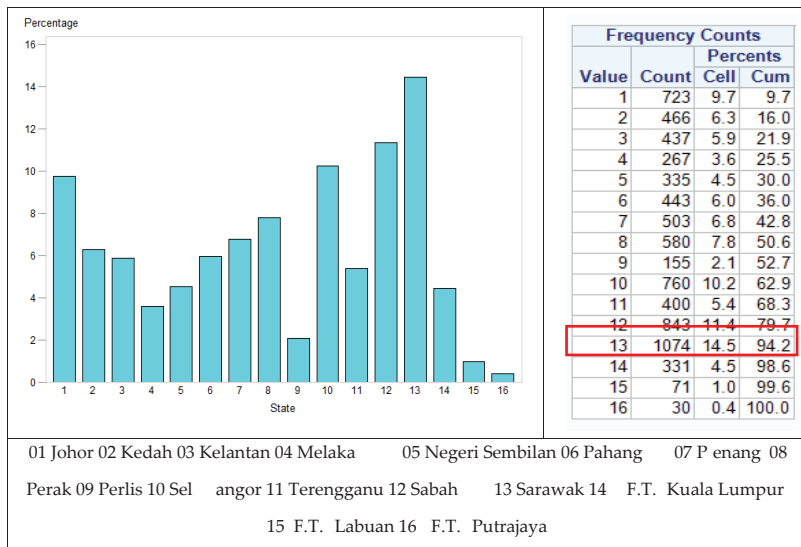
Table 21: Table summary of strata for medium expenditure in 2014



### Analysis by State (Medium Expenditure in 2014)

The biggest value for the medium expenditure subgroup is from Sarawak. Sarawak ranks only behind Selangor in terms of size of economy among Malaysia’s total states. The frequency of expenditure in medium group is higher for Sarawak compare to low expenditure group where the majority is from Sabah. While the Sarawak economy has had a good run in terms of growth so there are many industries were set up in Sarawak. The ongoing developments in Sarawak are expected to diversify the economy so that is one of the factor that contributing to many medium expenses in Sarawak. After Sarawak, the medium expenditure group is followed by Sabah, Selangor and Johor respectively. As we have already aware regarding the living cost in those states, we should be able to predict this result. Other than having high living cost, those states also have high population which will affect this result of analysis. This is because the result used the frequency approach. The higher the frequency, then we can consider it as majority. Meanwhile, Federal Territory of Labuan and Federal Territory of Putrajaya have the lowest frequency in the medium expenditure for 2014. The median expenditure for Federal Territory of Labuan is RM3,005.82 while for Putrajaya is RM3,611.64. Although the frequency for both of the federal territories is lower compare to other states, but their median expenditure for this group is on the high side as stated. This shows that we cannot only focus on the frequency only.

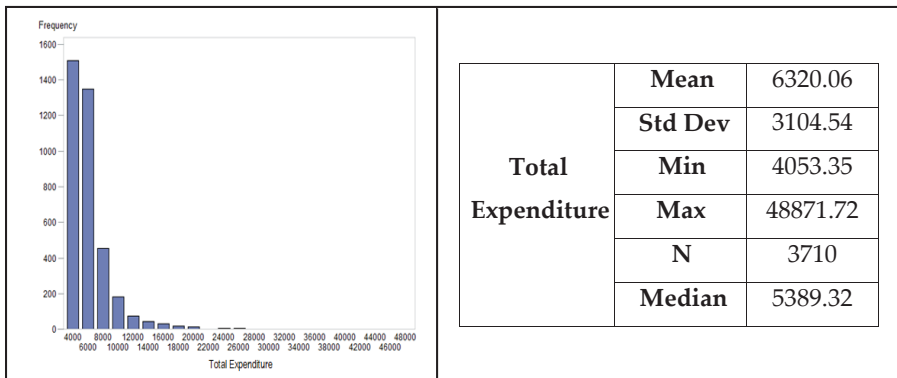
Table 22: Table summary of state for medium expenditure in 2014



### Analysis for High Expenditure in 2014

Referring to Table 23, the histogram created for high expenditure group. The range for the high expenditure group for the year 2014 is RM4,053.35 and above. For the group, median is more reliable as the indicator for the majority since there is few extreme value of expenditure. The median for the group is RM5,389.32. The graph shows a skewed to the right graph. Majority of the household spends less than RM10,000. The mean is RM6,320.06 which is higher than the median as stated because it was affected by the outliers which are households who spend a little bit higher compare to other households.

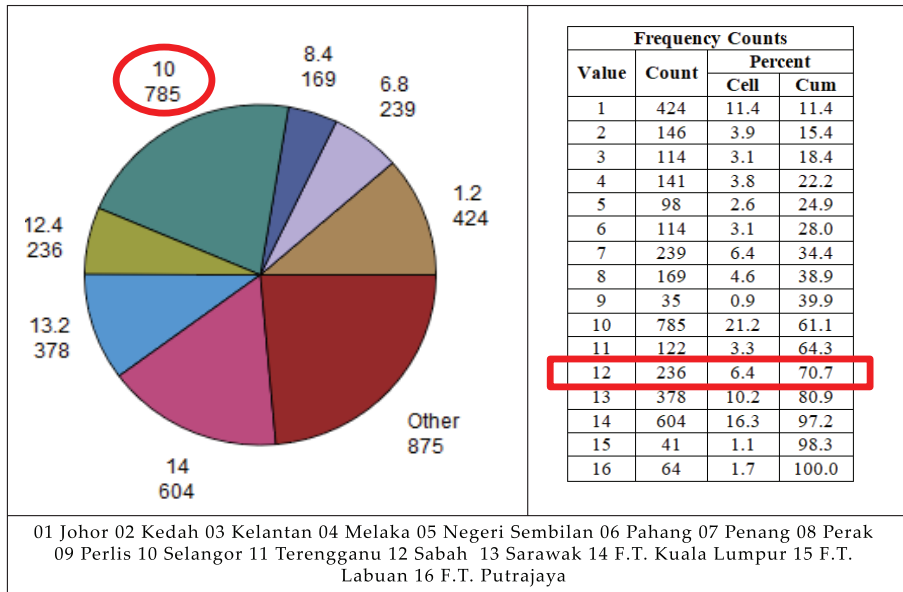
Table 23: Table summary of high expenditure in 2014



### Analysis by State (High Expenditure in 2014)

The first analysis is analysis by the state. The highest numbers of high expender come from Selangor. Selangor is a developed state where many big companies were set up in Selangor. The high-income people are from Selangor. High income leads to high expenditure. The Federal Territory of Putrajaya’s frequency which has been the lowest when it comes to frequency in each expenditure group is higher than Federal Territory of Labuan and Perlis. There is an increment in the frequency. This shows that majority of F. T. of Putrajaya come from the high expender group.

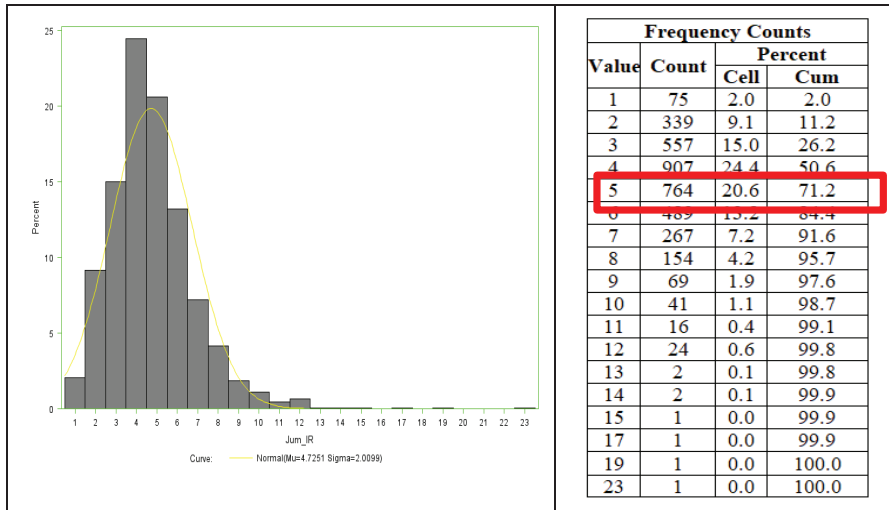
Table 24: Table summary of state for high expenditure in 2014



**Analysis by Total Household Member (High Expenditure in 2014)**

Most of respondent are having four and five members per household. The majority of total household member for this high expenditure group is also four and five members. The value is no different compare to medium expenditure group. But the highest total household member in medium expenditure group is 17 members while for high expenditure group is 23 members. Bigger households need larger amount of expenditure. Malaysian people do not give birth to too many children which explains why the majority of household members is only among two to five members per household. There are also quite a number of households with only one or two members in this high expenditure group. Most of these households come from Selangor and also Federal Territory of Kuala Lumpur. The living cost is very high over there, so even though with one or two members in each household, the total expenditure is high. This also proven that, expenditure of a household does not always increase when the total members of household increase.

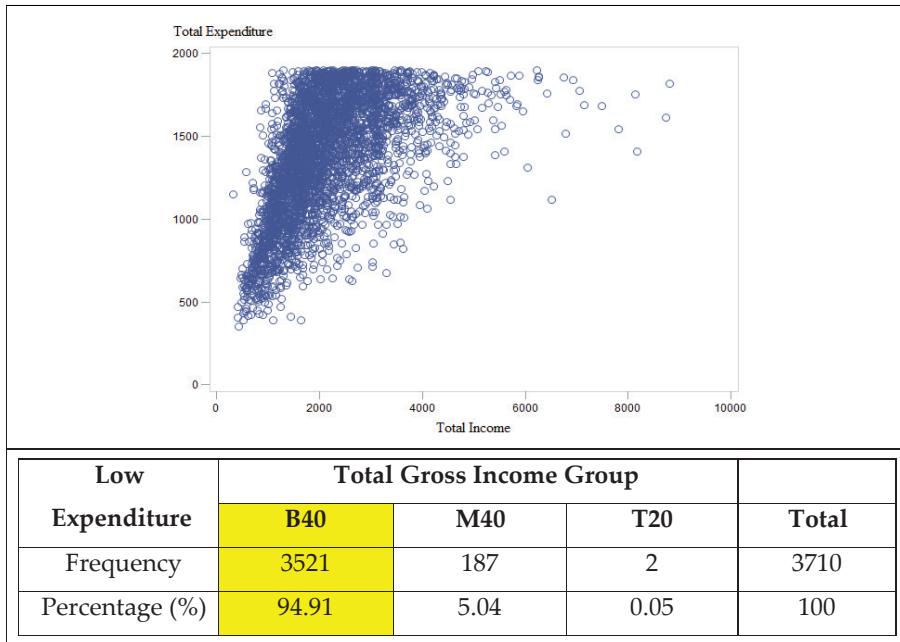
Table 25: Table summary of total household member for high expenditure in 2014



### Analysis by Total Gross Income for Low Expenditure (2014)

Table 26 shows a summary of total gross income for low expenditure in 2014. The total gross income was divided into three groups of household's incomes which is B40, M40 and T20. For the B40 group, it is defined by income lower than RM3,860. Meanwhile, for M40, it is defined as income between RM3,860 and RM8,319. As for T20, the income is RM8,319 and above. From the table, we can see that B40 is the highest one with 3521 respondents followed by M40 with 187 and T20 with 2 respondents. Total gross income can be the best variable to relate with high expenditure because as we know that if the higher total gross income, the bigger expenses happened. So, for low expenditure, respondent in B40 group is the most contributing in low expenditure parallel with low income. There are two households with income group of T20 with low expenditure. After been analyzed, they come from Terengganu and Sarawak respectively. Everyone is aware about the living cost in Terengganu and Sarawak which is quite low, so they do not have to spend much even though their total members in the household is three and four members. Their wages are high could be because they are working in the Oil and Gas background since Terengganu and Sarawak are states that produce oil.

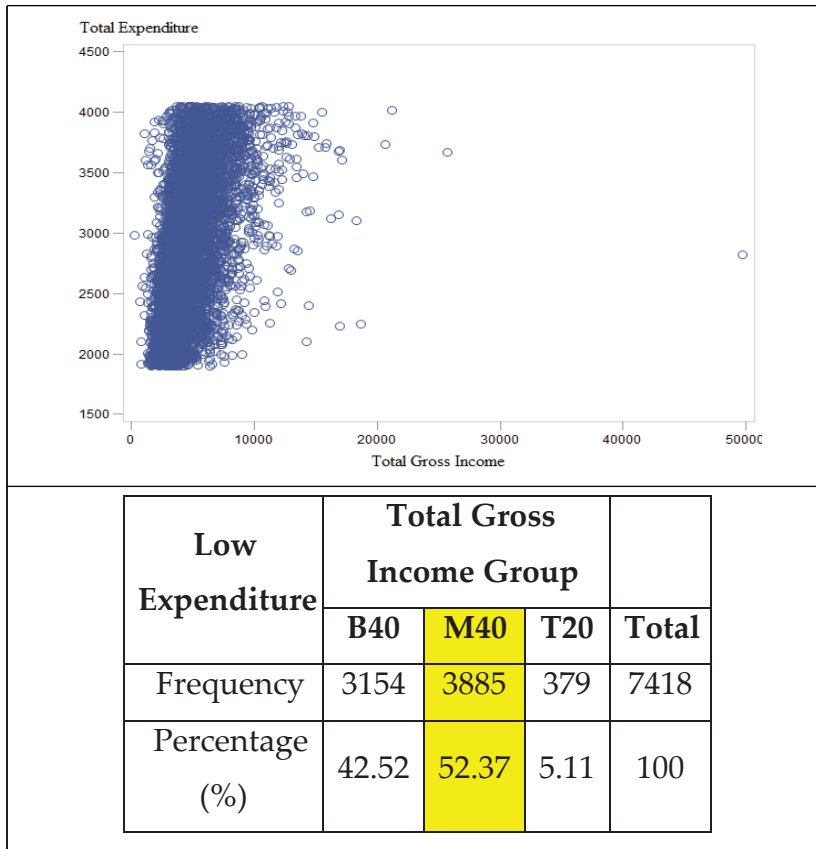
Table 26: Table summary of total gross income for low expenditure in 2014



### Analysis by Total Gross Income for Medium Expenditure (2014)

Table 27 shows a summary of total gross income for medium expenditure in 2014. The total gross income was divided into three groups of household's incomes which is B40, M40 and T20. From the table, we can see that M40 is the highest one with 3885 respondents followed by B40 with 3154 and T20 with 379 respondents. Total gross income would be the best variable to relate with medium expenditure as they had a medium income, so they spent just enough. The total gross income with medium expenditure is spread quite fair among each of the three groups, B40, M40 and also T20. Although the respondents earn income in the group B40, their expenditure is in the medium group. This is because majority of them comes from Federal Territory of Kuala Lumpur and Federal Territory of Putrajaya. The living cost is high there.

Table 27: Table summary of total gross income for medium expenditure in 2014

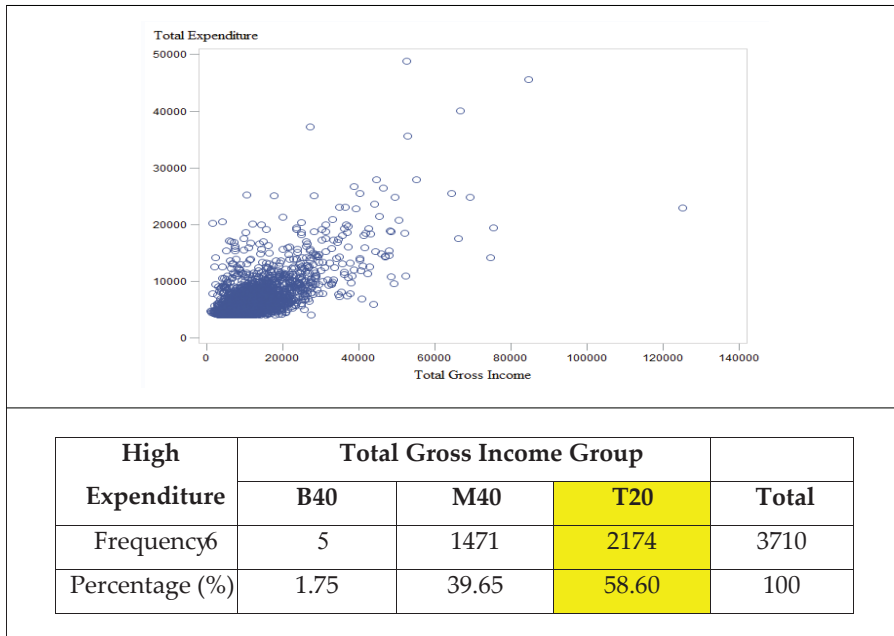


**Analysis by Total Gross Income for High Expenditure (2014)**

For 2014, we divided total gross income into three groups of household’s incomes which is B40, M40 and T20. T20 is the highest one with 2174 respondents followed by M40 with 1471 and B40 with 65 respondents. Total gross income is the best variable to relate with high expenditure as we know that if the higher total gross income, the bigger expenses happened. The thing is, there are also quite a number of respondents from B40 group who are high spenders. Most of them are from Selangor and urban area. As all of us have known, the living cost there is high since there are many industrial places and private companies.



Table 28: Table summary of total gross income for high expenditure in 2014



### Analysis by saving for the year 2014

The saving in this context is where the total gross income minus total expenditure of a certain household. The respondent is considered as bad spender if his saving is negative value while he is considered as good spender if the saving is positive. Based on both of the tables, there exist good and bad spenders in both stratum. So, we should not conclude that the people living in the rural area should have savings. This is because most of the items' prices in the market are already standardized. Since we are using median as our parameter, we can conclude that the saving for respondents who are living in urban area is higher compare to rural area. This could be because of their high wages in the urban area.

Strata 1 (Urban):

Table 29: Table summary of saving for urban in 2014

Analysis Variable: Income-Expenditure						
Mean	Median	Minimum	Maximum	Mode	Range	N
2681.81	1632.66	-16385.92	102248.71	85.2700195	118634.63	10246

Strata 2 (Rural):

Table 30: Table summary of saving for rural in 2014

Analysis Variable : Income-Expenditure						
Mean	Median	Minimum	Maximum	Mode	Range	N
1345.43	830.56	-18567.28	30900.04	833.4199219	49467.33	4592

#### 4.0 CONCLUSIONS

As a big picture of the key variable in this study, household income expenditure, median is the most suitable to represent the population. From the Household Expenditure Survey (HES) data for the year 1998 and 2014 will produce a right skew histogram, where mean does not represent the majority of tabulation of expenditure. So, mean is not a good representative of the data. But in order to gain more information of the HES survey, the adapt divide and conquer approach. The data are divided by low, medium and high expenditure group.

For HES 1998, the lower expenditure group range is from 0 until RM900, while medium expenditure ranging from RM900 to RM2000, lastly high expenditure is RM2000. While HES 2014, the less than or equal to RM1900.45 grouped as low expenditure, medium expenditure is between RM1900.45 until RM4053.35, then high expenditure group spending more than RM4053.35. From those three distinct group, we discovered a different background of the respondent from each group, and different attributes which supporting the key variable. The other variables involve link with each another which create a story about of the respondents.

Besides, from the HES data, we define that the good spender and bad spender. The good spender is from the medium expenditure group where they spent for their everyday life necessity, in addition the expenditure are not exceeding their household income. Meanwhile, the bad spender spends on luxury and

desire. Even though they have higher income, some need to be allocated for saving for the future.

The mean expenditure of each group shows an increase from 1998 to 2014. Although it is not very convincing to compare for both set of data, we can conclude that the economic status of Malaysia is improving. However, there is still a long way to achieve the government target of become high income nation in 2020. The distribution curve shifted to the left a little bit as the citizens improve their income. People change from the traditional economic activity to the industrial economic activity and government sector. They are having better education, contributes to the improvement in the standard of living.

## REFERENCES

- The Star. (2014). *Report: Najib, two ex-ministers among six to face corruption charges*. Retrieved on December 13, 2018 from <https://www.thestar.com.my/news/nation/2018/11/11/report-najib-two-exministers-among-six-to-face-corruption-charges/#ZcEzZo4r7bZG4Klx.99>.
- Department of Statistic (DOS). 2014. *Household income and expenditure*. Retrieved on December 3, 2018 from [https://www.dosm.gov.my/v1/index.php?r=column/ctwoByCat&parent\\_id=119&menu\\_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09](https://www.dosm.gov.my/v1/index.php?r=column/ctwoByCat&parent_id=119&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09).
- The Organisation for Economic Co-operation and Development (OECD). (2015). *Household spending*. Retrieved on November 28, 2018 from <https://data.oecd.org/hha/household-spending.htm>.
- World Bank. (2018). *Malaysia economic monitor*. Retrieved on November 25, 2018 from <http://documents.worldbank.org/curated/en/826251530105101845/pdf/127679-Revised-Economic-Updates-and-Modeling-Malaysia-Economic-Monitor-June-2018-Navigating-Change-full-report-revised.pdf>.

