

## **PATTERNS OF INCOME DISTRIBUTION IN THE NORTHERN STATES OF MALAYSIA: A LIFE CYCLE APPROACH**

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**ABSTRACT:** Income distribution can be defined as equality in which income is dealt out among members of a society. Income distribution is measured by how much income is earned by different segments of a population. In Malaysia, a common measure of income distribution is through calculating mean monthly income. The reported mean monthly income uses macroeconomic data segregated into ethnicity, states and urban-rural. At present, there is no income distribution measurement specifically for the Northern States of Malaysia. Therefore this study aims to estimate and identify the patterns of income distribution using different categories of income. The categories of income used are employment income, property income and gross income. This study uses 2009 Household Income Survey (HIS) data where 30 per cent of total observations are used. The findings confirm the LCH theory. There are different peak ages with different categories of income. However, the peak is not as high as proposed by Modigliani and Brumberg (1954). Calculation of mean income of different categories shows that the income from employment takes a large portion of total income.

*Keywords:* income distribution, Northern States of Malaysia, life cycle hypothesis

### **INTRODUCTION**

Income distribution can be defined as equality in which income is dealt out among members of a society (Anand, 1983). If everyone earns exactly the same amount of money, income distribution will be perfectly equal. If no one earns any money except for one person, who earns all the money, then the income distribution will be perfectly unequal. The income distribution is measured by how much income is earned by different segments of the population. The issue of income distribution in Malaysia was a concern during the racial riot on the 13<sup>th</sup> of May 1969. The May 13 Tragedy was the start of the realisation that racial disintegration is a serious problem in this country and measures taken in the past to deal with it have been proven inadequate (The National Operation Council, 1969). Although there are many speculations about the real reasons of the riot, it started mainly because of misunderstanding between the Bumiputeras; which are basically Malays and the Chinese. Report by The National Operation Council 1969 shows that the riot started because of the distribution of the income between the races are unevenly distributed. Even though the riot happened 46 years ago, the extent of chaos has proven that racial issue is highly sensitive in Malaysia. Therefore, this study aims to estimate and identify the patterns of income distribution using different categories of income.

### **LIFE CYCLE HYPOTHESIS**

Life Cycle Hypothesis (LCH) was first proposed by Modigliani and Brumberg (1954). Modigliani and Brumberg (1954) were concerned with the cross-section or the microeconomic implication of the theory, while Modigliani and Brumberg (1980) looked at the time-series and macroeconomic implications. For each individual, it is assumed that increase in life-time resources will lead to proportionate increase in consumption in all periods of life. As a result, consumption is proportional to average income over life span. Modigliani and Brumberg (1954), state that the share of consumption in income is lower for better-off households. In other words, the saving rate rises with income. Modigliani and Brumberg (1954) argue that the proportionality of consumption and income in the long-run is entirely consistent with the cross-sectional facts because, as we move up the income distribution, a higher and higher fraction of people are there on a temporary basis, with high transitory income, and thus a temporarily high saving ratio. The same argument explains why savings rates rises more rapidly with income among households who are farmers or small business proprietors, whose income tends to be relatively volatile. In the macroeconomic context, argued in Modigliani and Brumberg (1980), the same line of argument shows that, for the economy as a whole, the saving ratio

should be constant over the long-run, provided that the rate of growth of the economy doesn't change, but will vary pro-cyclically over the business cycle. Over the life-cycle, consumption is smoother than income. Modigliani (2001) shows the graphic of the Life Cycle Hypothesis. Data from Italy was used in his research. The Hump-shaped of the Life Cycle Hypothesis is shown below:

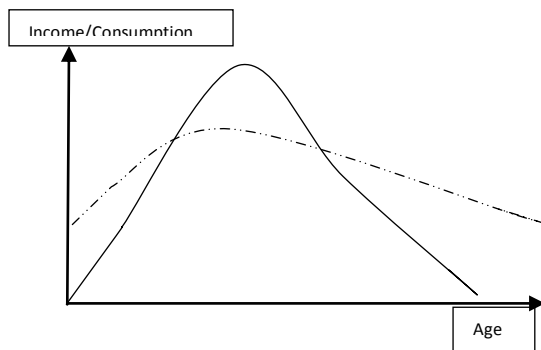


Figure 1: Hump-shaped of Life Cycle Hypothesis  
Source: Modigliani (2001)

The black line shows the pattern of income while the dotted line shows the pattern of consumption. The black line shows the trend of average income corresponding to the age of the household head. The income also shows differences in the years of working, experience, diligence and also education received. The dotted line shows the pattern of consumption which is obviously flatter than consumption. This trend produced a strong hump shaped for savings profiles.

There is vast literature, particularly in the US, which point to the fact that the youth are not saving enough for their retirement. For example, Bernheim, Skinner and Weinberg (2001) studied the behaviours of individuals belonging to the baby-boom generation and uses consumption as a measure of the current standard of living. In particular, Bernheim et al. (2001) found that younger workers are saving only about a third of what would be needed to maintain their standards of living unchanged after retirement.

Scholz, Seshadri and Khitatrakun (2006) match HRS families with Social Security records and observe the entire history of earnings. The key finding is that more than 80 per cent of households are accumulating adequate wealth to maintain pre-retirement consumption levels through retirement with home equity included in wealth. However, if only half of home equity is included, their conclusion would have to change to that about 60 per cent of households are accumulating sufficient wealth. If Social Security benefits are cut by 25 per cent in the future, only 64 per cent of households are accumulating enough wealth even with all the home equity included in the wealth.

As argued by Bernheim, Schleifer and Summers (1985), bequests could be a strategy where parents leave their property or money only in exchange to services provided to them by their children. One test for bequests was performed by Hurd (1987). His intuition is that a bequests motive should be important only for families with children. Hurd uses 10 years wealth changes from HRS for people aged between 58 to 73, with and without children, and finds little evidences which support a bequest motive. In particular, wealth declines 17 per cent among married couples with children, and only 2 per cent among married couples without children.

## **PERMANENT INCOME HYPOTHESIS**

The permanent income hypothesis (PIH) is an economic theory which attempts to describe how agents spread consumption over their lifetimes. First developed by Milton Friedman, it hypothesised that a person's consumption at a point in time is determined not just by their current income but also by their expected income in future years which is being said as their "permanent income". In its simplest form, the hypothesis states that changes in permanent income are what drive the changes in a

consumer's consumption patterns. Its predictions of consumption smoothing, where people spread out transitory changes in income over time, departs from the traditional Keynesian emphasis on the marginal propensity to consume. It has had a profound effect on the study of consumer behaviours, and provides an explanation for some of the failures of Keynesian demand management techniques.

Income consists of a permanent component and a transitory component. The permanent components are anticipated and planned income while transitory components are windfall gain or unexpected income. In the permanent income hypothesis model, the key determinant of consumption is an individual's lifetime income, not his current income. Permanent income is defined as expected long-term average income.

Assuming consumers experience diminishing marginal utility, they will want to smooth out consumption over time, e.g. take on debt as a student and also ensure savings for retirement. Coupled with the idea of average lifetime income, the consumption smoothing element of the PIH predicts that transitory changes in income will only have a small effect on consumption. Only longer lasting changes in income will have a large effect on spending.

A consumer's permanent income is determined by their assets, both physical and human assets. These influence the consumer's ability to earn income. The consumer can then make an estimation of anticipated lifetime income. A worker saves only if they expect their long-term average income, i.e. their permanent income, will be less than their current income.

## **METHODOLOGY**

The data used for this study is obtained from Household Income Survey. Only the data of the year 2009 were used in this study. Only 30 per cent of the observations were used. The data has 13,215 observations. The variables used in this study are age, ethnicity, strata, gender, education attainment and household size. The data only encompass Northern states which include Perlis, Kedah, Penang and Perak. The raw data were combined into some categories, but for ethnicity, strata and gender, the categories were directly taken from the Household Income Survey data 2009. The categories for age and education attainment were shown in Table 1. The variables were combined into some categories to make the observation easier.

Table 1: Categories of Variables

<b>Variables</b>	<b>Categories</b>
<b>Age</b>	
16 to 23 years old	Young group
24 to 54 years old	Working group
≥ 55 years old	Pensioners
<b>Education attainment</b>	
Year 1 to year 6	Primary
Form 1 to form 6	Secondary
Universities, colleges, institution and all above	Tertiary
Religious education or no formal education	No formal education

The young group categories are grouped between 16 to 23 years old. From the Household Income Survey data 2009, 16 is the youngest head of household age recorded. To explain the reason why 23 years old is chosen as the end limit of the young group, the Malaysia education system would need to be explained. In Malaysia, primary and secondary education is compulsory until the age of 17 years old. Then, students can choose to continue to either matriculation, Diploma or Form six which they would finish these studies at the age of about 20 years old. Only after that, they can continue to pursue their degree studies for the next three or four years, with a majority of the student finishing at the age

of 23 years old. The working group aged between 24 to 54 years old. Meanwhile, as stated by the law during 2009, a pensioner's age starts at 55 years old.

Different types of income source are used to confirm the pattern of Life Cycle Hypothesis. Modigliani and Brumberg (1954) assume that the individual receives utility only from present and perspective assets and from assets to be bequest. The employment income represents the present assets, the property income represents the bequeathed assets and the gross total income is the combination of both present and the bequeathed assets. Consistent with the study by Modigliani and Brumberg (1954), three income sources from the Household Income Surveys data 2009 were used. The three income sources are total paid employment income, total property income and gross total income. For this study, calculation of mean income is used to achieve the objectives. Mean income of total paid employment income, total from property income and the gross total income of different age categories is calculated. The mean income is calculated using the mean formula.

### **PATTERN OF INCOME DISTRIBUTION**

To observe the pattern of income distribution using the three income sources, a two-way graph is plotted. The graph is between income sources which are total paid employment income, total property income and gross total income and age. The incomes are the three income sources plotted in three different graphs. Once again, Stata is used to plot the graphs.

There are 417 head of households from the young group in Perlis, 5,975 in Kedah, 2,118 in Penang, and 4,783 in Perak. For head of households from working age group, there are 39,117 in Perlis, 343,287 in Kedah, 297,948 in Penang and 400,100 in Perak. While, there are 13,663, 86,240, 74,534 and 152,513 head of households from the pensioner group in Perlis, Kedah, Penang and Perak. 11,730 Bumiputera, 968 Chinese, 429 Indians and 166 of others ethnicity comprise the young group. There are about 633,777 Bumiputera, 320,670 Chinese, 120,446 Indians and 5,559 others than the three major ethnics of working group in the Northern State of Malaysia. While pensioners consist of 191,036 Bumiputera, 112, 206 Chinese, 21,981 Indians and 152,513 of other ethnicity.

The young group and the working age group mostly live in urban area rather than in rural area. There are 8,670 people belonging to the young group, 680,597 people of working age group and only 184,634 pensioners living in the urban area. While, there were only 4,624 people of young group, 399,856 people of working age group and 142,317 pensioners living in rural area.

Most of the head of household are male. For the head of household for young groups, 9,261 are male and 4,033 are female. 936,579 are male and 143,874 are female for head of households of the working age group. For the head of households of pensioners, 240,655 are male and 86,295 are female. 507 head of household within the young group have primary education as the highest educational attainment, 10,461 received up to secondary educations, 1,896 received tertiary education and 429 did not receive any formal education. For head of household of working age group, 221,600 have attended primary education, 675,916 have undergone secondary education, 153,537 have received tertiary education and 29,399 have not attained formal education. Meanwhile, for head of household of pensioners, 169,682 have primary education as their highest educational attainment, 76,917 have received secondary education, 152,260 have undergone tertiary education and 65,091 have no formal education.

Table 2 below shows the mean income of three different income sources which is income from employment, income from property and gross income. From Table 2, the mean income from employment is the lowest for pensioners age groups which is RM 11,951.09, young age group have mean income from employment of RM 19,011.90. Working age group has the highest mean income from employment which is RM 28,095.92. For the mean income from property, young age group have the lowest mean income with only RM 47.33, then followed by the pensioners with mean income of RM 405.63 and working age group has the highest mean income of RM 626.96. Mean gross income shows that young groups have the lowest mean gross income of RM 23,400.70, followed by the

pensioners of RM 28,484.58 and working age group have the highest mean gross income of RM 40,667.97. The pattern of income shows that working age groups always have the highest income regardless of income sources.

Table 2: Mean Income of different income source

Age	Mean income from employment (RM)	Mean income from property (RM)	Mean gross income (RM)
Young group	19,011.9	47.33	23,400.7
Working group	28,095.92	626.96	40,667.97
Pensioners	11,951.09	405.63	28,484.58

Sources: Authors own calculation based on HIS 2009

Table 3 shows the different mean income of different types of income sources by different social groups. As had been discussed before, income from employment contributes to the largest part of the total income. Table 6 shows that people with tertiary education have the highest income for all age categories. These two patterns point to the conclusion that tertiary education is important and one of the ways to increase income is by pursuing tertiary education.

Table 3: Mean income of different sources

		Income from employment			Income from property			Gross income		
		Youngsters	Working Age Group	Elderly	Youngsters	Working Age Group	Elderly	Youngsters	Working Age Group	Elderly
<b>States</b>	Perlis	14,685.49	24,033.69	12,434.83	32.71	189.42	245.48	20,070.38	33,401.8	27,722.51
	Kedah	31,444.01	39,516.84	34,782.35	206.10	1,719.06	1,609.47	34,522.17	50,506.09	50,539.61
	Penang	20,867.23	25,429.32	10,721.2	0	89.15	340.18	23,416.88	36,347.27	28,437.14
	Perak	7,424.23	26,096.43	11,039.1	0	141.38	166.36	15,546	36,656.37	27,236.35
<b>Ethnicity</b>	Bumiputera	19,129.63	27,078.17	12,032.38	44.72	334.67	331.21	22,305.62	35,525.99	27,196.15
	Chinese	26,239.48	34,075.65	23,330.09	22.17	1,093.26	969.99	40,842	54,052.41	46,561.24
	Indian	11,022	25,604.81	26,401.01	200	533.52	1,020.75	23,662	32,933.14	45,616.06
	Others	16,383	29,772.43	5,159.18	0	777.69	1,934.12	16,729	36,143.5	39,319.67
<b>Strata</b>	Urban	24,507.98	33,826.54	22,149.76	46.01	755.02	831.08	19,600.08	46,776.59	43,245.38
	Rural	9,682.55	20,520.8	9,724.26	50.38	268.54	307.07	21,055.69	31,602.26	25,187.29
<b>Gender</b>	Male	18,078.82	29,757.32	19,444.3	45	591.10	672.80	22,060.43	40,873.67	38,141.56
	Female	22,273.01	22,968.54	9,006.352	53.36	462.86	422.84	26,528	32,274.88	21,617.8
<b>Education</b>	Primary	6,744	16,256.01	12,459.64	0	377.22	442.87	6,844	27,491.09	26,988.75
	Secondary	18,618.01	24,787.78	22,550.27	50.46	481.53	775.56	23,358.55	3542.98	43,225.36
	Tertiary	31,155.37	62,182.04	47,975.34	54.90	1,242.12	1,920.1	29,248.17	73,538.9	94,580.31
	Others	0	14,823.94	8,693.34	0	188.05	341.92	5,800	20,107.88	19,506.22

Sources: Authors own calculation based on HIS 2009

### PATTERN OF LIFE CYCLE THEORY

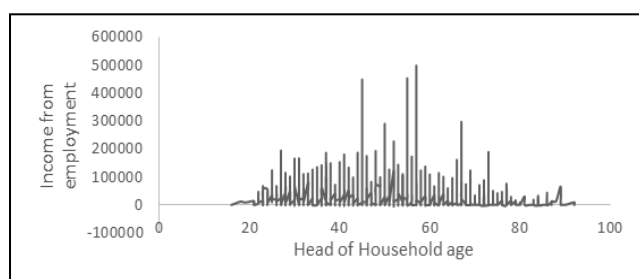


Figure 2: Relationship between Age and Income from Employment

Figure 2 shows the relationship between age and income from employment. From the graph, it is clearly shown that the Life Cycle Theory is proven. Even though, the hump shape is not clearly visible, but the shape is still there. The hump shape for the Northern states is not as high as proposed by Modigliani, 2001. For the Northern states, the hump shape is lower.

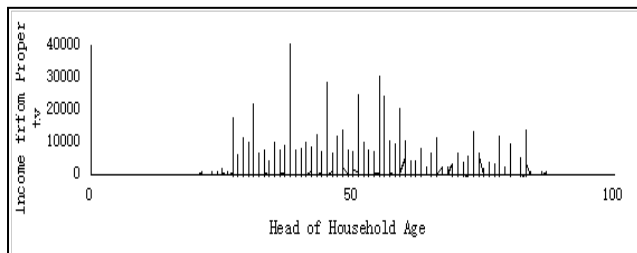


Figure 3: Relationship between Age and Income from Property

Figure 3 shows the relationship between age and income from property. The highest income is obtained by the people at the age of 38. However, no hump shape can be seen from Figure 3. The graph is skewed to the left. So, this does not follow the pattern of Life Cycle Hypothesis.



Figure 4: Relationship between Age and Gross Income

Figure 4 shows the relationship between age and gross income. The result shows almost the same pattern with the income from employment. Again, the hump-shape is not so clear, but it still showed some pattern of Life Cycle Hypothesis. The hump shape for the Northern states in Malaysia is lower and unclear compared to the hump shape proposed by Modigliani.

## **DISCUSSION**

The results of income distribution of the three sources show that the income from employment is the main source of income. The pensioners have the lowest income from employment compared to others because most of the pensioners do not work after their pension age which is 55 years old in Malaysia. Youngsters have the second lowest income because they are just starting to work. Since young workers are not as experienced and skilled, their salaries are relatively lower. While, working groups have the highest mean income from employment. This is normal because the working group are receiving their salary and are paid higher than the young group since they are more skilled and experienced.

For income from property, again, the working group has the highest mean income. The working group uses their money from the salary to invest in properties. If we use the argument that the working group, who are investing their money during the working age, the result of the mean income from property would have shown that the mean income from property for the pensioners is higher than the working group. However, in this study, the result shows that pensioners have a lower mean income from property than the working group. The reason for this result is that the pensioners are living in their own house that they had bought during their working age. Additionally, maybe because of decrease in income, pensioners start selling their property to generate income. Young group has the lowest mean income from property. Since these youngsters are receiving low salary, they are still unable to invest their money in property. Some youngsters from high-income family may receive some property from their parents.

Findings from this study show that the pattern of income distribution in Northern states of Malaysia does follow the Modigliani's pattern of Life Cycle Hypothesis (LCH). However, the hump shape is not as high as proposed by Modigliani. In Northern states of Malaysia, the pattern of income from employment shows that people at the age of twenties earns almost the same as the people at the age of fifties. This shows that wages in Malaysia do not increase in relation to age despite more experience and knowledge.

## **RECOMMENDATIONS**

Based on the findings above, several recommendations are provided: Youngsters in Penang should receive aids for basic needs. With the development in Penang, it is a state where more job opportunities are available. With the high living cost in Penang, and low income especially for the youngsters who have just started their career, the youngsters will face difficulties in adapting to the cost of living of this state. As one of the most important basic needs is accommodation, it is suggested that the State Government should provide accommodation for youngster who have just started their job with a low rental rate.

Wages in Malaysia should be revised every year. The almost same pattern of income from employment over the life time shows that wages in Malaysia do not increase much. The wages in Malaysia do not significantly increase with increase of experience and knowledge. This leads to migration of professional workers in Malaysia. The government should revise the wages of workers in Malaysia based on their experience and knowledge. Lastly, pensioners in Malaysia should be educated on how to manage their pensions after they have retired as mismanagement of financial resources after retirement will lead to financial problems.

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