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A Note on Happiness and Life Satisfaction in Malaysia

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Abstract: Gross Domestic Product (GDP) has long been an indicator of economic growth. There is an on-going debate on whether high growth increases well-being. The terms 'happiness' and 'life satisfaction' are often used interchangeably to explain the subjective well-being levels of individuals. This study examines if both happiness and life satisfaction of Malaysian citizens are explained by the same factors based on a sample size of 1289 adopted from the 6th waves of World Values Survey (2010-2014). Outcomes from the ordered logit regression analysis indicate that income has strong positive relationship with happiness and life satisfaction. This study supports Easterlin paradox partially, which indicates a positive association between happiness and income in the short-term. Other common income related factors that have positive and strong significant impact on both happiness and life satisfaction are health status, employment and satisfaction on financial situation of household.

Keywords: Happiness, income, life satisfaction, Malaysia
JEL classification: D60, I31

1. Introduction

Can money buy happiness? Over the past three decades there has been an increasing interest amongst scholars and policy makers to understand whether economic growth is sufficient to measure the general well-being of a nation. Gross Dometic Product (GDP) is a widely accepted indicator for well-being and social welfare. Although GDP growth has been a good measurement of national economic performance, there are some concerns relating to improvements in the well-being of a society despite positive growth in GDP. As shown in the study by Inoguchi and Fujii (2008), although GDP growth leads to an increase in income level and standard of living, it does not improve social stability. Monetary socio-economic indicators such as real GDP have been found to be an insufficient measure of

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the societal well-being (Stiglitz, Sen, & Fitoussi, 2009) and modern economists are willing to go beyond production towards the welfare of happiness (Ng, 2003).

One of the earliest studies on whether economic growth could make us happier was by Richard Easterlin (Easterlin, 1974). Based on a long-run global survey data on self-reported happiness, Easterlin found that economic growth does not make us happier. 'Easterlin paradox', as it is popularly known, shows that at any point in time, happiness varies directly with income but over time, happiness does not increase despite an increase in a country's income (Easterlin, 1974; 1995; 2001). More recent studies by Easterlin (2005), Diener et al. (2009), and Inglehart et al. (2008) have observed that when income increases beyond a certain level, it does not typically lead to a corresponding increment in reported human happiness.

Policy makers and government have begun to formulate happiness related policies based on findings which show that happiness is influenced by societal circumstances. The Kingdom of Bhutan has applied the concept of 'Gross National Happiness' to replace Gross National Product' as a measure of national progress. There has been significant interest in measuring well-being in various countries. For example in 2007, Thailand released Green and Happiness Index (GHI) to evaluate the performance of national development and happiness. The Commission on the Measurement of Economics Performance and Social Progress (CMEPSP) initiated by the French government in 2008 identified the limitations of GDP as an indicator of economic performance and included additional information for incorporating other relevant indicators of social progress (Stiglitz et al., 2009). The development of a Happy Planet Index (HPI), published by the New Economics Foundation (NEF), is to measure a country's ecological efficiency in delivering human well-being. In the United Kingdom, the Office for National Statistics (ONS) has released their first annual subjective well-being data on July 2012 (Layard & Williamson, 2012). Also, there are various well-being indicator frameworks, for example, Measures of Australia's Progress by the Australian Bureau of Statistics, Australian National Development Index, Australian Unity Well-being Index and Herald/Age - Lateral Economics Index of Well-being in measuring the well-being amongst Australian citizens (see Drabsch, 2012).

Well-being is a broad concept used in happiness studies. It ranges from subjective evaluation of an individual's happiness to fulfillment or satisfaction of a given list of capabilities, functioning or needs (Ro-yo & Velazco, 2006). The terms well-being, happiness, life satisfaction, utility and welfare are used interchangeably among researchers (Easterlin, 2001; 2003; Ng, 2003; Stutzer & Frey, 2006; Frey, 2008). Some researchers distinguish life satisfaction as a broad cognitive component of well-being whereas happiness as affective or emotional elements (Andrews & Withey, 1976; Campbell, 1981; Diener et al., 2009; Brockmann et al., 2009).

In Malaysia, the Economic Planning Unit has recently published the Malaysian Well-being Index (MWI) Report 2013 to measure the well-being of the society replacing the Malaysian Quality of Life Index (MQLI) that was first introduced in 1999. The MWI was constructed using 14 components covering both economic and social perspectives namely, communications, education, income and distribution, transport, working life, culture, environment, family, governance, health, housing, leisure, public safety and social participation. Between the years 2000 and 2012, Malaysia's real GDP expanded at an

average rate of 4.8% per annum whereas the well-being of the society has only improved at an average of 1.9% per annum (Malaysian Well-being Report 2013). This reflects the broadening of the government's policy framework from a mainly quantitative approach to an approach which also includes the qualitative components of human, social and environmental dimensions of development.

It is noted that studies on economics of happiness and life satisfaction are mainly focused on the Western countries and cultures. There should also be a need to study happiness focusing on the non-Western countries such as Asia as these countries are undergoing substantial economic and social transformation (Selin & Davey, 2012). The aim of this paper is to examine the impact of income on Malaysians' happiness and life satisfaction (investigating the Easterlin Paradox), as well as to observe if there are any differences between factors that influence happiness and life satisfaction.

The paper proceeds as follows. Section 2 reviews the literature. Section 3 presents the data and methodology adopted while Section 4 discusses the empirical results. The penultimate section presents the conclusion.

2. Literature Review

Over the past few decades, there has been growing academic interest in happiness. Researchers have paid increasing attention to whether economic growth could bring about happiness and better well-being in the society. Seghieri et al. (2006) commented that high levels of income are implicitly associated with high levels of well-being. They applied the macroeconomic theory which states that higher income and consumption cause a greater number of needs that could be satisfied, and, by definition, a higher level of well-being can be attained. Monetary socio-economic indicators such as real GDP were found to be insufficient measures of the societal well-being (Stiglitz et al., 2009). There has also been an ongoing debate on the issue of the relationship between income and subjective well-being initiated by Easterlin (1974).

In Easterlin's earlier findings, economic growth did not improve the human welfare in Western countries. In 1995, Easterlin (1995) again tested the association between happiness and income. The results indicated a positive relationship between happiness and income. However, raising incomes did not increase the happiness level because the positive effect of higher income on subjective well-being is offset by the negative effect of a higher standard of living. The data was derived from time series studies of several countries which consisted of United States, nine European countries, and Japan. The well-known Easterlin paradox pointed out that average happiness has remained constant over time despite sharp rises in Gross National Product (GNP) per capita. Easterlin (2009) further investigated the happiness-income paradox and found a contradiction between the cross sectional relation and the time series relation. The time series analysis of the long term relationship between improvement in happiness and economic growth rate revealed an insignificant relationship for 17 developed, 9 developing, and 11 transition countries. However, there were positive outcomes for cross-sectional relations. In summary, the 'Easterlin Paradox' or 'Happiness Paradox' showed that at any point in time if an average income is given, happiness varied directly with income. Over time, however, happiness did not increase with a increase of a country's income (Easterlin, 1974; 1995;

2001; 2009). Even to date, Easterlin found that the long-term relationship between happiness and income is not necessarily related. However, in the short-term, happiness and income were positively associated (Easterlin, 2013).

In contradiction to Easterlin's view, Veenhoven and Vergunst (2014) tested the issue using time trend data available in the World Database of Happiness, which involved 1531 data points in 67 nations that yielded 199 time-series ranging from 10 to more than 40 years. Their analysis revealed a positive correlation between GDP growth and rise of happiness in most nations, with average happiness increasing more in nations with higher economic growth. They claimed that on the average, a 1% growth in income per capita per year was followed by a rise in average happiness by 0.00335 on a scale of 0-10.

Studies using data from various countries also showed that higher income is positively associated with greater happiness or better subjective well-being (Blanchflower & Oswald, 2004; Clark et al., 2008; Headey et al., 2008; Selim, 2008; Stevenson & Wolfers, 2008). A micro literature had typically found positive correlations between individual income and individual measures of subjective well-being (Clark et al., 2008). Sacks et al. (2010) explored the relationships between subjective well-being and income not only across individuals within a given country but also between countries in a given year, and as a country grows through time. Their results also suggested that measured subjective well-being grows hand in hand with material living standards.

Some researchers highlighted the difference between absolute income and relative income on subjective well-being. In the earlier research, Easterlin explained people obtain utility by comparing themselves to others, which indicated that happiness is relative. Easterlin found that individual well-being is the same across poor countries and rich countries and the results were based on cross-sectional comparisons of happiness and income. Because people judged their wealth relative to others, any increase in real income across individuals had little effect. However, Sacks et al. (2010) mentioned absolute income played an important role in influencing well-being. They showed that richer individuals in a given country were more satisfied with their lives than poorer individuals; and established that this relationship is similar in most countries. Turning to the relationship between countries, they showed that average life satisfaction is higher in countries with greater GDP per capita. The magnitude of the satisfaction-income gradient was roughly the same whether they compared individuals or countries. When studying changes in satisfaction over time, they found that as countries experienced economic growth, their citizens' life satisfaction typically grew, and that those countries experiencing more rapid economic growth also tended to experience more rapid growth in life satisfaction.

Another study mentioned that if richer and poorer countries were compared at a point in time, life satisfaction increased with the absolute amount of GDP per capita, but at a diminishing rate. For example, Frey and Stutzer (2002) found that when comparing across countries, income and happiness were positively related and that the marginal utility dropped with higher income. They also explained higher income clearly raised happiness in developing countries, but the effect was small. When comparing both the World Values Survey and the Gallup World Poll, Deaton (2008) revealed a strong relationship between income and life satisfaction among 'low-income' countries, but such a relationship was virtually non-existent among the 'highest-income' countries.

Although it has been argued that the positive effect of income on happiness stemmed mainly from the comparison between self and others, some literature suggested that both relative and absolute income were positively associated with one's subjective well-being. For example, analysing data from Germany and adopting a different analytical strategy, Ferrer-i-Carbonell (2005) pointed out that one's own income as well as the average of reference group affected happiness in Germany. Stevenson and Wolfers (2008) reassessed the Easterlin paradox; the estimated relationship was consistent across many datasets and similarities were found between subjective well-being and income observed within countries. These findings indicated a clear role for absolute income and a more limited role for relative income in determining happiness.

When comparing relative income to others, Social Comparison Theory can help to explain individual differences in level of aspiration. According to this theory, individuals experienced positive effect when they compared themselves with others whom they perceived to be less endowed and a negative effect when they compared themselves with those they perceived to be more endowed (Ashkanasy, 2011). Gandelman and Porzecanski (2013) used Gini indexes for income and happiness. They found that happiness inequality is about half of income equality. Using the Latin American data, Graham (2009) discovered non-linear relationships between income and happiness.

Alesina et al. (2004) explored the effect of the level of inequality on happiness between Europeans and Americans. They found that the rich and the right-wingers were largely unaffected by inequality, while inequality displayed strong negative effects on the happiness of the poor and left-wingers in Europe. In the United States, the poor and the left-wingers were unaffected by inequality, whereas the rich were bothered by inequality. Oshio and Kobayashi (2011) investigated the impact of income inequality associated with individual's assessment of happiness based on micro-data from nationwide surveys in Japan. They found that individuals who lived in areas of high income inequality tended to report themselves as being less happy.

Other studies also showed an income related factor such as financial satisfaction as an important determinant of overall individual well-being (Howell et al., 2012; Easterlin, 2006; Layard, 2005; van Praag & Ferrer-i-Carbonell, 2004).

In Malaysia, research on income related issues on happiness is relatively new. Al-Naggar et al. (2010) explored the perceptions and opinions of happiness among 33 Medical Science students from Management and Science University (MSU), Shah Alam, Malaysia. Their results indicated that the main source of happiness was money followed by good relationship with friends and family. Some of the students mentioned that the stability of life and good health were causes of happiness. Few participants mentioned that success in life was one of the causes of happiness. Ang and Abu Talib (2011) investigated the effect of materialism on life satisfaction among Malaysian undergraduate students. Results of the study affirmed that materialism was positively correlated to life satisfaction.

Cheah and Tang (2013) used probit analysis to generate self-rated happiness amongst 398 respondents from the state of Penang in Malaysia. The independent variables involved were age, gender, ethnicity, marital status, employment status, income, education and health. Their results indicated that income is not statistically significant in determining an individual's happiness. They found ethnicity, marital status and education to be statistically significant.

In terms of measurement, many psychologists considered single-item scales to be less reliable and less valid when compared to multi-item scales. This was because random measurement errors tend to be smaller on the average in multi-item scales compared to the single-item scales (Powdthavee, 2007). However, Ashkanasy (2011) commented that happiness and the processes associated with happiness depend on one's perspective, especially on the level of analysis. There is no reason for cross-national correlations of prosperity and happiness to be similar with correlations of prosperity and happiness over time within any particular nation. Most happiness studies found that within a wealthier country, people were, on average, happier than poorer ones. However, studies across countries over a period of time found very little of such relationships (Graham, 2004). This suggests that there is no clear relationship between average income and average happiness levels and indicates that many other factors need to be considered.

Education is primarily a process of human capital formation and is crucial to achieve sustainable economic growth. Thus, it is not surprising to observe a positive association between education and subjective well-being (Blanchflower & Oswald, 2004; Chen, 2012). Oswald (1997) also indicated that individuals with higher education were happier than those with a lower education. Diener et al. (1999) found small but significant correlations between education and subjective well-being implicating that education may affect subjective well-being by allowing individuals to make progress towards their goal or to adapt to changes.

Other factors that could influence the level of happiness include health status, age, gender, marital status and politics in their countries. Graham (2008) gave the importance of health for happiness and of happiness for health. In terms of age, Frey and Stutzer (2002) suggested the existence of a U-shaped relationship between age and happiness. Another study that reaffirmed this relationship is that of Blanchflower and Oswald (2004; 2008). Based on a data set involving approximately 500,000 Americans and Europeans, Blanchflower and Oswald (2008) found that happiness or well-being is U-shaped through the life cycle. Well-being reached a minimum amongst those in their mid to late 40s. Frey (2008) suggested citizens were happier when the institutions of direct democracy strengthened political participation rights and the participation of decentralised decision-making.

Marital status showed mixed results on happiness. Chen (2012) found that married people were happier in Japan and Korea but Taiwan showed no significant differences between those who were married and the singles. On the contrary, married people were less happy in China. Divorce had detrimental effects on people's emotional well-being.

A study on happiness amongst American men and women by Plagnol and Easterlin (2008) showed early in adult life, overall happiness was higher in women than men. However, in later life, men were more satisfied with their financial situation and family life, and were the happier of the two genders.

The term well-being, happiness and life satisfaction were often used interchangeably in literature studies. Few authors extended their findings on subjective well-being by investigating both happiness and life satisfaction.

Selim (2008) investigated both happiness and life satisfaction in Turkey. Their study revealed positive influences of income and health status, and negative effects on age and unemployment. The results showed that middle education was a negative direct

effect on life satisfaction among females, and upper education level was insignificant in the life satisfaction model. Howell et al. (2012) examined measures of happiness and life satisfaction within Malaysia. They used the Malay version of Subjective Happiness Scale (SHS) and also the 5th waves of World Value Survey (2005-2007). Their results indicated that health and education were strongly correlated with happiness whereas financial situation and health were strong significant predictors of life satisfaction instead of happiness. Another study conducted in Japan by Tiefenbach and Kohlbacher (2013) examined the differences in perceived life satisfaction and happiness from gender and age perspectives. They found household income affected happiness and life satisfaction equally for men and women but the latter displayed a negative correlation with life satisfaction in the absence of any savings.

3. Data and Model Specification

Data used in this study were extracted from the 6th waves of World Value Survey (WVS). The survey was carried out between 2010 and 2014 and each respondent was surveyed once. The focus of this study is to examine the relationship between income and happiness as well as income and life satisfaction in Malaysia. We used the WVS measure of life satisfaction and happiness as dependent variables. This involved a total sample of 1289 Malaysian citizens. Overall life satisfaction is measured based on a single item: "All things considered, how satisfied are you with your life as a whole these days? The response options are measured on a scale of 1 to 10. Scale 1 means the respondent is "completely dissatisfied" and 10 means "completely satisfied". For the happiness variable, the corresponding survey item read as "Taking all things together, would you say you are: "very happy", "rather happy", "not very happy" or "not happy at all"? To compare the life satisfaction level with level of happiness, we had to bring the happiness scale in the opposite direction ranking from "not happy at all" to "very happy". Appendix 1 provides further details about the definition and measurement of these variables and other independent variables.

Given the ordinal nature of both dependent variables, we employed ordered logit regression in analysing both the life satisfaction and happiness models. Like logistic regression, ordered logit uses maximum likelihood estimation methods, and finds the best set of regression coefficients to predict values of the logit-transformed probability that the dependent variable falls into one category rather than another. The specification of the ordered logit could be expressed in a latent regression model as follows:

$$y^* = \sum_{i=1}^{m} \beta_i x_i + \varepsilon$$

where y^* is the unobserved latent variable, x_i are the independent variables and ε is the error term. The observed ordinal variable, y, takes the values of one to k, as follows:

$$y_i = j \Leftrightarrow \alpha_{j-1} < y_i^* \leq \alpha_k \quad \text{for completeness, } \alpha_0 = -\infty \text{ and } \alpha_k = +\infty$$

where α_s are unknown threshold parameters separating the adjacent ordinal categories (j). The probability of y observing a value of j is:

$$P_{ij} = \Pr(y = j) = \Pr(\alpha_{j-1} < y^* \leq \alpha_j) = \Pr(\alpha_{j-1} < \sum_{i=1}^{m} \beta_i x_i + \varepsilon \leq \alpha_j)$$

Assuming that the error term,ε, is logistically distributed, we have the ordered logit model. The coefficients are estimated together with the threshold parameters using the maximum likelihood estimation method with robust standard error.

The dependent variable, *y*, in this study has the values *j*= 1, 2, 3 and 4 (for happiness model) and *j*=1 to 10 (for life satisfaction model).

4. Empirical Results

The purpose of this study is to examine the impact of income on the happiness and life satisfaction of Malaysians. We also examined if there are any differences between factors that influence happiness and life satisfaction.

Details of the sample characteristics are summarised in Table 1. Individuals in the sample are almost evenly distributed by gender, with 48.49% being female and 51.51% male and the average age being 40 years. Income was measured on a scale of 1 to 10 in WVS. The mean for scale of income was 6.00 with standard deviation of 1.84. The majority

Table 1. Respondent characteristics (n=1289).

Categorical variable	Category	Percentage
Gender:	Female	48.49%
	Male	51.51%
Marital status:	Married	68.74%
	Divorced, Separated, Widowed	3.88%
	Single	27.36%
State of health (subjective):	Very healthy	38.48%
	Healthy	48.18%
	Fair and poor health	13.34%
Employment:	Employed	75.80%
	Not working	22.19%
	Unemployed	2.01%
Education:	Primary level	20.02%
	Secondary level	67.49%
	Tertiary level	12.49%
Ethnicity:	Malay	67.57%
	Chinese	24.67%
	Others (Asian South)	7.76%
Satisfaction with financial	Financial satisfaction	72.71%
situation of household:	Dissatisfaction	27.39%
Income equality	1 (level 1-5)	30.10%
	0 (level 6-10)	69.90%
Continuous variables	Mean	Std Deviation
Scale of income[1]	6.00	1.84
Age	40.03	13.99

Note: [1]Income is measured on a 10 point ordinal scale in WVS. It is treated as a continuous variable as suggested and practised by Mijke et al. (2012), Sarracino (2008) and Zumbo and Zimmerman (1993). Here, scale 1 means 'the lowest scale of income' and scale 10 refers to 'the highest scale of income'.

Table 2. Overall feeling of happiness.

Feeling of happiness (scale)	Frequency	Percent	Cumulative
Not happy at all (1)	0	0	0
Not very happy (2)	50	3.88	3.88
Rather happy (3)	510	39.57	43.45
Very happy (4)	729	56.55	100.00
Total	1,289	100.00	

Table 3. Overall life satisfaction

Satisfaction with your life	Frequency	Percent	Cumulative
Completely dissatisfied	9	0.70	0.70
(2)	8	0.62	1.32
(3)	26	2.02	3.34
(4)	36	2.79	6.13
(5)	147	11.40	17.53
(6)	207	16.06	33.59
(7)	298	23.12	56.71
(8)	294	22.81	79.52
(9)	101	7.83	87.35
Completely satisfied	163	12.65	100.00
Total	1,289	100.00	

of participants were married (68.74%), very healthy or healthy (86.66%), employed (75.80%) and had completed their education till secondary school level (67.49%). About 73% of the participants were satisfied with their household financial situation and 69.90% believed in larger income differences as incentives for individual effort.

From the sample, the ethnic breakdown showed Malay to be 67.57%, Chinese 24.67% and others 7.76%. This breakdown closely reflected the ethnic structure of the Malaysia population as of 2010: 67.4% Bumiputera, 24.6% Chinese, 7.3% Indians and 0.7% others (Chi, 2014). In terms of unemployment rate, it showed 2.01%, which is also statistically similar with the Statistics Department Malaysia's report that stated Malaysia's unemployment rate in September 2014 was 2.7% (New Straits Times, 2014).

Relating to the measurement of happiness, 56.55% of respondents declared that they were very happy. Only 3.88% rated themselves as not being very happy in their overall feelings of happiness as indicated in Table 2. About 82% of the participants ranked their level of satisfaction from 6 to 10 scales. Overall, Malaysian citizens seemed to be happy and satisfied with their lives (Table 3). In this study, other than income, we also investigated some socio-demographic factors that may influence happiness and life satisfaction levels.

Table 4 presents the estimated results based on the ordered logit regression. We used the percentage correctly predicted to evaluate the goodness-of-fit of the estimated model. The percentage correctly predicted for happiness is 65.71%. This is substantially higher than the equal proportion of four categories (25%). The percentage correctly predicted for life satisfaction was 25.52%. This is substantially higher than the equal proportion of ten categories (10%). Both of these models show a good fit of the estimated

Table 4. Estimated ordered logit model

Variables	Happiness		Life satisfaction	
	Coefficient	Robust S.E.	Coefficient	Robust S.E.
Income	0.2147	0.0366***	0.1621	0.0360***
Age	0.0059	0.0065	-0.0009	0.0052
Gender (Female)	0.2135	0.1268*	-0.0201	0.1005
Married	0.0524	0.1743	0.3015	0.1452**
Divorced, Separated, Widowed	0.2831	0.4102	0.7325	0.3199**
Very healthy	2.0279	0.2312***	0.8472	0.1772***
Healthy	0.5313	0.2010**	0.4559	0.1624***
Employed	0.9073	0.4574**	1.1921	0.4095***
Not working	0.9400	0.4731**	1.5351	0.4255***
Primary level	0.3186	0.2390	-0.2808	0.1912
Secondary level	0.3884	0.1880**	-0.0067	0.1308
Malay	0.2482	0.2266	0.3722	0.1893**
Chinese	-0.3340	0.2411	0.0005	0.1956
Financial satisfaction	0.6024	0.1440***	0.8693	0.1395***
Income equality	-0.0923	0.1343	-0.2427	0.1191**

Notes:
1. ***, **, and * significant at 1%, 5%, and 10% levels, respectively.
2. Pseudo R^2 for happiness is 0.1324 and life satisfaction is 0.0402.
3. Percentage correctly predicted: 65.71% (happiness); 25.52% (overall life satisfaction).

model to the data. Our study shows that income (treated as continuous) has a strong and positive relationship with happiness and life satisfaction. We also estimated the model with income treated as a categorical variable and found that the effect of income to be still positive and significant. The results of the re-estimated model (income as categorical variable) are displayed in Appendix 2.

Other factors that have positive and significant impact on both happiness and life satisfaction are health, employment and satisfaction on financial situation of household. This outcome supports the Easterlin paradox partially which indicates a positive association between happiness and income in the short-term. Our findings are also consistent with that of Selim (2008) who revealed that income and health status have a positive influence on happiness.

In terms of marital status, there is a positive impact on happiness but it is not statistically significant. However, being married or divorced, separated and widowed when compared to singles have a positive and significant impact with life satisfaction. Chen (2012) explained that coefficients for marriage vary across countries. She found married people, as compared to those never married, reported higher happiness in Japan and Korea. No significant differences were found for Taiwan whereas for China, the coefficent for those never married was negative and insignificant.

Employment status has a significant and positive impact on happiness and life satisfaction. Compared to those who are unemployed, the employed and not working (economically inactive) are found to have a higher level of happiness and life satisfaction. Unemployment has been shown to be one of the main factors that leads to unhappiness.

Oswald (1997) and Selim (2008) revealed that unemployment has a negative impact on both happiness and life satisfaction.

Comparing respondents with education at secondary and primary levels with those having tertiary education, those with secondary school education seemed to be happier but not necessarily more satisfied with life. However, those with only primary school education are significantly less satisfied with life as compared to those who have tertiary education. Lim (2013) who investigated happiness in the Malaysian graduates' labour market found that graduates who reported a higher level of happiness are less likely to be over-educated. He stressed 'hysterias' of over-education can be significantly and negatively associated with one's current level of happiness. However, Cheah and Tang (2013) showed no significant relationship between education levels and happiness.

The unique characteristics of Malaysian society are derived from the element of pluralism which comprises various races, ethnics, culture, language and religions (Hwang 2003). Compared with the 'Indians and others' ethnic group, the Malays are more satisfied with their lives; however, they are not significantly happier (there is a positive relationship between Malays and happiness but it is not statistically significant). The Chinese are less happier compared to 'Indians and others' as shown by the negative relationship with happiness. Nevertheless, it is not significant. Malaysian females are happier compared to their counterparts. Age does not seem to have a significant influence on happiness among Malaysians. These findings lend support to studies carried out by Cheah and Tang (2013). Other factors besides age that are found to have an insignificant impact on happiness is perception on income equality. Individuals who perceive that income should be made more equal as compared with those who perceive larger income differences as important incentives to reflect their own efforts are less happier and less satisfied. Nonetheless, the negative relationship for perceived income equality and life satisfaction is found to be significant.

5. Conclusion

The debate on whether higher income in a country is associated with higher life satisfaction or happiness is considered of crucial importance particularly for policy reasons. If income has been proven as the main contributor to life satisfaction and happiness, then the traditional measurement based on GDP suffices. Otherwise, there is a fundamental need for policy makers to re-evaluate what other criteria should be considered in gauging a country's performance.

A well-known finding, appropriately called the Easterlin Paradox, reported no significant relationship between happiness and aggregate income in time-series analysis based on the data in USA between the period 1974-2004. No matter how, life satisfaction appears to be strictly monotonically increasing with income when one studies this relation at a point in time across nations. This paradox has also been confirmed by many other similar studies.

The findings of this study on the relationship between income and life satisfaction as well as happiness are not in contrast with the previous cross-sectional analysis. Our outcomes indicate that the scale of income has a strong positive relationship with both happiness and life satisfaction. We can conclude that this study supports the Easterlin paradox partially, which indicates a positive association between happiness and income

only in the short-term. The setback of this study is that we do not have sufficient data to analyse the long-term effects of income on life satisfaction and happiness using time-series data.

Other factors that have significant impact on both happiness and life satisfaction include health, employment and satisfaction on financial situation of household. Based on these outcomes, we can say that besides income, other factors could also affect the level of happiness and life satisfaction amongst Malaysians.

Overall both the happiness and life satisfaction models are relatively similar in explaining the influence of income and also the income related factors such as health status, employment, satisfaction with financial situation of household and perceptions of income equality. Thus, our study implies that in explaining the impact of income on happiness, the concepts of life satisfaction and happiness can be used interchangeably in Malaysia.

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Appendix 1. Definition of variables in the statistical model

Variable name	Definition
Dependent variables:	
Happiness	Not happy at all (scale rating 1) to Very happy (scale rating 4)
Life satisfaction	Completely dissatisfied (scale rating 1) to Completely satisfied (scale rating 10)
Independent variables:	
Scale of income (Income):	Continuous variable starting from 1-10
Age:	Continuous variable starting from 18-80
Gender:	
Female	
Male*	
Marital status:	
Married	Being married and living together (1=yes, 0=no)
Divorced, Separated and Widowed	Being divorced, separated, widowed (1=yes, 0=no)
Single*	
State of health (subjective):	
Very healthy	Being very healthy (1=yes, 0=no)
Healthy	Being healthy (1=yes, 0=no)
Fair and poor health*	
Employment:	
Employed	Being full time, part time and self employed (1=yes, 0=no)
Not working	Being retired, housewife and student (1=yes, 0=no)
Unemployed*	
Education:	
Primary level	No formal education until complete primary school (1=yes, 0=no)
Secondary level	Incomplete secondary school: technical or vocational type until complete secondary school: university preparatory type (1=yes, 0=no)
Tertiary level*	
Ethnicity:	
Malay	Being Malay (1=yes, 0=no)
Chinese	Being Chinese (1=yes, 0=no)
Indian and others*	
Satisfaction on financial situation of household:	
Satisfied	Being satisfied (1=yes, 0=no)
Dissatisfied*	
Income equality (perceived):	
'Income should be made more equal'	Agree with the statement (1=yes, 0=no)
'We need larger income differences as incentives for individual effort'*	

Note: * refers to reference group

We have recoded some of the independent variables taken from the WVS. The scales of income (income) and respondent's age are regarded as continuous variables. For gender, 1 represents female and 0 otherwise. The variables married (married and living together) and divorced, separated, widowed are compared to single. For health levels, very healthy and healthy are compared to fair and poor health. Under employment, employed (full time, part time and self-employed) and not working (retired, housewife and student) are compared with those unemployed. The education variable is grouped into three categories, primary level (no formal education until complete primary school level) and secondary level (incomplete secondary school: technical or vocational type until complete secondary school: university preparatory type) are compared to tertiary education. For ethnic group comparisons, Malay and Chinese are compared to 'Indian and others'. For satisfaction with financial situation of household, financial satisfaction (recoded from the original scales of 6 to 10 in the questionnaire) is compared with dissatisfaction with financial situation of household (recoded from the original scales of 1 to 5). In the questionnaire, the response option for the income equality variable is a scale of 1 to 10. Level 1 indicates that 'incomes should be made more equal', and level 10 refers to 'We need larger income differences as incentives for individual effort'. In this study, income equality is recoded into 1 (levels 1-5) and 0 (levels 6-10).

Appendix 2. Estimated ordered logit model

Variables	Happiness		Life satisfaction	
	Coefficient	Robust S.E.	Coefficient	Robust S.E.
Income (Scale 1)	-0.6653	1.0820	-3.3089	1.0966***
Income (Scale 2)	-2.0776	0.9439**	-2.4777	0.96156***
Income (Scale 3)	-1.8977	0.9268**	-3.0283	0.8872***
Income (Scale 4)	-1.1513	0.9219	-2.9329	0.8889***
Income (Scale 5)	-1.1688	0.9122	-2.6927	0.8723***
Income (Scale 6)	-1.2544	0.9090	-2.5645	0.8692***
Income (Scale 7)	-1.0090	0.9058	-2.5090	0.8659***
Income (Scale 8)	-0.1246	0.9111	-2.1360	0.8661**
Income (Scale 9)	-0.5162	0.9922	-1.6877	0.9065*
Age	0.0038	0.0066	-0.0019	0.0053
Female	0.2654	0.1292**	-0.0160	0.1008
Married	0.0472	0.1768	0.2970	0.1477**
Divorced, Separated, Widowed	0.1975	0.3973	0.7058	0.3335**
Very healthy	2.0583	0.2349***	0.8347	0.1794***
Healthy	0.5607	0.2117***	0.4607	0.16485***
Employed	1.0014	0.4667**	1.2169	0.4101***
Not working	1.0148	0.4821**	1.5438	0.4270***
Primary level	0.3338	0.2422	-0.2682	0.1902
Secondary level	0.4527	0.1918**	0.0264	0.1311
Malay	0.2656	0.2259	0.3337	0.1901*
Chinese	-0.3100	0.2409	-0.0273	0.1948
Financial satisfaction	0.6269	0.1461***	0.9088	0.1411***
Income equality	-0.0897	0.1380	-0.2331	0.1199*

[1] Income is measured in a 10 point ordinal scale. Scale 1 means 'the lowest scale of income' and scale 10 (reference group) refers to 'the highest scale of income'.