New Evidence of Individual Level of Happiness in Indonesia: Does Easterlin Paradox Matter?

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Abstract

This study aims to estimate the determining factors of individual happiness of the head of household in Indonesia in 2014 using cross-section data from the Indonesia Family Life Survey (IFLS) batch 5 of 2014 with 5092 respondents estimated by a logit model. The Logit model was chosen due to the ordinal response variable and the dependent variable using a scale of 0 and 1. This study tested 7 independent variables using binary logistic regression. The results showed that the economic factors of employment and income had a significant effect on happiness. It implies that there was no Easterlin Paradox in Indonesia. Individual characteristic factors, comprising age, duration of education, and health showed an influence on the head of household's level of happiness. This research found that gender and area of residence variables did not show significant results. In other words, the level of happiness of the head of household was not determined by the gender; male or female. The level of happiness of the head of household living in rural or urban areas also showed no effect.

Keywords: Individual Level of Happiness, Logit, Easterlin Paradox
JEL Classification: D10; H75; I31

INTRODUCTION

Happiness is an important indicator in social and economic life. The happiness economics research was first introduced by Easterlin (1974) through the Easterlin Paradox theory, in which growing income cannot increase happiness. Happiness in economics is part of a subjective approach to subjective happiness, and utility is measured through personal experience. This approach allows economists to measure economic well-being in quantitative by proposing, "how satisfied are you with your present life?". It distinguishes economic welfare from other industrial welfares (Easterlin, 1974).

Happiness economics is an approach used to measure a person's well-being by combining an economic point of view with an individual's psychology (Mata et al., 2018). This theory is established on the ground how an individual maximizes utility to achieve a subjective level of well-being, which will be used as an indicator of one's happiness. The indicator of happiness describes subjective well-being

levels related to several aspects of life that are deemed essential and meaningful for the majority of the population and society (Martela & Sheldon, 2019). Previous research has shown that the phenomenon of collective happiness has a significant effect on the success and social development in society (Jayawickreme et al., 2011).

In addition, Rahayu (2016) revealed that the most influencing happiness factor in Indonesia is social capital that will create a sense of security. Many indicators are applied by research to measure people's welfare. A study conducted in Indonesia by Sohn (2013) focusing on the role of economic factors such as income and employment status as well as non-economic factors that affect the level of happiness in Indonesia has found a positive relationship between income and happiness, which exceeds the increase in household consumption and health. Li and Chen (2018) also found that relative income is more important than absolute income.

A preliminary study on the determinants of happiness conducted by Nandini and Afianto (2020) showed the variables of income, education, health, social relations with family and society, environment, and meaningful life affected happiness. A prior study by Aminullah (2019) found that income had a positive relationship with the level of happiness. Meanwhile, Indonesia is currently developing research on the level of happiness with a survey method conducted by (Statistics Indonesia, 2017) during 2013, 2014, and 2017. The research was performed in 2014 involving 9,500 respondents across Indonesia. On a scale of 0-100, in which 100 reflects very happy, 0-25 are categorized as unhappy, 25-50 as less happy, 50-75 as happy, and 75-100 as very happy. In 2013-2014, Statistics Indonesia (2017) disclosed that the level of happiness in Indonesia increased from 68.28 in 2013 to 70.69 in 2014.

A survey obtained by Statistics Indonesia (2017) with various indicators of happiness, such as life stratification including subjective health, education and skills, and work ability, family income, security status, social relations, leisure time, home situation, living conditions, achieved desires, environment as well as household harmony. Happiness includes complex life phenomena and its various determinants are interrelated so the assessment of the level of happiness requires a framework that includes three life dimensions, encompassing, life satisfaction dimension, affect dimension, and eudaimonia dimension. The life satisfaction dimension is divided into personal life satisfaction and social life satisfaction sub-dimensions.

Table 1. Indicators of Happiness Index based on Statistics Indonesia

No	Indicator/Variable	2013	2014
1	Household Income	58.03	63.09
2	Housing and Asset	62.42	67.08
3	Occupation	58.28	67.08
4	Education	58.28	55.19
5	Health	69.72	66.4
6	Leisure	68.02	71.74
7	Social Relation	72.43	74.29
8	Family Harmony	78.11	78.89
9	Security	74.83	76.63
10	Environment Situation	70.43	74.86

Source: Indonesia Happiness Index by Statistics Indonesia 2014

Table 1 informs that the level of population happiness towards life indicators in 2014 increased compared to 2013. The indicator of household income had the most significant increase, which was 5.06. Family harmony experienced the lowest increase of 0.78. The data presented by Statistics Indonesia (2017) explains the aggregate level of happiness from a certain region. In the previous research, there were similarities in the results of each variable tested, such as income, education, and health, which had an effect on happiness. It has prompted the authors to re-examine the effect of each independent variable with the dependent variable on subjective happiness based on data from the Indonesia Family Life Survey (IFLS) 2014.

This study focuses on the level of happiness in Indonesian families. Based on a survey conducted by the Statistics Indonesia in 2014, the population happiness of those who are not the head of household was higher than the happiness index of the population with the head of household status (See Figure 1).
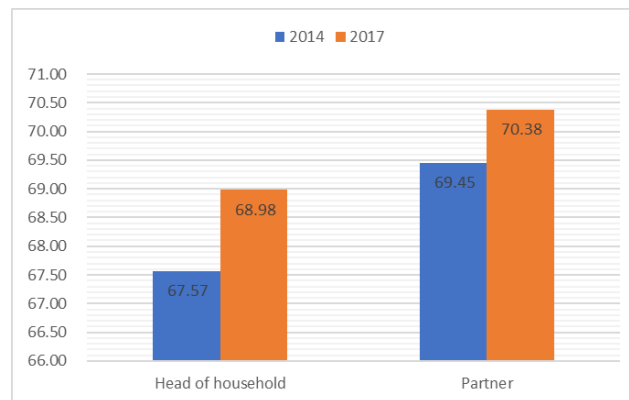

Figure 1. Happiness based on Status in the Family in 2014 and 2017
Source: Happiness Index Statistics Indonesia (2017)

Non-economic factors used in measuring happiness are individual characteristics and demographic factors. The economic factors used as indicators of happiness are income and employment status. The characteristics used in the happiness indicators are gender, age, education, and subjective health, and the demographic indicator, which is an individual's area of residence (Ballas, 2013). Furthermore, Easterlin and Angelescu (2009) discovered that there was no significant relationship between the level of happiness when there was an increase in long-term per capita growth. Maslow's theory of the hierarchy of basic needs and Todaro and Smith's theory of quality of life show that in developing countries there is no Easterlin Paradox phenomenon because income is the dominant factor in determining happiness. Frey and Stuzer (2018) also argue that there is a difference in the level of psychological happiness between those who are employed and those who are unemployed because unemployment status results in a loss of self-esteem and personal control.

A preliminary study on the relationship between happiness and individual characteristics by Sohn (2013); Landiyanto et al. (2011); Aryogi and Wulansari (2016); Rahayu (2016) indicated that the level of happiness of the head of the household was lower than that of the spouse due to greater responsibilities than what was borne by the spouse or other household members. It affects the level of individual happiness. Gender differences between male and female family heads

are perceived to influence the level of happiness. Sohn (2013) signifies that women are happier than men. This study corresponds to that conducted by Tella and MacCulloch (2004). Other research conducted by Clark and Senik (2001) found that women are happier than men. It leads to less consistent research and differences in managing male or female heads of household. The age of the head of household affects happiness because age is connected to individual psychology such as thoughts, perspectives, and experiences. Furthermore, age has a positive relationship to happiness; the older a person, the higher level of happiness he can obtain. However, at a certain point, as age increases, an individual level of happiness may decrease. There is an inconsistent relationship between age and happiness (Easterlin, 2006; Sohn, 2013; Aryogi & Wulansari, 2016).

Education influences the level of individual happiness and it is positively related. A higher level of education leads the individual to be happy. It occurs due to the wide job opportunities (Chen, 2012; Frey & Stutzer, 2018). According to Sirgy (2012), education has a positive effect that can be a resource to help achieve life goals, on the other hand, education poses a negative effect that will accommodate the high aspiration of society that it does not allow a person to achieve life goals. Health is an important aspect of individual happiness. Health is considered important because with good health a person can carry out various daily activities and is simultaneously related to other aspects of life. This research is supported by Diener (2006) that people who feel happy are certainly healthy, but healthy people do not necessarily feel happy. Similar results are also found by Landiyanto et al. (2011); Rahayu (2016) that health has a positive influence on happiness. Esterlin's (2001) study discovered that to increase individual happiness, people need leisure from work time for material purposes, such as spending time with family and maintaining mental health.

This study has a difference with previous research, namely by using the head of the family as the dependent variable. The head of household variable was taken based on research conducted by Statistics Indonesia (2017) which resulted in the happiness of the head of the household tending to be lower than his spouses. This is because the head of the house has a higher responsibility than his partner. The results of this study state that the happiness of the head of the household is contrary to the Easterlin paradox where the economic variable of income is still the main factor determining the happiness of the head of the similar to the research conducted by Landiyanto et al. (2011); Sohn (2013); Rahayu (2016); Nandini and Afianto (2020). This study proves that the is economics influence such as an increase in income, employment status, and non-economics influence such as age, education level, and health play an important role in increasing the level of happiness of the head of household in Indonesia.

METHOD

The data used in this paper are quantitative and qualitative data. Quantitative data are data expressed in numerical units. Based on the data sources used, this writing was carried out in 24 provinces in Indonesia, involving North Sumatra, West Sumatra, Riau, Jambi, Riau Islands, Bangka Belitung, South Sumatra, Lampung, West Java, DKI Jakarta, Banten, Central Java, Yogyakarta, East Java, Bali, West Nusa Tenggara, West Kalimantan, East Kalimantan, Central Kalimantan, South Kalimantan, South Sulawesi, and West Sulawesi. The available

data were collected at the end of 2014 to the beginning of 2015 which are part of the Indonesia Family Life Survey (IFLS) batch 5 data group.

The subject of this paper only counted the head of household as a sample with the age range of 16 years to 64 years. This age was determined since it is the age group of the workforce that has been classified by Statistics Indonesia. Given the reduction, 5092 heads of families were sampled in this study. This study employed regression analyze, the dependent variable is not only quantitative (continuous) but also a qualitative variable (discrete) included in this study. The dependent variable in this study is a discrete or categorical variable with two choices (binary), 1 and 0. While the independent variable is a combination of a continuous variable and discrete variable, thus logistic regression is used for analysis.

The analysis technique this research performed is logit regression. This analysis technique was used because the dependent variable of this study is a qualitative response model that is binary or dichotomous. In a model with a binary response, there are two possible values, namely 1 and 0. The purpose of this model is to find the probability of an event. Therefore, this regression model with the binary response is also referred to as a probability model.

Model Feasibility Test (Pearson)

Pearson's Model Feasibility Test was conducted to test the alternative hypothesis that the data fit the model. Simply put, there is no difference between the data and the model so that the model is declared fit (See Table 2).

Table 2. Pearson Test Result

Logistic model for a happy, goodness-of-fit test		
Number of observation	=	5950
Number of covariate patterns	=	5113
Pearson chi2(5105)	=	4996.16
Prob > chi2	=	0.8695

Table 2 informs how well the model can explain the relationship between the independent variable and the dependent variable. The results of the Pearson's Model Feasibility Test obtained a significance value greater than 0.05, which was 0.8695, thus H0 is rejected and Ha is accepted. Therefore, the logistic regression model used can explain the data.

Wald Test or Partial Test

The partial test for each independent is carried out by considering the Prob > chi^2 of each independent variable, which is individually carried out. Table 2 informs that Wald test is used to see the effect of each independent variable on the dependent variable. The level of happiness of the head of the household is not influenced by gender or the area where the head of the family lives, but differences in income, employment status, age, length of education, and health that affect the level of happiness of the head of the household. The output on the independent variable test of gender and area of residence of the head of household with a 95% confidence level accepts H0, which implies it had no significant effect on the level of happiness of the head of household. However, the independent variable test on the economic factors of income and employment status had a significant effect on

the happiness of the head of household as well as individual characteristics factors on the age, period of education and subjective health status variables had a significant effect.

Table 2. Wald Test Results

		Chi2(1)	Prob>chi^2
Head_HH	0	0.23	0.6389
Income	0	55.10	0.0000
Employment	0	10.55	0.0012
Age	0	12.76	0.0004
Period of Education	0	10.38	0.0013
Subjective Health Status	0	39.88	0.0000
Area of Residence	0	2.60	0.1070

Measurement of Goodness of Fit

A low pseudo R^2 value does not mean the model is considered inadequate. It happens because the value of pseudo R^2 is not a natural interpretation, but is an imitation to replace the value of R^2 in the ordinary least square method (See Table 3).

Table 3. Goodness of Fit Test

Measures of fit for logit of happy			
McFadden's R^2:	0.069	McFadden's Adj R^2:	0.063

The result of Table 3 states that McFadden's Adj R^2 = 0.063 which can be interpreted as follows: the regression line can explain the dependent dispersion variation using a sigmoid curve of 6.3% which is larger than McFadden's R^2 = 0.069 or the following regression line can explain the dependent dispersion variation using a sigmoid curve of 6.9%.

Table 4. Goodness of Fit Sensitivity Test

	Pr (+| D)	99.93%
Specificity	Pr (-|~D)	0.00%
Correctly classified	94.15%	

From Table 4, it can be concluded that: (1) Specificity: negative observation results were stated negative correctly at 0.00%. (2) Sensitivity: positive observation results were stated positively correctly at 99.93% (3) Overall: the model could explain correctly at 94.15%

Simultaneous Significance Test Using Likelihood Ratio (LR)

This test used the likelihood ratio (LR) statistical test as well as the F test in the OLS regression method. The statistical value of LR follows chi-square distribution (x2) with a degree of freedom (df) as many as the number of independent variables excluding constants. The hypothesis of the likelihood ratio statistical test is as follows.

$$H0 \ : β1= β2=β3=\cdots=βn=0$$

It implies that there is no simultaneous effect of the independent variable on the independent variable. H1: there is at least one parameter that is not equal to zero. Meaning that there is a simultaneous influence of the independent variable to the dependent variable.

In the logit interpretation, positive results on the logit model indicate that when the value of the variable increases, the proclivity for events to occur will also increase. Conversely, if the result is negative then the tendency of the events to occur decreases along with the increase in the value of X (Gujarati & Porter, 2010). The results of the coefficients in the logit model cannot be directly interpreted because they can only provide direction for the influence of changes in the independent variable on the dependent variable.

This study uses happiness with control variable model, by combining economic variables with individual characteristic variables, namely head of household income, employment status, age, gender, education, health, and area of residence with the dependent variable in the form of a binary variable with an ordinal scale of 0 and 1. The analysis technique used in this study is logit regression. Several studies previously conducted by Sohn (2013); Rahayu (2016); Landiyanto et al. (2011) employed the logit regression analysis technique. The analysis technique was applied because the dependent variable of this study is a qualitative response model that is binary or dichotomous. In the model with a binary response, there are only two possible values, 1 and 0. According to Kuncoro (2001), the advantage of the logistic regression method is that it is more flexible than other techniques because logistic regression does not have an assumption of normality for the independent variables used in the model so that the explanatory variables do not always have a normal, linear distribution, or same variance in each group. In addition, the independent variables in logistic regression can be a mixture of continuous, discrete, and dichotomous variables. Logistic regression is also useful if the distribution of responses to the dependent variable is expected to be nonlinear with one or more independent variables.

The purpose of this model is to find the probability of an event. Therefore, this regression model with binary response is also referred to as a probability model. Then the model used is as follows.

$$P(Y = 1|X) = (\beta 0 + \beta 1 income + \beta 2 employment\_status \\ + \beta 3\ Head\_HH + \beta 4\ age + \beta 5 education + \beta 6 health \\ + \beta 7 area\ of\ residence + u)$$

Information
Y   = Happiness (0=unhappy 1=happy)
$\beta 0$ = Intercept
$\beta 1$ = Income (rupiah)
$\beta 2$ = Employment_status (0=unemployed 1=employed)
$\beta 3$ = Head_HH (0 = male HH 1=Female HH)
$\beta 4$ = Age of Head of Household
$\beta 5$ = Education
$\beta 6$ = Health (0=unhealthy 1=healthy)
$\beta 7$ = area of residence (0=rural 1=urban)

RESULTS AND DISCUSSION

Table 5 illustrates the result of the effect of the happiness variable with the independent variables consisting of economic, individual characteristics, and demographic factors of each head of household in Indonesia. The results prove that the economic factors, including income, had a fairly strong influence on the happiness of the head of household. It is in line with research conducted by Diener (2006); Diener and Biswas-Diener (2001) in Germany that there is a positive relationship between income and level of happiness, meaning there was no Esterlin paradox in the results of this study.

Table 5. Regression Results

Variables	Variable Description	dependent: happy	
		Coefficient	Odds Ratio
Income	Head of household income	0.393***	1.4817***
		(0.0530)	(0.0785)
unemp	Head of household employment status	0.540***	1.715***
		(0.166)	(0.285)
Head_HH	Head of household gender	-0.0842	0. .9192
		(0.174)	(0.1601)
Age	Head of household age	-0.0191***	0.9810***
		(0.00536)	(0.00525)
Education	Head of household education period	0.0814***	1.0848***
		(0.0253)	(0.0274)
Health	Head of household subjective health	0.797***	2.219***
		(0.126)	(0.280)
Area of residence	Head of household area of residence	-0.200	0.818
		(0.124)	(0.101)
Constant		-4.856***	0.0077***
		(0.880)	(0.0068)
Observations		5,950	5,950
LR chi^2(2)		181.03	
Prob > chi^2		0.0000	
Pseudo R^2		0.0689	

Standard errors in parentheses
*** p<0.01, **p<0.05, *p<0.1
Source: Data processed, STATA 14

The result coefficient of the income variable of the head of household explains that there was a positive correlation between the dependent variable with a significance level of 1%. This is supported by the results of the estimated odds ratio showing that heads of household with higher incomes were 1.48 times happier than those with lower incomes. The results of the income variable analysis showed a positive and significant relationship with happiness. Income is to fulfill needs according to Maslow's Hierarchy of Basic Needs Theory and Todaro and Smith's Quality of Life Theory. The results of this study indicate that there is no Easterlin

Paradox phenomenon in developing countries such as Indonesia because income is still a determining factor for happiness. Similarly, Sohn (2013) found that income is one of the determinants of happiness. The positive effect of income on happiness is also reinforced by Rahayu (2016) that income has an effect on happiness.

Employment status had a positive and significant effect on happiness with a significance level of 1%. It is strengthened by the results of the odds ratio that the heads of households who are employed were 1.07 times happier than those unemployed. By working, the head of the household earns income that can be used to fulfill needs. Frey and Stutzer (2018) argue that psychologically individuals who are not employed can lose their self-confidence and feel useless in their environment. The unemployment status of the head of the household will reduce the level of happiness. According to Frey and Stuzer (2018), the level of happiness of unemployment will be lower than those who work because they lose income and the effects are not directly experienced.

The coefficient of the gender showed a negative and insignificant relationship. It means that there is no difference in happiness between the male head of household and the female head of household. This hypothesis arose because it is suspected that the female head of the household is happier than the male. Research conducted by Akerlof and Kranton (2000) states that women are happier than men due to their self-concept. Men have more responsibilities than women.

However, this study corresponds to research conducted by Landiyanto et al. (2011) and Oswald (1997) that there is no influence between the happiness of men and women. Likewise, research conducted by Aryogi and Wulansari (2016) found that gender does not affect happiness. It reflects the government's policy of not discriminating against gender so that both men and women can participate in Indonesia's economic development. In this test, the data obtained output results that are not significant or, in other words, the proportion of males or females does not affect the level of individual happiness. The explanation of this may be due to the data used have not been able to present the gender proportions of male head of household and female head of household.

The results of the age had a significant effect but had a negative relationship with happiness. From the results of the odds ratio, age had a negative and significant effect on happiness. Easterlin (2006) revealed that there is a decrease in individual happiness once entering the age of 51 years due to declining health conditions and thoughts about morality. Schnittker (2008) provides the results that the older the individual, the lower the level of happiness. This research is in line with research conducted by Landiyanto et al. (2011), age has a negative effect on happiness, which means young individuals are happier than older individuals due to the individual's psychological condition.

The period of education had a significant and positive effect on happiness with a significance level of 1%. While the results of the odds ratio also show that education had a positive and significant effect on happiness. It means that heads of households who have more than one year of education will feel 1.08 times happier than individuals with lower education. The level of education shows a positive influence because higher education leads to happier conditions for it will allow better opportunities and a wider working network (Chen, 2012; Frey & Stuzer, 2018). Higher enrollment rates also increase job opportunities and better finances which will ultimately improve happiness (Nikolaev, 2018). The education variable

generated similar results as the research conducted by Landiyanto et al. (2011) that education is positively related to happiness. The results of the overall analysis show that subjective health status variables had a positive and significant relationship with happiness with a probability level of 0.000 or at a level of 1%. The results of the odds ratio also show that healthy heads of households will be 2.21 times happier than unhealthy heads of households. This implies that subjective health variables have a positive effect on the happiness of the head of household.

Health is included in the life satisfaction indicator because health is important for a person to be able to carry out various daily activities and simultaneously related to other aspects of life such as work, social relations, and so on. This research also shares similarities with that conducted by Diener (2006) that happy people are certainly healthy, but healthy people do not necessarily feel happy. Similar results are also found by Landiyanto et al. (2011); Rahayu (2016) that health has a positive influence on happiness. Esterlin's (2001) study discovered that to increase individual happiness, people need leisure from work time for material purposes, such as spending time with family and maintaining mental health.

The results of the overall analysis show that the area of residence variable which is a demographic factor had a negative relationship and was not statistically significant. It means that there was no difference in the level of happiness of family heads living in urban or rural areas. These results show differences in previous studies that there is a significant positive relationship in the aspect of living area such as research conducted by Nandini and Afianto (2020) found there is a significant positive relationship in individuals living in urban areas. Another finding by Sohn (2013); Rahayu (2016) revealed that those who live in villages feel happier than those who live in urban areas.

CONCLUSION

The results of the logit regression test using seven variables overall produced five variables that are influential and significant on the dependent variable of the happiness of head of household, namely income, employment status, age, period of education, and subjective health. Those affected the probability of the head of household feeling happy. Variable income, employment status, period of education, and subjective health of the head of household had a significant and positive effect on the probability of the head of household to be happy. The gender aspect had a positive but not statistically significant effect on the happiness level of head of household, it means that there is no difference in the level of happiness between male head of household and female head of household. The age of the head of household was statistically significant but negatively related to the probability of the head of household. The area of residence had a negative effect and was not statistically significant, it means that there is no difference in the level of happiness of head of household living in villages or cities. This research limitation is only examining individual happiness using index family life survey (IFLS) 2014 data. The results of this study indicate that an increase in income, employment status, age, education level, and health play an important role in increasing the level of happiness of the head of household in Indonesia. Therefore, the government should propose policies that advocate the level of education and health is important in life. To support the improvement of education and health, both the government and the private sector must improve infrastructure in terms of education and health.

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