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More Money or Better Standing? The Relationship Between Income and Happiness among Indonesians

March 2026

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ABSTRACT

In the field of happiness economics, there is an ongoing debate over which income measure most strongly determines happiness: absolute income or relative income. Despite numerous international studies, empirical analysis remains limited in the Indonesian context. Using *Survei Pengukuran Tingkat Kebahagiaan* (SPTK) 2021, Indonesia's latest happiness survey dataset, this study explored the correlation between both income measures (absolute and relative) and happiness among Indonesians. This study used ordinary least squares (OLS) regression analysis to examine the correlation. Initially, absolute income showed a stronger association with happiness. Controlling for relative income, a standard deviation (SD) increase in absolute income was associated with a 0.15 SD increase in happiness, while controlling for absolute income, a SD increase in relative income is associated with a 0.06 SD increase in happiness. After accounting for demographic variables, both income measures yield similar results, a SD increase in either absolute income or relative income associated with about 0.08 SD increase in happiness level. In addition, gender interaction found that males experience a slightly larger increase in happiness than females for each additional unit of income measure. Education level interaction indicated that income's effect is weaker as individuals achieve higher education.

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LIST OF ACRONYMS AND ABBREVIATIONS

BPS	*Badan Pusat Statistik* (Indonesia Central Bureau of Statistics)
GDP	gross domestic product
GSS	General Social Survey
GWP	Gallup World Poll
IDR	Indonesian Rupiah
ILFS	Indonesia Life Family Survey
OLS	ordinary least square
SD	standard deviation
SPTK	*Survei Pengukuran Tingkat Kebahagiaan* (Happiness Level Measurement Survey)
WVS	World Value Survey

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I. INTRODUCTION

Policymakers in nations throughout the world, including Indonesia, use macroeconomic indicators such as economic growth and the rate of inflation when making economic decisions. Among these indicators, gross domestic product (GDP) as an indicator of economic growth is most often used as a measure of a country's well-being. GDP is the total amount "of the goods and services produced by a country's economy during a specified period of time" (Bondarenko, p. 1). Therefore, a country's economic policy commonly prioritizes increasing GDP by expanding national output. When calculated on a per capita basis, GDP approximates individuals' average real income, with higher GDP per capita reflecting higher average income across a country's population compared to countries with lower GDP per capita.

Nevertheless, GDP reflects only the general picture of a country's economic performance, and GDP per capita does not capture an individual's subjective well-being throughout his or her life. Because of that limitation, researchers interested in measuring happiness have developed several surveys to observe individuals' subjective well-being and happiness. Some surveys, such as the Gallup World Poll (GWP) and the World Value Survey (WVS), are conducted internationally by collecting data from respondents across multiple countries. Similar happiness surveys are also conducted at the national level, including the General Social Survey (GSS) in the U.S. and the *Survei Pengukuran Tingkat Kebahagiaan* (SPTK), Indonesia's happiness level measurement survey (Easterlin, 2021). Both international and domestic happiness surveys aim to observe in a comprehensive way factors that contribute to individuals' happiness.

One of the factors that can play a role in determining a person's happiness is income. Income can be viewed in terms of absolute income and relative income. Absolute income refers to an individual's earnings irrespective of other people's income; relative income refers to a person's income relative to some other measure or benchmark, such as the income of others in the same neighborhood.

Comparing one's income with others plays a major role in a person's subjective sense of happiness. This aligns with a phenomenon called "keeping up with the Joneses." People assess their happiness not solely based on how much they earn, but also on how their income compares to the incomes of others in their neighborhood or society. Initially, a low-income household may be happy with their income because their neighbor earns a similar amount; however, if the neighbor begins to earn more as time goes by, while the household still earns the same amount, the household's happiness level is likely to decline.

Indonesia has experienced significant economic growth in recent years. Real GDP growth reached 5 percent in 2023, and it is expected to remain strong (Skamnelos & Strobbe, 2024). Other macroeconomic indicators also supported the country's economic growth, such as the inflation rate remained within the government's target range of around 3 percent, while the unemployment rate declined to 5.3 percent in the same year (Skamnelos & Strobbe, 2024). Taken together, these indicators present a favorable picture of Indonesia's economy.

However, such positive macroeconomic indicators reflect averages across the economy and they do not imply an even distribution at the individual or regional level. As a result, *Badan Pusat Statistik* (BPS), Indonesia's central bureau of statistics administered the SPTK across 34 the provinces existing at the time of the 2021 survey to examine how Indonesians evaluate their happiness (BPS Indonesia, 2021). Among the many factors shaping happiness, income—whether in absolute terms or relative to others—must be considered in figuring individual happiness. Therefore, this thesis will explore both measures of income in determining the nature of the relationship between income and happiness for individuals in Indonesia.

A. THESIS QUESTION

This thesis focuses on answering the following questions:

- What is the relationship between income and happiness amongst Indonesians?

- How does the relationship between income and happiness vary across individual and demographic characteristics?

B. DATA, METHOD, AND FINDINGS

I used the SPTK 2021 dataset for the analysis. The 2021 SPTK was administered in 34 the provinces of Indonesia between July 1 through August 27, 2021. The unit of observation in SPTK 2021 was the household; households were randomly selected with a two-stage one-phase sampling method (*Survei Pengukuran Tingkat Kebahagiaan*, 2021). Aside from overall happiness as key inquiries, the survey also collected information on three factors that contribute to individual happiness: life satisfaction, daily affect, and the meaning of life.

In this study, I used ordinary least squares (OLS) regression to analyze the relationship between income and happiness. The dependent variable was the individual happiness level, presented on a numerical scale, as higher numbers indicate more happiness experienced throughout life by the respondent and vice versa. The key independent variables were absolute income and relative income. Survey weights were applied to all analyses to ensure that the estimated results reflected the Indonesian population.

In my analysis, I found that initially, absolute income had a stronger relationship with happiness than relative income. However, after accounting for demographic characteristics, the magnitude of the coefficients on both income measures became similar. This change in the coefficient sizes shows that demographic characteristics are correlated with individual happiness. I also found that this relationship varied across demographic characteristics including gender and education level. Males experience a slightly larger increase in happiness than females for each additional unit of income. On the other hand, the interaction between income measure and education level suggested that relationship between income and happiness becomes weaker as individuals achieve higher education. Overall, these findings suggest that both income measures are associated with happiness, but the strength of this relationship varies across demographic groups.

C. THESIS OVERVIEW

The thesis is organized into five chapters. Chapter II reviews the literature that provides the background for the measurement of the happiness survey, along with the reliability and validity of the happiness query. I also review the empirical studies regarding the different approaches to income, either relative income or absolute income, in determining happiness. Subsequently, in Chapter III, I introduce the survey data, including dependent, independent, and demographic variables, along with survey design, and methodology of analysis. Chapter IV presents the results of the regression models. In Chapter V, I draw conclusions from the analysis and present areas of future research.

II. LITERATURE REVIEW

This chapter begins by discussing how the literature has defined and measured happiness. Subsequently, the chapter conceptually explains relative income as the important factor behind the Easterlin Paradox. Next, the chapter reviews studies that disagree with the Easterlin Paradox, emphasizing that absolute income rather than relative income better explains the relationship between personal happiness and national income. Then the chapter reviews previous study conducted on relationship between happiness that include both measures of income in Indonesia. The chapter concludes with the contribution of this thesis to the research on the relationship between income and happiness, especially among society in Indonesia.

A. DEFINITION AND MEASUREMENT OF HAPPINESS

Happiness does not have a single definition. According to the Merriam-Webster dictionary, the definition of happiness is "a state of well-being and contentment" or "a pleasurable or satisfying experience" (Merriam-Webster, n.d.). In the Big Indonesian Dictionary, happiness means "pleasure and peace of life (physically and spiritually)" (Kamus Besar Bahasa Indonesia, n.d.). Based on these definitions, happiness could be defined as an overall personal experience, either expressed explicitly or implicitly, describing joyfulness and delightfulness and creating peacefulness within oneself. Another definition for happiness, including subjective well-being, satisfaction, and welfare, is commonly used in the economic literature (Easterlin, 2001). In my thesis, I use the term "happiness" to refer to all three: subjective well-being, satisfaction, and welfare.

Studies in the relationship between happiness and income rely on survey data to incorporate the happiness measure into their analysis. The U.S. General Social Survey (GSS), conducted regularly since 1972, captures U.S. adult trends in behavior, and has included a standard query about general happiness: "Taken all together, how would you say things are this day—would you say that you are very happy, pretty happy, or not too happy?" (GSS Data Explorer, n.d.). This type of question is meant to capture the category-level happiness of its respondents.

Other large international surveys, such as WVS and GWP, convert the categories into numerical scales (Easterlin, 2021). BPS Indonesia (2021) conducted the SPTK following the numerical scales approach with the following question regarding happiness: "Overall, how happy are you with your life?" If the respondent experienced mainly unpleasant situations throughout his or her life, he or she might answer with 0 as the lowest happiness level; meanwhile, if the best daily circumstances were experienced, the response might be 10 as the highest happiness level. (BPS Indonesia, 2021).

Another happiness survey is Cantril's Survey, which provides open-ended statements (Easterlin, 2021). The happiness question the Cantril survey asks is, "When you think about what really matters in your life, what are your wishes and hopes for the future? In other words, if you imagine your future in the best possible light, what would your life look like then, if you were to be happy?"(Cantril, 1965) The question intends to identify the exact things or conditions a person desires that would really make them happier than before.

Easterlin (2021) clarified the reliability and validity of the "measuring the happiness" question being asked in those surveys. Because an individual's mood may shift at any point in time, respondents are asked to evaluate their lives over an entire lifetime rather than at a specific moment. For example, the respondents may be asked to respond to a question using phrases like "taken all together" or "overall" instead of specifying an exact time such as "in the past 24 hours" or "a week before." Therefore, in all of these surveys, this design intends to improve reliability by reducing the influence of temporary emotional states on respondents' answers. Additionally, to check the validity of a person's response, all of the surveys evaluate the participant's response by a person who knows the participant well, such as a spouse or partner, child, or neighbor. For example, if a person's response is "happy," his associate must concur with it based on daily interaction. Explicit expression can also be a favorable sign to evaluate the validity; if the response is "pretty happy," or above five on the numerical happiness ladder level, then he or she may be likely to smile and laugh often, and vice versa for the "unhappy" response (Easterlin, 2021).

As Easterlin found, the results of these various surveys defining and measuring happiness, taken together, indicate that survey-based inquiries to gauge happiness level can be accepted as reliable and valid.

B. EASTERLIN PARADOX, MATERIAL ASPIRATION, AND RELATIVE INCOME

Income is widely known as one of the determinants of happiness. It is commonly assumed that higher income is associated with higher levels of happiness. This assumption is typically inferred from a point-in-time perspective. However, a more thorough examination is required to understand change in happiness as income increases over time (Easterlin, 2021).

Easterlin (1974) introduced the happiness-income paradox, also well-known as the "Easterlin Paradox," which is that at a point in time, both among and within nations, average happiness moves in the same direction (whether positively and negatively) as the country's GDP, but over time, the average person's happiness stays flat as a country's income increases. Evidence for this paradox came from the U.S. using time-series data collected between 1946 and 1970 indicating that, within the U.S., happiness remained flat as GDP per capita increased.

Figure 1 shows an illustration of the Easterlin Paradox. The solid line represents short-term movement, showing peaks (p) and troughs (t) at relatively the same level of position at the same points in time. When a country's economy is growing, both lines go up; however, when the economy is down, both lines fall. The result is a positive correlation in the short term captured in cross-sectional or short-period—less than ten years in the time-series data (Easterlin et al., 2010). On the other hand, the broken line depicts the long-term trends for happiness and income. While income (Y) exhibits a clear upward trend over time, which is an indicator of economic growth, happiness (H) does not follow this upward pattern; instead, the long-term trend for happiness is flat. Easterlin (1974) interpreted this pattern by using relative income, which plays a crucial factor in determining one's happiness. According to Easterlin, at any given time, wealthy people were happier than

poorer people; however, over time, everyone's income, in all social levels in the economy, also increased; therefore, overall societal happiness had not grown.

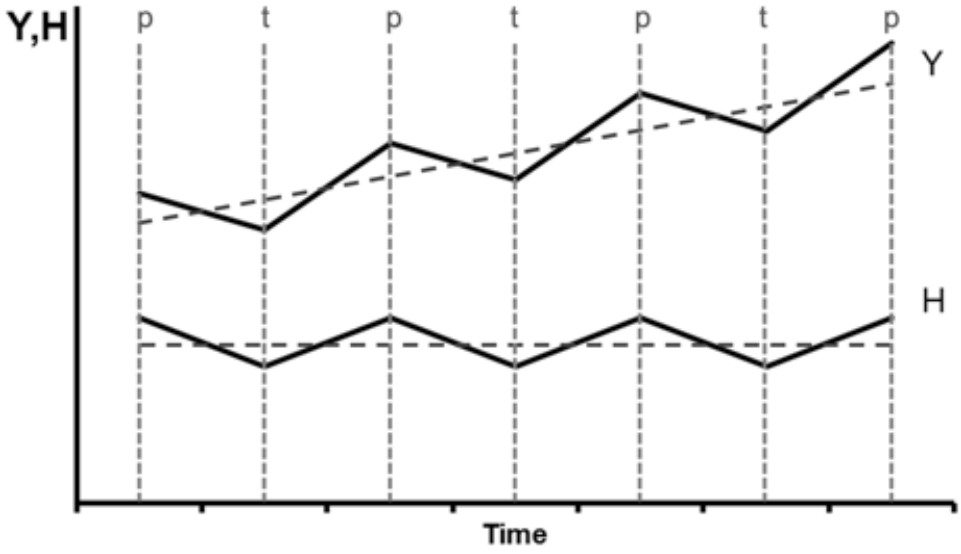

Figure 1. Illustration of Easterlin Paradox. Source: Easterlin and O'Connor (2020).

To explain the paradox, Easterlin (2001) introduced the idea of material aspirations, which focus on an individual's motivation to obtain certain goods to fulfill his or her desire. At the beginning, the aspirations are similar among income groups, with higher income resulting in greater happiness. However, over time, higher income also leads to a shift in material aspirations. People want to acquire pricier and higher-class goods. Hence, with rising income, a person's aspirations also shift to a higher level. As a result, even as individuals earn more income, they tend to feel the same level of happiness they felt before (Figure 2).

Easterlin described Figure 2 through the idea of material aspirations: suppose, people have the same set of general economic aspirations (A_1), no matter what income level they are in, and that is generally true that a higher income equates to more happiness (Figure 2, compare points 1, 2, and 3 at Slope A_1). Over time, as the proportion of income increases, material aspiration also shifts to the right because of adaptation to the new lifestyle. Hence, when a person at point 2 increases income, he or she will not move to

point 3 but to point 5, as the material aspiration also shifts to a new position (A_1 to A_2). Therefore, when that person was asked at point 5, "How happy were you in the past?" that person was assessed from the current higher aspiration A_2 rather than A_1, so it seems he or she experienced less happiness (u_m compared to u_1 at slope A_2) (Easterlin, 2001).

On the other hand, when that person was asked, "How well will you be in the future?" the answer ought to be expecting more happiness (u_2 compared to u_m at slope A_2). Easterlin found that people evaluated past and future happiness based on their current aspirations. When recalling the past, people judged earlier incomes using their higher current aspirations, so the past looked worse. On the other hand, Easterlin found that when looking at the future, they still looked into their current aspirations and hoped to improve their level of happiness. Even though their income increased over time, their happiness level remained the same because their aspirations shifted higher than their current aspirations (Easterlin, 2001). This theory explains how people determine their happiness, especially from an intrapersonal perspective. Individuals often overestimate their future happiness and underestimate their past well-being, failing to consider the shift from what their aspirations used to be to what their aspirations are now.

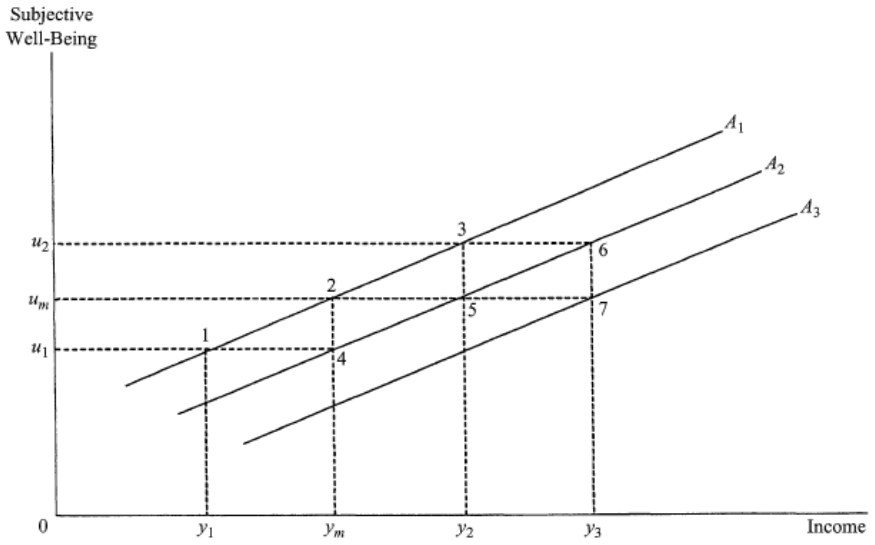

Figure 2. Subjective Well-Being as a Function of Income and Aspiration Level. Source: Easterlin (2001).

Clark et al. (2008) confirmed the Easterlin Paradox, also basing their work on relative income. Clark et al. pointed out that the idea of relative income has two main perspectives: social comparison and adaptation.

First, people feel happier when they earn more than others, which is known as social comparison. People evaluate their income relative to the income of peers or "reference groups." The reference group's income establishes an external benchmark to one's own income. Clark et al. stated that Easterlin's paradox remains true because at a point in time in a country, individuals with higher incomes enjoy increased consumption and higher status, resulting in greater happiness; however, over time, as people become richer and all incomes rise together, status remains relatively fixed, resulting in flattened happiness among society (Clark et al., 2008). Therefore, the slope of income–happiness is steeper within a country at certain times, while over time the slope flattens.

Second, people feel happier when they earn more, but this effect is temporary. The reason is that happiness rises with income as a short-term effect, but as people adapt to their new circumstances, happiness gradually diminishes and returns to baseline (Clark et al., 2008). The adaptation occurs because a person's material aspirations shift to a higher position when they earn more, but then they adapt to their new lifestyle. Thus, over time, the person does not feel more happiness by earning more money because he or she continually adapts to new standards of living. The importance of Clark et al.'s work is not only that they confirmed the Easterlin Paradox, but they introduced two aspects of relative income, social comparison as the external benchmark and adaptation as an internal benchmark.

Solnick and Hemenway (1998) found that relative standing in income matters within individual preference. In the survey that Solnick and Hemenway conducted, respondents were asked to choose between two states of the world, positional or absolute. A they described their study, "In the positional state, the respondent had *more* than others; in the absolute state, both respondents and others had more than they had in the positional state, but respondents had *less* than others" (Solnick & Hemenway, p. 377). For example, in state A, the yearly income is $50,000 while others earn $25,000; however, in state B, the yearly income is $100,000 while others earn $200,000. In this example, state A is the

positional state, and state B is the absolute state. The survey assumes that "others" refers to the average of other people in both states, and purchasing power is the same for both states (Solnick & Hemenway, 1998).

Furthermore, Solnick and Hemenway created two version of the surveys. One version presented the positional state first, and the other version presented the absolute state first. This step was taken to mitigate the effect of respondents viewing the first choice as the status quo and deciding whether they preferred to change to the second state. When the positional state was presented first, the second state would have more for everyone, a configuration the authors called the "gain" configuration. When the absolute state was presented first, the second state had less for everyone, the "loss" configuration. If relative standing did not matter to a respondent, then most of them would choose the absolute state, where the respondent had a higher income even though it was relatively lower than others.

Solnick and Hemenway conducted the experiment on 257 faculty, students, and staff at the Harvard School of Public Health. They divided the respondents into two groups. One group, consisting of 146 people, were given the "gain" configuration and the rest were given the opposite option, so-called "loss." The result was 56% of respondents in the "gain" group chose the positional case in which the yearly income was $50,000 while others earned $25,000, hence having less real income but high relative income (Solnick & Hemenway, 1998). This result shows the power of relative income to determine a person's preference.

It is possible, based on Clark et al.'s later work, that this preference occurs because people make judgments not solely based on how much they earn but also on their desire to exceed the average. Earning above average provides an advantage that contributes to a sense of well-being. Thus, even if the person earns less income, as long as their income is higher than others, he or she will be better off and potentially happier.

C. EMPIRICAL EVIDENCE ON ABSOLUTE INCOME WITHIN COUNTRIES

The Easterlin Paradox claims there is no relationship between GDP per capita as a measure for the average level of an individual's income as it relates to average national

happiness among the society over time. However, at the individual level, and at a point in time within a country, wealthier people are found to be happier than poorer people. This finding creates a tension between relative income and absolute income.

Using the GSS data from 1972 through 2006, with more than 1,000 respondents for each survey, Stevenson and Wolfers (2008) examined the happiness and income relationship within the U.S. They used ordered probit regression to identify how happiness varies across individuals over time. They found a positive correlation between happiness and the logarithm of family income: happiness increased quickly at low income levels but increased more slowly over time as income rose (Stevenson & Wolfers, 2008).

This positive relationship was also found in other countries. Stevenson and Wolfers utilized GWP data covering 113 countries in 2006. They regressed life satisfaction on countries' income category, while accounting for differences between countries. Stevenson and Wolfers found the same results they found for the U.S. with the magnitude of effect showing that a 100% increase (a doubling) of individual income was associated with an increase in life satisfaction of 0.32 points (Stevenson & Wolfers, 2008).

Stevenson and Wolfers (2008) also found that country's economic growth is associated with individuals' rising happiness, contrary to the Easterlin Paradox. For the data, they used four waves of the WVS (1981-84, 1989–93, 1994–1999, 1999–2004) as panel data and ordered probit regressions of well-being on logarithm GDP per capita as the method. The result was that a 100% increase in GDP per capita raised happiness in society by 0.38 for life satisfaction and 0.21 for happiness. The result of this time-series analysis was similar with point in time when they accounted for country fixed effects. Although Stevenson and Wolfers also discussed the cross-countries comparison, i.e., whether wealthier countries are happier than poorer countries, their finding about individual happiness was particularly compelling because it was contrary to the Easterlin Paradox as both individual income and average happiness among the society rose over time (Stevenson & Wolfers, 2008).

Sacks, Stevenson, and Wolfers (2010) expanded the analysis of the relationship between happiness and income, with larger datasets across more countries. They used

GWP data available through October 2008, 1980–2004 WVS, and 2002 Pew Global Attitudes Survey. Instead of using standard regression, Sacks et al. used lowess regressions to estimate flexible functional form of satisfaction against the logarithm of household income (Sacks et al., 2010).

Sacks et al. strengthened Stevenson and Wolfers' (2008) findings in which richer people are happier than poorer people within a country. In terms of coefficient magnitudes, Sacks et al. found that a 100% increase in individual income increased "standardized" life satisfaction by 0.236 in the GWP, by 0.216 in the WVS, and by 0.281 in the Pew Global Attitude Survey. All these findings remained statistically significant when individual-level controls were added, including sex, a quadratic in age, and their interaction.

Regarding the time series evidence that economic growth improves life satisfaction, Sacks et al. found similar results as Stevenson and Wolfers that a country's economic growth increased its society's happiness. They used the first four waves of the World Values Survey, which spans 1981 to 2004 and covers 79 distinct countries, and Eurobarometer data from 1973 to 2007, which only covers European countries. Stevenson and Wolfers calculated regression of standardized life satisfaction on the logarithm of GDP per capita while controlling for both survey-wave and country fixed effects. The magnitude of coefficient for this result was that a 100% increase in GDP per capita was associated with higher life satisfaction, which rose by 0.50 in WVS data and 0.17 in Eurobarometer data.

Together, Stevenson and Wolfers as well as Sacks et al. provide consistent evidence across datasets that, within a country, those who are richer are generally happier than those who are poorer at a point in time. Additionally, Stevenson and Wolfers as well as Sacks et al. disagreed with the Easterlin Paradox about the null relationship between happiness and income over time. They found that as GDP per capita rises as a measure for the average level of an individual's income growth, the average happiness of the country typically grows (Stevenson & Wolfers, 2008; Sacks et al., 2010). In conclusion, both Stevenson and Wolfers (2008) and Sacks et al. (2010) stated that absolute income plays a more important role in determining happiness than relative income.

While Easterlin emphasized the role of relative income—through external social comparison and internal adaptation—in shaping individuals' happiness, his argument would be more convincing if it were analyzed using long time-series data, usually more than a decade, to prove "the paradox" that is the null relationship between income and happiness. Contrary to Easterlin, Stevenson and Wolfers provide more compelling analysis on rising incomes contributing to rising happiness because absolute income plays a stronger role when analyzing cross-sectional and short time period data.

D. EMPIRICAL STUDY OF THE HAPPINESS-INCOME RELATIONSHIP IN INDONESIA

The relationship between happiness and income—both relative and absolute—reviewed in the previous section is mostly examined using cross-country data from surveys such as the WVS or the GWP. Using cross-country data is suitable when comparing high and low GDP per capita across countries. However, while these surveys provide valuable cross-country datasets, the number of respondents within each country is often limited and may not fully represent the geographic diversity within countries.

To address this limitation, Sohn (2010) used a dataset taken from the Indonesia Family Life Survey (ILFS)—specifically, wave 4 (ILFS4)—a national representative survey to examine the relationship between happiness and income in Indonesia. ILFS4 was conducted in 2007–2008 and took place in 13 of the 26 provinces in Indonesia at that time. After dropping observations with missing values, the final sample for Sohn's analysis consisted of 11,533 individuals. Although happiness was measured as an ordered categorical variable, Sohn treated it as empirically cardinal. Ordered probit was used as the method to find out the relationship between happiness and the variables of interest (Sohn, 2010).

Two of the key variables in Sohn (2010) were absolute income and relative income. The absolute income in ILFS4 was individual earnings, defined as wages for employees or net profits for the self-employed. The unit of individual earnings was a thousand rupiahs. On the other hand, relative income was captured through respondents' self-reported perceived income standing on a six-point scale, where one indicates the poorest and six

represents the richest. ILFS also provided the variable to indicate past mobility, described as the change in individuals' perceived income standing over time, which reflects whether respondents view their economic position as improving or declining (Sohn, 2010).

As a result, Sohn (2010) agreed with Easterlin that relative income—specifically, perceived relative income—is more closely associated with happiness than absolute income. Sohn's study showed that individuals who perceive upward movement in their relative income standing—or positive past income mobility—tend to report higher happiness (Sohn, 2010).

However, perceived relative income in Sohn's (2010) study only relied on the subjective perspective of a person. Sohn's analysis did not incorporate objective income comparisons, such as relative to an individual's own past income or relative to the society surrounding him. To address the limitation in Sohn's (2010) study, I introduce an objective income comparison, which is the average income based on province and area type (urban and rural). This average income serves as an external benchmark compared to one's household absolute income. Using this approach, the analysis explores the relationship of both objective relative income and absolute income in correlation to happiness in Indonesia.

E. SUMMARY

This chapter provided the foundation for understanding the factors that determine a person's happiness level based on subjective well-being surveys, as well as the validity and reliability aspects of the surveys' inquiries. Subsequently, the chapter covered the concept of relative income against absolute income to determine one's happiness. On the relative income side, social comparison acts as a reference point when a person compares himself to others, especially those who are close to that person. Additionally, adaptation is another part of relative income as is comparing oneself with one's past self. Contrary to measurements using relative income, the absolute income measurement provides evidence that at a point in time within a country, income has a strong correlation with happiness. Wealthier people tend to feel happier than poorer people. Moreover, this strong correlation also holds because, as people become richer over time, they are happier

than before. The next section covered Sohn's 2010 study in Indonesia and the limitation of that study, which was that it used perceived relative income instead of objective income comparison. Overall, this chapter provides the concept behind absolute and relative income contributing to a person's happiness, while identifying limitation in prior study of happiness-income relationship among Indonesians.

III. DATA AND METHODOLOGY

This chapter describes the survey data set and variables selected for use. It also outlines the methodology employed to identify the relationship between both aspects of income—absolute and relative—on determining happiness level in Indonesia.

A. DATA DESCRIPTION

This section provides an overview of data that I used in this study. It begins by introducing the source of the survey data, followed by descriptions of the dependent, independent, and demographic variables used in the analysis.

1. Data Source

I obtained my dataset from the BPS website. The data used in this study were microdata from the SPTK (*Survei Pengukuran Tingkat Kebahagiaan*, 2021). The survey was conducted three times, in 2014, 2017, and 2021, with the purpose of obtaining happiness levels at the province level in Indonesia.

In the 2014 wave, ten indicators of life satisfaction were used to prompt respondents to provide their overall happiness level. The indicators of life satisfaction included satisfaction with education and skills, job and employment, household income, health, family harmony, leisure time, social relationships within the community, environmental conditions, security, and housing.

Beginning in 2017, SPTK was expanded to include not only life satisfaction indicators but also daily affect and the meaning of life (eudaimonic well-being). Daily affect consisted of positive affect (cheerfulness) and negative affect (stress and anxiety). In addition, the meaning of life indicators captured aspects of eudaimonic well-being, including independence, environmental mastery, personal growth, positive relation with others, purpose in life, and self-acceptance (BPS Indonesia, 2021).

I used the 2021 SPTK microdata because it was the most recent happiness survey in Indonesia. The 2021 SPTK was held in cities or regencies across 34 provinces in Indonesia, with survey period from July 1 through August 27, 2021. The unit of observation

in SPTK 2021 was the random household, with a two-stage one-phase sampling method (BPS Indonesia, 2021). The response rate from this survey was 99.5%, or 74,684 respondents out of the targeted 75,000 samples. One limitation of SPTK was that not all household members were eligible to respond because of several queries related to employment, household income, and family harmony. Therefore, responses were collected only from the head of household or the spouse.

2. Dependent, Independent, and Demographic Variables

This subsection outlines the dependent, independent, and demographic variables used in the analysis. In this study, happiness level is the dependent variable and income is the key independent variable. Demographic variables are included as control variables to capture differences across households that may be related to happiness**.**

a. Dependent Variable

The dependent variable in this study is individuals' overall happiness level. The happiness variable in the SPTK 2021 data asked the respondents, "Overall, how happy are you with your life?" Responses were collected for this question on a numerical scale ranging from 0 to 10, where 0 shows the worst happiness level experienced by the respondent and 10 represents the best and highest level of happiness.

The 2021 SPTK also included an additional happiness variable, which was not used in this study, that captured individual happiness prior to the Covid-19 pandemic. The query was "Overall, how happy were you with your life before the Covid-19 pandemic?" The variable is excluded from this study to maintain a consistent measure of overall happiness in the analysis.

b. Independent Variables

The key independent variable in this study was income. I used household income instead of individual income due to the high proportion of missing values in individual income: 21,301 of a total of 74,684 (28.5%). These missing values might occur because respondents are outside the labor force.

As a caveat, household income could have come from another household member's earnings, such as a spouse. However, this measure was still relevant for subjective well-being analysis, as household income as the reflection of combined economic resources among household members may influence overall household happiness. In this dataset there were no missing values for household income, which is better to use of all observations in my analysis.

The household income variable was measured as the self-reported total combined income of household members. The household income question in SPTK 2021 asked: "What was your average monthly household income in the last year?" Household income was measured in the Indonesian Rupiah (IDR)—the official currency of Indonesia—and fell into five categories. The response range was from category 1—the highest household income category—to category 5—the lowest category, with the following household income range for each category:

- Category "1" is household income above IDR 7,200,000 per month.
- Category "2" is household income between IDR 4,800,001 and 7,200,000 per month.
- Category "3" is household income between IDR 3,000,001 and 4,800,000 per month.
- Category "4" is household income between IDR 1,800,001 and 3,000,000 per month.
- Category "5" is household income of IDR 1,800,000 and below.

In my analysis, for clarity purposes, I switched the numeric values of the household income category so that a higher numeric value corresponds to a higher household income level. In addition, for simplicity purposes, I presented household income value in millions of IDR. As a result, category "1" represents people earning IDR 1.8 million and below, while category "5" represents the highest level, which is above IDR 7.2 million. The reversing of numeric income categories could improve interpretation in regression analysis as the lowest income became the reference group.

Because of the limitation of categorical income reporting, I approximated the value of absolute income by taking the midpoint of updated household income categories 2, 3, and 4. As a result, the absolute income is IDR 2.4 million for income category "2," IDR 3.9 million for income category "3," and IDR 6 million for income category "4." In addition, I approximated IDR 1.8 million as the lowest absolute income and IDR 7.2 million as the highest for the open-ended interval. Based on these approximations, I created a new variable that assigns the corresponding absolute income to its reported income category in the dataset.

Following calculation of absolute income for each observation, I needed to determine the average income to obtain the relative income value. Average income was calculated as the weighted average household absolute income for each province, separated by urban and rural areas. Survey weights, included in the SPTK dataset, were applied to ensure that the estimated average income reflected the Indonesian population. This average income served as the comparison or "benchmark" for each household. I created a new variable that assigned the corresponding weighted average income to each observation based on province and area of residence.

I then calculated the relative income as the ratio of each household's approximate absolute income to the weighted average income of its specific province and area type. Relative income greater than one indicated that a specific household exceeded the external comparison, while a value below one indicated that a household was below average income. I then constructed a new variable that assigned relative income to each household in the dataset.

c. Demographic Variables

Demographic variables in SPTK 2021 include age, gender, education, marital status, type of occupation, number of household members, and location (province and urban–rural area type) (*SPTK*, 2021).

In SPTK 2021, age is recorded as a continuous variable of the head of households. In addition, the number of household members is recorded as an integer value.

Several demographic variables were defined as binary, including gender, area type, and employment status. The gender variable was initially recorded with responses of 1 for male and 2 for female. I modified these responses, so they became 1 for male and 0 for female. The area type was indicated by 1 for urban and 2 for rural. I similarly modified the area-type dummy variable, so it became 1 for urban and 0 for rural. These modifications standardized binary variables and improved the interpretability of regression coefficients in the analysis.

Other demographic variables are categorical, consisting of marital status, education level, and type of occupation. There were four types of response in the marital status variable, consisting of 1 for never married, 2 for married, 3 for divorced, and 4 for widowed.

Education levels originally consisted of ten categories of education levels starting from the lowest—no schooling—to the highest level of education—postgraduate. I combined diploma I, II, and III into single category of "some college" while retaining the rest of the education levels to simplify the classification and enhance clarity. This recoding resulted in eight education levels used in analysis.

In the type of occupation, respondents were asked to report their main job field. The original variable in the SPTK 2021 dataset included 17 types of occupational categories, with missing values for respondents who were not employed. For analytical clarity, I regrouped these occupational categories into six groups to better represent the broader employment sector in Indonesia. The first category was agriculture, forestry, and fisheries. The second group was industry, which represented occupations relating to production and infrastructure activities. The third group was market service, which included occupations with commercial service activities. The fourth category was government administration and defense. The fifth group was health and education service, which covered public services other than government administration. The last group was those respondents who did not work or have any occupation.

Location as a demographic variable in the dataset refers to the 34 provinces in Indonesia as of 2021. In this analysis, provinces were included as a categorical variable to

calculate the average income separated by urban and rural within each province. The province and rural/urban type were chosen as factors to determine external comparison. Table 1 provides an overview of all variables used in the study, including a description of each variable and its role in analysis.

Table 1. Dependent, Independent, and Demographic Variable Descriptions. Adapted from Survei Pengukuran Tingkat Kebahagiaan (2021).

Variable	Details
Dependent variable	
Overall happiness level	Continuous (0-10) scale • Self-reported overall happiness score from SPTK 2021, where 0 indicates the lowest level and 10 indicates the highest level
Independent variables	
Absolute household income	Continuous (approximated) • Monthly household income using categorical category • Midpoint and outer boundaries values are used to approximate income (million IDR)
Relative household income	Continuous (approximated) • Ratio of absolute income to survey-weighed average household income at province level separated for urban and rural areas
Demographic variables	
Age	Continuous variable • Self reported respondents' age
Male	Dummy variable • 1 if male, 0 if female
Household Size	Integer
Marital Status	Categorical variables, each have dummy variable • 4 types of marital status
Education	Categorical variables, each have dummy variable • 8 levels of education.
Occupation Group	Categorical variables, each have dummy variable • 6 types of occupation group including no occupation
Province	Categorical variables • 34 provinces in Indonesia
Urban	Dummy variable • 1 if urban, 0 if rural
Survey Weight	Numerical • Stratified by province

B. METHODOLOGY

For the analysis, I applied the survey weights included in the SPTK 2021 dataset to provide population-representative estimates. Using these survey weights, I summarized the

weighted descriptive statistics for key variables. I also visualized the average levels of life satisfaction, daily affect, and meaning of life as factors that contribute to individual happiness. Finally, I constructed the regression model to explore the correlation of absolute income and relative income with happiness level among Indonesians, controlling for available demographic characteristics. All analysis was done using RStudio 2025.9.2.418 (Posit team, 2025).

1. Survey Design

SPTK 2021 used a two-stage, one-phase sampling method (BPS Indonesia, 2021). In the first stage, the BPS selected 7,500 census blocks across 34 provinces in Indonesia. In the second stage, 15 households were selected from each census block, which consisted of ten main households and five reserve households, to participate in this survey. Therefore, the expected total responses were 75,000 households nationwide (BPS Indonesia, 2021).

2. Descriptive Statistics

Using survey weights, I produced summary statistics to represent the Indonesian population. In addition, I provided the average level of factors that contribute to happiness: life satisfaction, daily affect, and the meaning of life. I also provided the distribution of urban and rural areas in each province where the survey was administered.

3. Regression Model

In the analysis, I constructed five multiple regression models to examine the relationship between income and happiness among Indonesians. All regression models in this study include survey weights, so the sample represents the Indonesian population. I also added demographic variables as controls to hold other factors constant. In this study, the research question focuses on the relationship between income (whether absolute income or relative income) and happiness level, holding various other personal characteristics constant. I also studied the interaction between income and selected demographic variables to explore how the association of income with happiness level varied across demographic variables.

All models used overall happiness level as the dependent variable. Models 1, 2, and 3 used absolute income, relative income, and both incomes as the key variables, respectively, to examine the relationship to the dependent variable. Models 4 and 5 were similar to models 1 and 2 with the addition of interactions with gender and education. All models controlled for demographic variables, including age, household size, gender, marital status, education level, and occupation group. The survey respondent *i* denoted each head or spouse of household surveyed as unit of observation.

Model 1:

$$Overall\ happiness\ level_i = \beta 0 + \beta 1 Absolute\ Income_i + \beta 2 Male_i + \beta 3 Age_i + \beta 4 Household\ Size_i + \beta 5 Marital\ Status_i + \beta 6 Education_i + \beta 7 Occupation\ Group_i + \varepsilon_i.$$

Model 2:

$$Overall\ happiness\ level_i = \beta 0 + \beta 1 Relative\ Income_i + \beta 2 Male_i + \beta 3 Age_i + \beta 4 Household\ Size_i + \beta 5 Marital\ Status_i + \beta 6 Education_i + \beta 7 Occupation\ Group_i + \varepsilon_i.$$

Model 3:

$$Overall\ happiness\ level_i = \beta 0 + \beta 1 Relative\ Income_i + \beta 2 Absolute\ Income_i + \beta 3 Male_i + \beta 4 Age_i + \beta 5 Household\ Size_i + \beta 6 Marital\ Status_i + \beta 7 Education_i + \beta 8\ Occupation\ Group_i + \varepsilon_i.$$

Model 4:

$$Overall\ happiness\ level_i = \beta 0 + \beta 1 Absolute\ Income_i + \beta 2 Male_i + \beta 3 Education_i + \beta 4 Absolute\ Income_i * Male_i + \beta 5 Absolute\ income_i * Education_i + X_i + \varepsilon_i,$$

where X_i denotes the vector of demographic control variables.

Model 5:

$$Overall\ happiness\ level_i = \beta 0 + \beta 1 Relative\ Income_i + \beta 2 Male_i + \beta 3 Education_i + \beta 4\ Relative\ Income_i * Male_i + \beta 5\ Relative\ income_i * Education_i + X_i + \varepsilon_i,$$

where X_i denotes the vector of demographic control variables.

C. SUMMARY

The chapter presented the data source and variables that I used for this study, including both original and constructed variables. It also described the survey design to ensure population-representative estimates. In addition, the chapter outlined the models to examine the comparison between income form related to happiness. Together, these build the foundation for the results discussed in Chapter IV.

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IV. RESULTS

This chapter presents the results of my analysis. I applied the SPTK 2021 survey weights throughout the analysis to produce population-representative estimates. In the descriptive statistics section, I provide the summary table statistics of survey respondents. Following that, I present the average level of indicators in each happiness factor, consisting of life satisfaction, daily affect, and the meaning of life. I then show the distribution of urbanization in each province. After providing the descriptive statistics, I present the results of the five regression models while controlling for demographic characteristics. In some models, interaction terms are included to examine whether income effects vary across demographic groups.

A. DESCRIPTVE STATISTICS

Table 2 provides a snapshot of survey respondents in the SPTK 2021 dataset. The average happiness level among respondents is 7.68. The average household income is 3.37 million IDR. In addition, the average age of respondents is 47. Female respondents are slightly higher at 51%. In terms of marital status, the largest proportion is married (81%) whereas only 2.1% were never married. Regarding education level, elementary school graduates hold the highest proportion at 31%, while the lowest is postgraduate (0.6%). The largest occupational group is agriculture, forestry, and fisheries (28%). The survey represents approximately 69.8 million households across Indonesia.

Table 2. Descriptive Statistics of Survey Respondents

Variable	Statistic
Happiness level (0-10 scale)	7.68 (1.29)
Household income (Million IDR)	3.37 (1.75)
Age (Years)	47.76 (13.55)
Household size (Persons)	3.64 (1.54)
Male	49%
Marital status	
Never married	2.1%
Married	81%
Divorced	3.4%
Widowed	13%
Education	
No schooling	4.2%
Some elementary school	13%
Elementary school	31%
Middle school	17%
High school	24%
Some college	2.0%
College	6.4%
Postgraduate	0.6%
Occupation group	
Agriculture, forestry, and fisheries	28%
Industry group	11%
Market service group	24%
Government administration and defense	2.4%
Health and education group	3.8%
No Occupation	31%
N = 69,794,429	

Note: Continuous variables are reported as means with standard deviations (SD) in parentheses. Categorical variables are reported as percentage proportion.

As the household income originally fell into five categories in the SPTK 2021 dataset, Figure 3 is provided to depict the percentage proportion across the five categories of income. The largest proportion of household income fell within the 1.8–3 million IDR category (31.26%). The next largest portion was below the 1.8 million IDR category (27.57%). Taken together, the first two categories hold most of the income distribution percentage compared to the rest of the higher income categories.

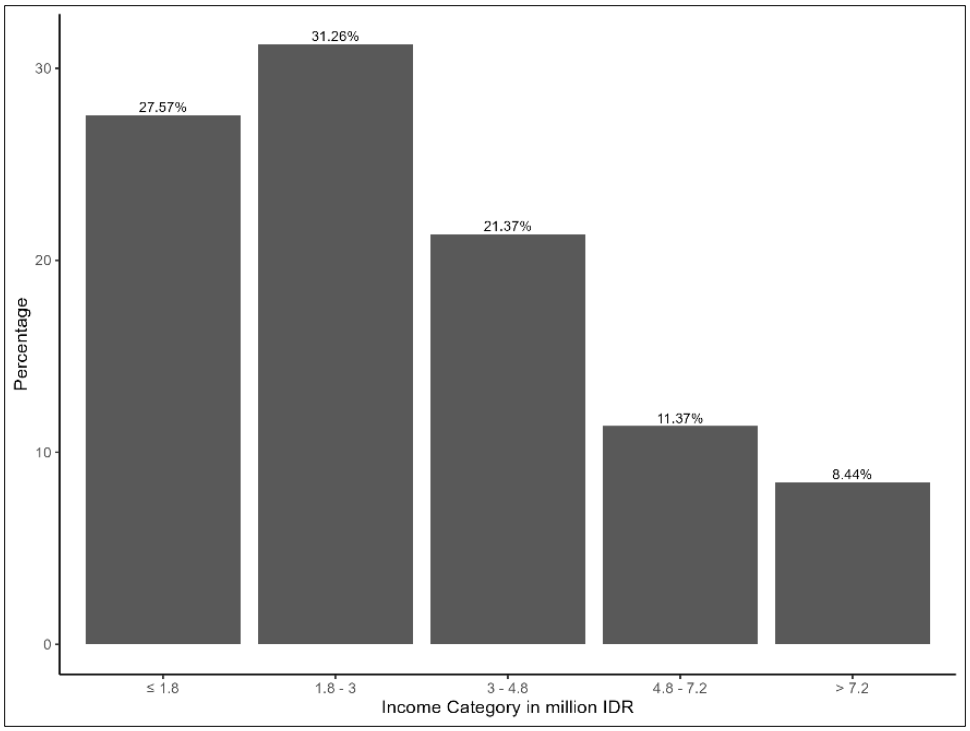

Figure 3. Distribution of Household Income Categories

There are three factors consisting of 19 indicators that contributed to individuals' happiness (BPS Indonesia, 2021). Those three factors are life satisfaction, daily affect, and the meaning of life. I visualized each factor with its respective indicators to obtain an average of each indicator within that factor.

The first factor, life satisfaction, consists of 10 indicators. Half of the indicators are personal life indicators, consisting of education, job and employment, household income, health, and housing. The other half is social life satisfaction, which is family harmony, leisure time, social relationships within the community, environmental conditions, and security. The average level for each indicator of life satisfaction is depicted in Figure 4.

From a personal life satisfaction perspective, education satisfaction has the lowest average level with 6.29, while health satisfaction is the highest with 7.72. In addition, in the social life satisfaction aspect, leisure time satisfaction has the lowest average level of 7.52, while family harmony is highest at 8.27. In this study, household income satisfaction is second from the bottom with an average level of 6.73. Overall, most Indonesians are

relatively more satisfied with other aspects of life indicators compared to household income.

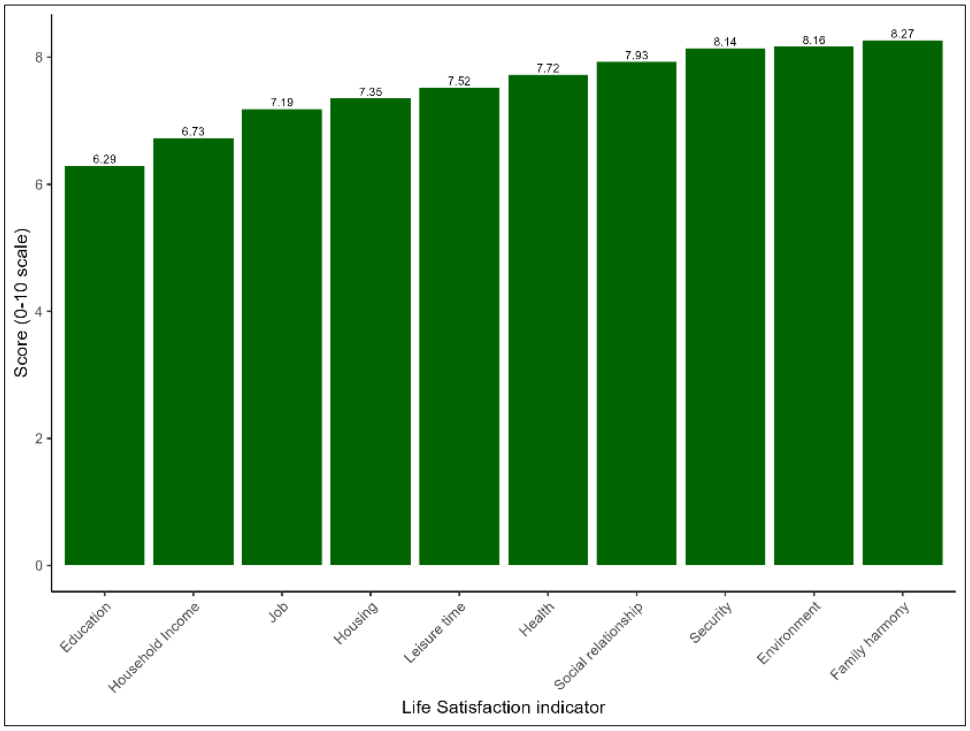

Figure 4. Average Life Satisfaction Indicator Levels

The second factor, daily affect, comprises three indicators—Stress, Anxiety, and Cheerfulness—as shown in Figure 5. The positive affect indicator—daily cheerfulness—has a relatively high average level of 7.76. On the other hand, the negative affect indicators, daily stress and anxiety, record low levels of 3.51 and 4.21, respectively. The result indicated that respondents generally experience favorable daily affect regarding their emotional condition.

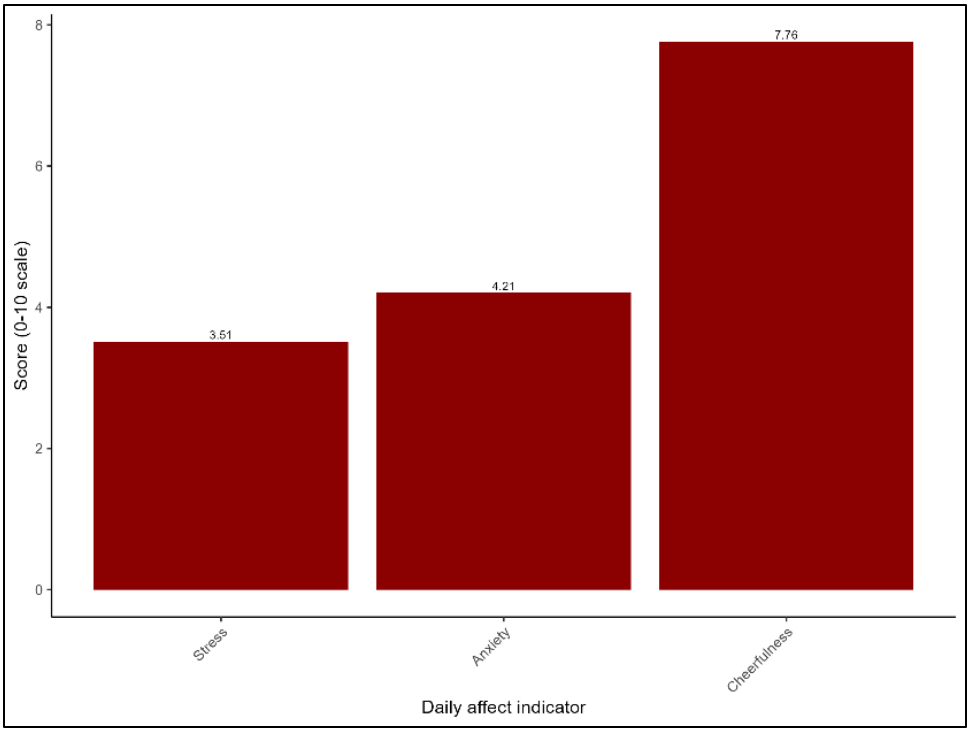

Figure 5. Average Daily Affect Indicator Levels

The last factor that may contribute to individual happiness is meaning of life, often referred to as eudaimonic well-being. Meaning of life indicators include self-acceptance, continuous learning as a personal growth process, realizing purpose in life, having meaningful relationships with others, effectively adapting to a changing environment, and having self-control in life. Individuals who perceive a higher sense of meaning of their life—regardless of external circumstances—are more likely to report a higher level of happiness. Figure 6 shows that average level of all meaning of life indicators is above the midpoint of the 0–10 scale. The highest is self-acceptance with 7.62, whereas the lowest is personal growth with 6.61. These findings suggest that meaning of life, or eudaimonic well-being, is relatively high and may correlate positively to overall happiness among Indonesians.

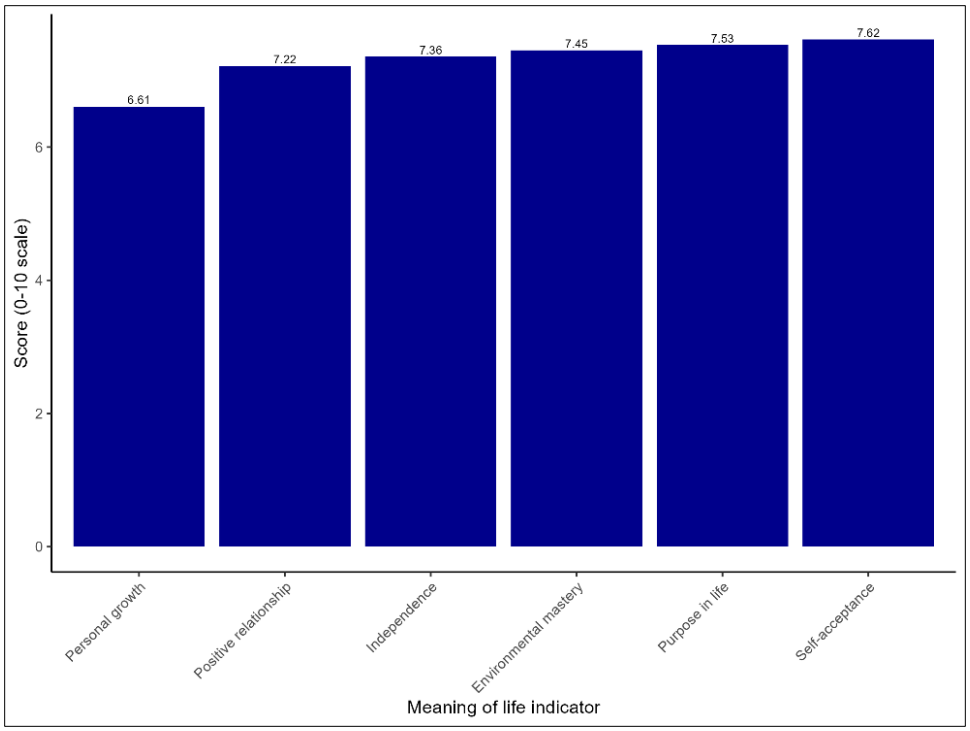

Figure 6. Average Meaning of Life Indicator Levels

Table 3 presents the percentage distribution of respondents' residences across all provinces in Indonesia, whether they reside in rural or urban areas. Some provinces have a high proportion of households living in urban areas, including the capital city, DKI Jakarta (100%) and Kepulauan Riau (93.02%). In contrast, several provinces have a major proportion of households in rural areas, such as Nusa Tenggara Timur (74.92%) and Papua (71.96%). The distinction between urban and rural areas is important because it may shape different patterns of social comparison. It is possible that people who live in urban areas may experience lower levels of happiness if they earn less than others in their neighborhood, whereas those in rural areas may be less likely to perceive their income inequality.

Table 3. Distribution of Household Area

Province	Rural (%)	Urban (%)
Aceh	66.74	33.26
Bali	28.61	71.39
Banten	26.59	73.41
Bengkulu	67.32	32.68
DI Yogyakarta	24.41	75.59
DKI Jakarta	0	100
Gorontalo	55.61	44.39
Jambi	68.15	31.85
Jawa Barat	23.12	76.88
Jawa Tengah	49.29	50.71
Jawa Timur	46.32	53.68
Kalimantan Barat	64.45	35.55
Kalimantan Selatan	51.92	48.08
Kalimantan Tengah	58.63	41.37
Kalimantan Timur	31.51	68.49
Kalimantan Utara	36.89	63.11
Kepulauan Bangka Belitung	42.66	57.34
Kepulauan Riau	6.98	93.02
Lampung	69.50	30.50
Maluku	54.10	45.90
Maluku Utara	70.87	29.13
Nusa Tenggara Barat	50.09	49.91
Nusa Tenggara Timur	74.92	25.08
Papua	71.96	28.04
Papua Barat	56.88	43.12
Riau	60.62	39.38
Sulawesi Barat	80.39	19.61
Sulawesi Selatan	55.75	44.25
Sulawesi Tengah	68.95	31.05
Sulawesi Tenggara	63.87	36.13
Sulawesi Utara	45.61	54.39
Sumatera Barat	51.31	48.69
Sumatera Selatan	64.08	35.92
Sumatera Utara	45.07	54.93

B. REGRESSION RESULTS

The purpose of regression analysis was to explore the comparison of absolute and relative income in shaping Indonesian happiness. I constructed five OLS regression

models. In the first and second regression models, I estimated absolute and relative income separately as independent variables to distinguish the association between each income measure and happiness level. I included both absolute and relative income in the third model to compare their combined relationships with happiness levels. In the fourth and fifth regressions, I added interactions with selected demographic variables to examine whether the relationship between income and happiness differed across demographic groups.

1. Correlation of Absolute Income and Happiness Level

Table 4 presents regression results that showed the correlation of absolute income (in million IDR) and happiness level (0-10 scale). This model was estimated by adding demographic controls sequentially. Column 1 of Table 4 includes only the happiness level as the dependent variable and absolute income as the independent variable. In the second column, gender and age variables were included. Marital status was included in the third column, with married as the omitted variable. In the fourth column, education levels were added, with no schooling as the omitted variable. The last column adds occupation groups, with no occupation or unemployment as the omitted variable.

The magnitude of the coefficient on absolute income remains stable and statistically significant across the specifications. With no other controls, column 1 showed that a 1 million IDR increase in absolute income is associated with an increase of 0.155 points of happiness. After accounting for age, gender, household size, marital status, education, and occupation group, the coefficient decreased to 0.116. The reduction of approximately 25% from column 1 suggests that demographic characteristics explain part of the initial income effect. Nevertheless, the absolute income coefficient remains positive and significant across all specifications, indicating that absolute income retains a consistent association with happiness level.

Table 4. Correlation of Absolute Income and Happiness Level

	Dep Var: Happiness level (0–10 scale)				
Variable	1	2	3	4	5
Absolute income (million IDR)	0.155***	0.149***	0.141***	0.114***	0.116***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Male		-0.022**	-0.073***	-0.081***	-0.081***
		(0.009)	(0.01)	(0.01)	(0.011)
Age		-0.006***	-0.003***	-0.001***	-0.001***
		(0.0003)	(0.0004)	(0.0004)	(0.0004)
Household size			-0.00003	0.001	0.001
			(0.003)	(0.003)	(0.003)
Never married			-0.205***	-0.245***	-0.234***
			(0.033)	(0.033)	(0.033)
Divorced			-0.556***	-0.566***	-0.553***
			(0.026)	(0.026)	(0.026)
Widowed			-0.257***	-0.244***	-0.237***
			(0.016)	(0.016)	(0.016)
Some elementary				0.129***	0.136***
				(0.026)	(0.026)
Elementary school				0.179***	0.190***
				(0.024)	(0.024)
Middle school				0.239***	0.261***
				(0.026)	(0.026)
High school				0.299***	0.317***
				(0.026)	(0.026)
Some college				0.474***	0.457***
				(0.041)	(0.041)
College				0.535***	0.496***
				(0.031)	(0.033)
Postgraduate				0.724***	0.646***
				(0.067)	(0.069)
Agriculture, forestry, and fisheries					0.049***
					(0.013)
Industry					-0.085***
					(0.017)
Market services					-0.062***
					(0.013)
Government administration and defence					0.197***
					(0.033)
Health and education					0.103***
					(0.029)
Observations	74,684	74,684	74,684	74,684	74,684
R^2	0.044	0.047	0.056	0.062	0.064
Outcome mean	7.68	7.68	7.68	7.68	7.68

*p<0.1; **p<0.05; ***p<0.01
Standard error in parenthesis
Omitted variable for marital status is married, education is no schooling, occupation group is no occupation.

Overall, after controlling for absolute income and other demographic characteristics, males reported approximately 0.081 points lower happiness than females. Age and household size show small coefficients, suggesting weak association with happiness. Married people reported higher happiness compared to other types of marital status. Happiness increases monotonically in education level, indicating that individuals who achieved high levels of education experience greater happiness. In terms of standardized coefficients, the estimated education coefficient indicates that individuals with a postgraduate level of education reported approximately 0.5 SD higher happiness than those with no schooling. Holding all else constant—including income—individuals in government administration and defense have greater happiness than those in other professions.

2. Correlation of Relative Income and Happiness Level

Table 5 presents regression results that show the correlation of relative income (the ratio of household income to the average income) on happiness level (0-10 scale). Average income was calculated within each province and further divided into rural and urban areas. In this measure, a relative income value of 1 means that household income equals the reference group average. Meanwhile, positive values greater than 1 indicate that household income is above average, and values below 1 are below average. Demographic controls were added sequentially, as in the previous model.

The relative income coefficient stays stable and statistically significant across the sequences. With no other controls, column 1 shows that a one-unit increase in relative income is associated with a 0.534-point increase in happiness. The relatively large magnitude of the coefficient reflects the scale of the variable. Because relative income is measured as a ratio of household income to the reference-group average, a one-unit increase represents a substantial economic change. Controlling for age, gender, household size, marital status, education, and occupation group, the coefficient decreases to 0.349. The reduction of approximately 35% from the no-controls model suggests the same explanation for the relative income on happiness level model: that demographic characteristics account for part of the initial income effect.

Table 5. Correlation of Relative Income and Happiness Level

	Dep Var: Happiness level (0–10 scale)				
Variable	1	2	3	4	5
Relative income	0.534***	0.516***	0.486***	0.393***	0.394***
(ratio absolute income on average income)	(0.009)	(0.009)	(0.01)	(0.01)	(0.01)
Male		-0.028***	-0.078***	-0.087***	-0.081***
		(0.009)	(0.01)	(0.01)	(0.011)
Age		-0.006***	-0.003***	-0.001**	-0.001***
		(0.0003)	(0.0004)	(0.0004)	(0.0004)
Household size			0.003	0.003	0.003
			(0.003)	(0.003)	(0.003)
Never Married			-0.173***	-0.226***	-0.217***
			(0.033)	(0.033)	(0.033)
Divorced			-0.546***	-0.558***	-0.547***
			(0.026)	(0.026)	(0.026)
Widowed			-0.251***	-0.237***	-0.232***
			(0.016)	(0.016)	(0.016)
Some elementary				0.135***	0.140***
				(0.026)	(0.026)
Elementary school				0.186***	0.195***
				(0.024)	(0.024)
Middle school				0.258***	0.273***
				(0.026)	(0.026)
High school				0.339***	0.349***
				(0.026)	(0.026)
Some college				0.525***	0.504***
				(0.04)	(0.041)
College				0.579***	0.538***
				(0.031)	(0.033)
Postgraduate				0.800***	0.723***
				(0.067)	(0.068)
Agriculture, forestry, and fisheries					0.017
					(0.013)
Industry					-0.088***
					(0.017)
Market services					-0.061***
					(0.013)
Government administration and defence					0.192***
					(0.033)
Health and education					0.081***
					(0.029)
Observations	74,684	74,684	74,684	74,684	74,684
R^2	0.042	0.046	0.055	0.063	0.064
Outcome mean	7.68	7.68	7.68	7.68	7.68

*p<0.1; **p<0.05; ***p<0.01
Standard error in parenthesis
Omitted variable for marital status is married, education is no schooling, occupation group is no occupation.

The coefficients on demographic variables in the regression table analyzing the correlation between relative income and happiness levels (Table 5) are similar to the regression table analyzing the correlation between absolute income and happiness levels (Table 4). Male respondents reported lower happiness than female respondents. Age and household size exhibit minimal correlations with happiness levels. Married individuals and those with higher educational attainment continue to report higher happiness. Overall, replacing absolute income with relative income does not substantially change the relationship between demographic characteristics and happiness.

3. Correlation of both Absolute and Relative Income with Happiness Level

Table 6 presents the regression results with both relative income and absolute income included. Controlling for relative income, a one-million IDR increase in absolute income is associated with a 0.11-point increase in happiness level. Similarly, controlling for absolute income, a one-unit increase in relative income is associated with a 0.165-point increase in happiness level.

Both income measures' coefficients remain stable and yield significant results after adding the same sequential demographic controls described for tables 3 and 4. However, the magnitude changes in different directions. The coefficient for relative income increased by 23.6%, meaning that a one-unit increase in relative income resulted in a 0.204-point increase in happiness levels. Conversely, the coefficient for absolute income decreased by approximately 46%, which means that a one-million IDR increase in absolute income resulted in a 0.059-point increase in happiness level.

Table 6. Correlation of Relative and Absolute Income with Happiness Level

	Dep Var: Happiness level (0–10 scale)				
Variable	1	2	3	4	5
Relative income	0.165***	0.186***	0.147***	0.251***	0.204***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.031)
Absolute income	0.110***	0.099***	0.102***	0.044***	0.059***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Male		-0.025***	-0.075***	-0.085***	-0.081***
		(0.009)	(0.01)	(0.01)	(0.011)
Age		-0.006***	-0.003***	-0.001**	-0.001***
		(0.0003)	(0.0004)	(0.0004)	(0.0004)
Household size			0.0005	0.002	0.001
			(0.003)	(0.003)	(0.003)
Never Married			-0.195***	-0.231***	-0.224***
			(0.033)	(0.033)	(0.033)
Divorced			-0.552***	-0.560***	-0.549***
			(0.026)	(0.026)	(0.026)
Widowed			-0.254***	-0.239***	-0.233***
			(0.016)	(0.016)	(0.016)
Some elementary				0.133***	0.138***
				(0.026)	(0.026)
Elementary school				0.183***	0.192***
				(0.024)	(0.024)
Middle school				0.250***	0.266***
				(0.026)	(0.026)
High school				0.320***	0.330***
				(0.026)	(0.026)
Some college				0.499***	0.474***
				(0.041)	(0.041)
College				0.555***	0.509***
				(0.031)	(0.033)
Postgraduate				0.760***	0.674***
				(0.067)	(0.069)
Agriculture, forestry, and fisheries					0.033**
					(0.013)
Industry					-0.088***
					(0.017)
Market services					-0.063***
					(0.013)
Government administration and defence					0.191***
					(0.033)
Health and education					0.090***
					(0.029)
Observations	74,684	74,684	74,684	74,684	74,684
R^2	0.044	0.048	0.057	0.063	0.065
Outcome mean	7.68	7.68	7.68	7.68	7.68

*p<0.1; **p<0.05; ***p<0.01
Standard error in parenthesis
Omitted variable for marital status is married, education is no schooling, occupation group is no occupation.

I calculated the standardized coefficient for each income measure because each income has different units of measurement, as absolute income uses millions of IDR and relative income uses a ratio. Controlling for relative income, a SD increase in absolute income is associated with a 0.15 SD increase in happiness level. In addition, controlling for absolute income, a SD increase in relative income is associated with a 0.06 SD increase in happiness. Therefore, initially, absolute income exhibits a stronger association with happiness level. When accounting for all demographic variables, both types of income yield similar results, in which one standardized coefficient increase in either absolute income or relative income is associated with around 0.08 SD increase in happiness level.

Initially, the higher standardized coefficient result for absolute income suggests that happiness level is more strongly associated with how much people earn, regardless of income comparison to others. The result may also be influenced by demographic variables that could bias this result. However, after controlling for demographic characteristics, the standardized coefficient shifts into a similar result between absolute and relative income, showing that both income measures have same influence on happiness level.

4. Correlation between Absolute Income and Happiness Level with Interactions

Table 7 presents the regression results of the correlation of absolute income and happiness level, including interactions for gender and education. The interaction of absolute income with gender is intended to assess whether the association between absolute income on happiness differs between men and women. In the same way, the interaction of absolute income with education level is considered to evaluate the different influence of absolute income level on education level.

Table 7. Correlation of Absolute Income and Happiness Level with Interactions

	Dep Var: Happiness level (0-10 scale)	
Variable	Gender Interaction	Education Interaction
Absolute income	0.110***	0.211***
	(0.004)	(0.018)
Male	-0.123***	
	(0.021)	
Absolute income x male	0.012**	
	(0.005)	
Some elementary		0.419***
		(0.058)
Elementary school		0.418***
		(0.054)
Middle school		0.494***
		(0.057)
High school		0.536***
		(0.056)
Some college		0.635***
		(0.106)
College		0.848***
		(0.077)
Postgraduate		1.514***
		(0.327)
Absolute income x some elementary		-0.114***
		(0.021)
Absolute income x elementary school		-0.093***
		(0.019)
Absolute income x middle school		-0.095***
		(0.02)
Absolute income x high school		-0.091***
		(0.019)
Absolute income x some college		-0.084***
		(0.025)
Absolute income x college		-0.117***
		(0.021)
Absolute income x postgraduate		-0.193***
		(0.052)
Constant	7.227***	6.976***
	(0.037)	(0.058)
Controls included	Yes	Yes
Observations	74,684	74,684
R^2	0.065	0.065
Outcome mean	7.68	7.68

*p<0.1; **p<0.05; ***p<0.01; Standard error in parenthesis
Omitted variable for education is no schooling
Gender interaction controls: age, household size, marital status, education, occupation group
Education interaction controls: gender, age, household size, marital status, occupation group

The gender interaction model indicates that a one-million increase in absolute income is correlated with a 0.110-point increase in happiness level for females. Meanwhile. for males, a one-million increase in absolute income is correlated with a 0.122-point increase in happiness level. These findings suggest that the marginal effect of absolute income on happiness for males is slightly stronger than for females, controlling for age, household size, marital status, education, and occupation group.

In the education interaction, the table shows that the correlation between absolute income and happiness varies across education levels. All interaction coefficients show the negative value, which suggests that the income effect is weaker as individuals achieve higher education. At the no schooling level, a one-million increase in absolute income is correlated with a 0.221-point increase in happiness level. Conversely, for the postgraduate level, a one-million increase in absolute income is correlated with a 0.018-point increase in happiness level, controlling for gender, age, household size, marital status, and occupation group.

5. Correlation between Relative Income and Happiness Level with Interactions

Table 8 shows the regression results of relative income on happiness level, including interactions for gender and education. These interactions, like the previous models (Table 7), examine how the relationship differs across gender and education level with respect to relative income.

The gender interaction model indicates that a one-unit increase in relative income is correlated with a 0.364-point increase in happiness level for females. Meanwhile, for males, a one-unit increase in relative income is correlated with a 0.424-point increase in happiness level, controlling for age, household size, marital status, education, and occupation group**.**

All coefficients' interactions between relative income and each education level are negative. These results are also like the previous models, suggesting that as individuals attain higher education, the relative income effect turns weaker.

Table 8. Correlation of Relative Income and Happiness Level with Interactions

	Dep Var: Happiness level (0-10 scale)	
Variable	Gender Interaction	Education Interaction
Relative income	0.364***	0.743***
	(0.014)	(0.059)
Male	-0.142***	
	(0.022)	
Relative income x male	0.060***	
	(0.019)	
Some elementary		0.456***
		(0.059)
Elementary school		0.470***
		(0.055)
Middle school		0.548***
		(0.058)
High school		0.596***
		(0.057)
Some college		0.757***
		(0.106)
College		0.966***
		(0.076)
Postgraduate		1.559***
		(0.302)
Relative income x some elementary		-0.404***
		(0.067)
Relative income x elementary school		-0.353***
		(0.062)
Relative income x middle school		-0.352***
		(0.064)
Relative income x high school		-0.327***
		(0.062)
Relative income x some college		-0.336***
		(0.085)
Relative income x college		-0.453***
		(0.068)
Relative income x postgraduate		-0.670***
		(0.175)
Constant	7.210***	6.910***
	(0.037)	(0.058)
Controls included	Yes	Yes
Observations	74,684	74,684
R^2	0.065	0.065
Outcome mean	7.68	7.68

*p<0.1; **p<0.05; ***p<0.01; Standard error in parenthesis
Omitted variable for education is no schooling
Gender interaction controls: age, household size, marital status, education, occupation group
Education interaction controls: gender, age, household size, marital status, occupation group

C. SUMMARY

In this chapter, I presented the descriptive statistics of survey respondents in the SPTK 2021 dataset. I also showed the average levels of each indicator within factors that contribute to individuals' happiness. Furthermore, I provided the results for five regression models constructed to observe the relationship between income measures on happiness levels. The results show that both absolute and relative income have a stable and significant relationship with happiness level. After controlling for the demographic variables, both income measures show a similar influence on happiness level. These findings also create a starting point for future research in happiness economic area especially in Indonesia.

V. DISCUSSION

This chapter provides the summary of my findings regarding the relationship of both income measures, absolute and relative, with happiness levels among Indonesians. In addition, it also provides the limitations of this study and suggestions for future research.

A. FINDINGS

In this study, I examined the relationship between income and happiness among Indonesians. I explored whether individuals become happier as their household income increases (absolute income) or as their income becomes higher than the income of others in their neighborhood (relative income). I also examined whether the relationship varies across demographic characteristics.

Initially, absolute income yields a standardized coefficient of 0.15, while relative income yields 0.06 (approximately 150% higher for absolute income), in standard deviation units of happiness level. However, after accounting for demographic characteristics, the standardized coefficients of both income measures become similar. In the full model, both absolute and relative income yield coefficients of approximately 0.08 in correlation to one standard deviation of happiness level. These findings indicate that people are happier not only because they become wealthier but also because their income is similar to or exceeds the average income of others in their community. This shifting of the coefficients shows that demographic characteristics also take part in shaping individual happiness.

The interaction model in the analysis sought to observe variation across demographic variables. The first interaction was between income measure and gender, which found that males experience a slightly larger increase in happiness than females for each additional unit of income. On the other hand, the interaction between income measure and education level showed progressively negative values across interaction coefficients. This negative value means that income's effect is weaker as individuals achieve higher education.

The results add to an ongoing debate in the economic-happiness field regarding which income measure—absolute or relative—correlates more strongly with happiness. These findings suggest that both income measures have the same correlation within Indonesian society. Absolute income can improve individual living conditions, and relative income can influence an individual's economic standing within the community.

In addition to the monetary factors, education as a non-monetary factor also appears to be positively associated with happiness. The regression results show that individuals with higher education report higher happiness levels. This finding is important to acknowledge; according to the dataset, the largest proportion of respondents were elementary school graduates. Therefore, increasing the accessibility of education might enhance individual well-being, which could boost happiness levels among Indonesians.

B. LIMITATIONS

The study has several limitations that should be considered when interpreting the results. The first limitation is the survey data used in this study. SPTK 2021 is a cross-sectional dataset, which means it cannot observe the change of individual conditions over time, such as the difference in household income and demographic characteristics. Second, household income was reported in categorical form instead of the exact amount of currency. Household income in this study was estimated using the midpoint in each income category. Third, relative income was calculated using province-level urban–rural averages, which may be too broad to accurately capture individuals' social comparison groups. Because of these limitations, the results of this study are based on correlation rather than causal relationships.

C. FUTURE RESEARCH

Future research could build upon this study in several ways. First, future studies could use a panel dataset rather than a cross-sectional dataset, which would capture the differences in an individual's characteristics over time. This dataset would enable a better understanding income adaptation as the internal benchmark of relative income. Second, the analysis could be improved by focusing on a smaller area, such as a city or neighborhood, to more effectively capture social comparisons as an external benchmark. Third, further

research could incorporate socioeconomic indicators, such as regional inequality, alongside individual demographic characteristics to more effectively examine the causal relationship between income and happiness levels.

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