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THE HUMAN SIDE OF POLICY: HOW REGIONAL FISCAL AND MACROECONOMIC POLICY RELATE TO HAPPINESS

Ar Rizqiyatul Barokah*

School of Social and Political Science, the University of Edinburgh, the United Kingdom

*Corresponding Author: A.R.Barokah@sms.ed.ac.uk

ABSTRACT

Research Originality – This study addresses a gap in the happiness literature by examining the relationship between government budgets and happiness through the inclusion of both expenditure and revenue sides regionally. It also utilizes more detailed provincial-level data that distinguish among different categories of local government spending and incorporates macroeconomic variables into the analysis.

Research Objectives – This research seeks to provide empirical evidence whether fiscal and macroeconomic indicators are important determinants of happiness. In particular, this study analyzes the extent to which local government budgets and various macroeconomic variables are associated with happiness.

Research Methods – This study applied pooled Ordinary Least Squares and Feasible Generalized Least Squares regression. Panel data comprising relevant variables obtained from Statistics Indonesia and the Ministry of Finance of the Republic of Indonesia over three time points (2014, 2017, and 2021) across 34 provinces were utilized.

Empirical Result – The findings revealed that local government expenditure on goods and services and local capital expenditure were positively associated with happiness under certain circumstances. During the COVID-19 pandemic, local goods and services expenditure was preferred to local capital expenditure for happiness. Meanwhile, local personnel expenditure and local taxes did not exhibit positive relationships with societal happiness. Regarding macroeconomic factors, increases in the Human Development Index and reductions in poverty, inequality, and unemployment were associated with greater happiness.

Implications – Fiscal and macroeconomic policies can be utilized as instruments for enhancing happiness. Government spending priorities under fiscal constraints and holistic macroeconomic targets should be carefully and thoroughly designed to benefit societal well-being.

Keywords: Government Expenditure; Happiness; Local Government; Local Taxes; Macroeconomic Indicators

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INTRODUCTION

The literature generally agrees that happiness is often regarded as the ultimate goal of human life (Akgun et al., 2023; Frey & Stutzer, 2002; S. J. Lee, 2022; Roessler & Gloor, 2021). Widely used interchangeably with well-being in the scientific literature (Kneer & Haybron, 2025; Krasko et al., 2022), happiness can also be considered as an important indicator that aligns with the 2030 Sustainable Development Goal 3 concerning well-being. Typical macroeconomic objectives such as Gross Domestic Product (GDP) growth emphasize changes in material welfare but often overlook changes in overall quality of life (Perovic & Golem, 2010). Therefore, happiness research is of critical relevance, and the pursuit of uncovering factors contributing to happiness remains a compelling subject of inquiry in both public and academic realms (Jyung et al., 2024). Happiness is also emerging as an essential concern in policy discourse

(Rojas, 2020). The determinants of happiness encompass a diverse range of factors, including personality traits, sociodemographic characteristics, economic conditions, contextual and situational influences, and institutional factors (Frey & Stutzer, 2002).

Studies examining happiness from the perspective of public policies remain relatively limited. The work by Pranoto & Sihalo (2025) claims to be the first study that investigates the impact of local government expenditure on happiness in Indonesia. Their finding states that local government expenditure affected happiness negatively. However, they did not differentiate government expenditure by type in their analysis. Distinguishing among different types of government expenditure is important, as aggregate government expenditure can obscure impacts of each category of government expenditure on happiness. Different types of government expenditure may affect happiness differently. The lack in their study needs to be addressed so that the suggestion mentioned there to prioritize budget allocation for certain types of expenditure over other expenditure types emerges as a more convincing evidence-based policy recommendation.

Furthermore, their study did not consider government budgets from the revenue side. Focusing solely on government expenditure provides an incomplete understanding of how fiscal policy influences happiness. Other studies, such as those by Şaşmaz & Şakar (2020) and Akgun et al. (2023), have incorporated the revenue side of government budgets; however, they did not distinguish among different types of government expenditure. In this regard, the present study seeks to address these research gaps by incorporating local government budgets from both the expenditure and revenue sides and by utilizing more detailed provincial budget data that differentiate among various categories of local government expenditure. Examining both the expenditure and revenue sides of government budgets provides a more comprehensive assessment of the relationship between fiscal policy and happiness.

In addition, various macroeconomic indicators will also be incorporated to better understand the economics of happiness from the macroeconomic policy lens. Accounting for these factors also helps distinguish the role of fiscal policy in relation to happiness from that of general economic conditions. The findings of this research will extend the earlier results in the happiness literature with additional meaningful insights.

Moreover, most empirical studies examining the impact of government budgets on happiness have adopted a multinational perspective, which may limit the generalizability and applicability of their findings to country-specific contexts, including between developed and developing countries. Meanwhile, this study focuses on the context of Indonesia as a developing country. Fiscal decentralization that Indonesia implements enables this research to be analyzed using regional data to capture happiness dynamics and its determinants in a single-country scope.

This study seeks to address the following primary research question: How does fiscal and macroeconomic policy relate to happiness in Indonesia? Specifically, with regard to fiscal policy, to what extent are local government budgets associated with happiness, and which categories of local government expenditure are positively correlated with happiness? On the other hand, within the context of macroeconomic policy, to what degree do macroeconomic indicators associated with happiness? To answer these questions, this study utilized Indonesian regional panel data comprising the Happiness Index, local government budget variables, and macroeconomic indicators. The analysis employed pooled Ordinary Least Squares (OLS) and Feasible Generalized Least Squares (FGLS) estimation methods. By conducting this analysis, this research aims to provide empirical evidence to verify whether local government budgets are crucial determinants of happiness and show the extent to which local government budgets relate to happiness and which types of local government spending have the desired relationships with happiness. Additionally, the inclusion of macroeconomic factors in the analysis allows this research to empirically show the relationship between macroeconomic indicators and happiness. The findings of this study not only expand the body of knowledge within the happiness literature but also provide valuable insights for policymakers to utilize fiscal and macroeconomic policies as instruments for improving happiness.

APPLICATIONS FOR PRACTICE

- The government can use fiscal and macroeconomic policies as instruments to promote societal well-being.
- From a fiscal perspective, the government can utilize local expenditure on goods, services, and capital investment to enhance happiness.
- During a crisis, such as the COVID-19 pandemic health crisis, goods and services expenditure is preferable to capital expenditure under fiscal constraints.
- Fiscal policy should be carefully designed to ensure that the benefits of government expenditure outweigh the perceived costs of taxation.
- Macroeconomic policy should adopt a holistic and inclusive growth approach that integrates human development with economic growth and reductions in poverty, inequality, and unemployment.

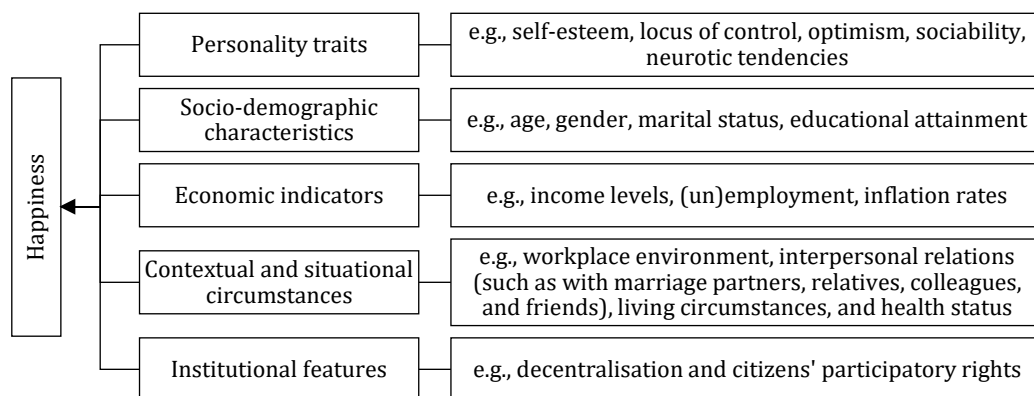
LITERATURE REVIEW

Happiness is an elusive and multifaceted concept perceived differently across people (Frey & Stutzer, 2002). According to Conceptual Referent Theory (CRT) of happiness, individuals' evaluation of happiness is shaped by their unique and personal notion of what constitutes a happy life from their perspectives. Happiness has been widely used interchangeably with well-being, life satisfaction, and quality of life (Estes & Sirgy, 2017). It is a relative concept and reflects an individual's subjective judgement of their overall life satisfaction (Lee & Ohtake, 2021). As stated by Şaşmaz & Şakar (2020), happiness can be defined as a psychological state characterized by a sense of satisfaction.

Various approaches to measure happiness have emerged in the literature, most of which are based on respondents' self-reported metrics. The World Values Survey and the Eurobarometer Survey employ a single question to assess individuals' happiness, whereas Delsignore et al. (2023) utilized multiple indicators to measure this concept. Some measures of happiness based on an integrated perspective taking into account multiple dimensions of happiness were proposed by Rizzato et al. (2022) as the Measure of Happiness (MH) and by Iriarte & Musikanski (2019) as the Aggregated Happiness Index (AHI). In the Indonesian context, Statistics Indonesia (*Badan Pusat Statistik/BPS*) developed the *Survei Pengukuran Tingkat Kebahagiaan* (SPTK) to measure the level of happiness, with the most recent measure encompassing three dimensions: life satisfaction, affect, and eudaimonia (Statistics Indonesia, 2021).

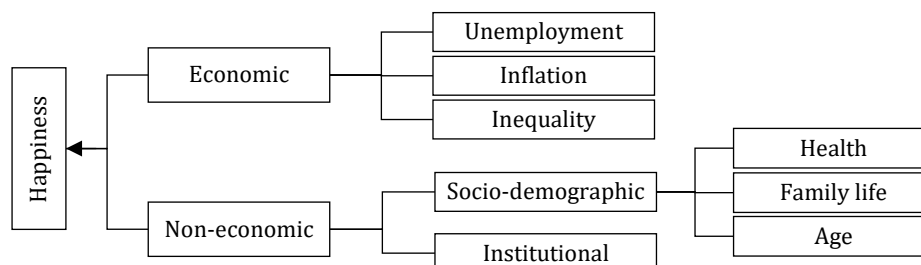
Numerous researchers have sought to theoretically conceptualize and empirically examine the determinants of happiness. According to Frey & Stutzer (2002), the determinants of happiness can be categorized into five broad categories: personality factors, sociodemographic characteristics, economic factors, contextual and situational circumstances, and institutional factors, as illustrated in Figure 1. As mentioned in van Aardt et al. (2019), which is based on Conceição & Bandura (2008), the happiness determinants consist of economic and non-economic factors that include various variables as presented in Figure 2. Meanwhile, using a different categorization, Dolan et al. (2008) identified factors influencing happiness under seven broad categories as portrayed in Figure 3. Despite the wide range of factors identified in the literature, the determinants of happiness remain the subject of ongoing debate, including discussions surrounding the Easterlin Paradox, which has persisted since its introduction in 1974.

Figure 1 The Determinants of Happiness According to Frey and Stutzer



Source: Frey & Stutzer (2002)

Figure 2 The Determinants of Happiness According to Conceição & Bandura

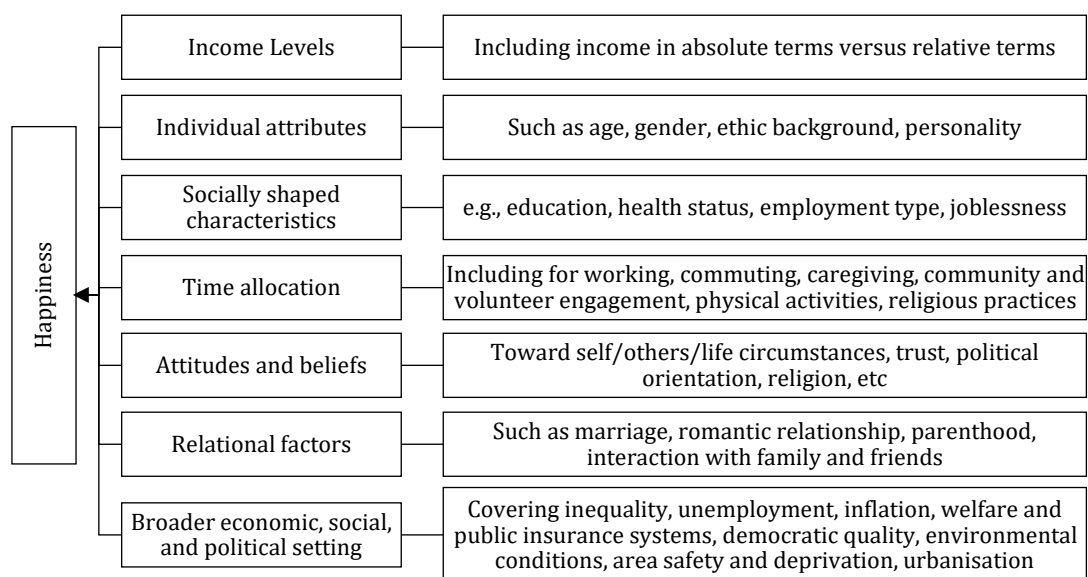


Source: Conceição & Bandura (2008), as cited in van Aardt et al. (2019)

Among the various determinants of happiness, this study focuses on economic and institutional factors, as these dimensions are closely related to government intervention through macroeconomic and fiscal policies. In this sense, the factors cover regional government budgets (from the revenue and expenditure sides) and macroeconomic indicators (including the Human Development Index (HDI), Gross Regional

Domestic Product (GRDP) per capita, poverty, inequality, and unemployment). Varied findings have been reported in the literature concerning the relationship between these factors and happiness.

Figure 3 The Determinants of Happiness According to Dolan



Source: Dolan et al. (2008)

With regard to government budgets, the literature presents mixed findings regarding their effects on happiness. Theoretically, the neoclassical perspective suggests that governments play a beneficial role in improving societal quality of life, while public choice theory emerged to explain the rationales underlying excessive government intervention, which may potentially reduce societal well-being (Bjørnskov et al., 2007; Perovic & Golem, 2010). The positive contribution of government spending on happiness has been found in Acar & Tırgıl (2023) and Perovic & Golem (2010), whereas the undesired impact was observed by Bjørnskov et al. (2007) and Pranoto & Sihaloho (2025). In particular, Pranoto & Sihaloho (2025) showed a negative impact of local government expenditure on happiness, and Bjørnskov et al. (2007) found a negative effect of overall government consumption and an insignificant impact of capital formation and social spending on life satisfaction. Kyonne (2022) and Fambeu et al. (2022) also found no significant relationship between government expenditure and happiness. More specifically, Flavin (2019) reveals that happiness tends to be higher in regions with greater government spending on the provision of public goods, such as libraries, highways, parks, and recreational facilities. Additionally, well-being can be enhanced through government expenditure on education and health (Gumede et al., 2024). Such a positive relationship does not emerge for overall government expenditure or for government spending that is not for public goods (Flavin, 2019). Therefore, the effects of government budgets on happiness should be interpreted with considerable caution.

The revenue side of government budgets has also been found to influence happiness, although the direction of this relationship remains mixed across studies. While taxation—interpreted as a reduction in income—would be expected to negatively impact happiness, taxes are used to finance public goods, such as infrastructure, education, and recreational facilities that can enhance well-being; accordingly, opposing effects apply (Hutchinson et al., 2017; Şaşmaz & Şakar, 2020). Akgun et al. (2023) and Şaşmaz & Şakar (2020) found that taxes are positively associated with happiness, whereas Hutchinson et al. (2017) and Rizkallah (2023) reported a negative relationship.

With respect to macroeconomic indicators, income typically measured by GDP per capita at the macroeconomic level is commonly included in analyses of the determinants of happiness, although diverse perspectives have emerged regarding its relationship with happiness. In economic theory, the positive-coefficient hypothesis in the relationship between income and happiness states that happiness increases with income, the close-relationship hypothesis posits that income serves as a strong predictor of happiness, while according to the popular Easterlin Paradox, income does not dictate the level of happiness (Easterlin, 1974). Several empirical studies supporting the positive-coefficient hypothesis can be found in Behera et al. (2024), Cai et al. (2023), Cimpoeu (2023), Teixeira et al. (2025), and Wesselbaum (2019), suggesting that higher income enables greater consumption opportunities, which may translate into increased utility and enhanced well-being. On the other hand, Bjørnskov et al. (2007), Kundu et al. (2024), and Takahashi et al. (2018) are among studies that found empirical evidence supporting the Easterlin Paradox. Specifically,

Bjørnskov et al. (2007) and Kundu et al. (2024) found an insignificant relationship between GDP per capita and happiness, while Takahashi et al. (2018) found a negative impact of GDP per capita on happiness. According to Mikucka et al. (2017), GDP growth can be positively related to happiness under certain conditions in which social trust is increasing and income inequality is decreasing.

In addition to absolute income, relative income as reflected in income inequality also plays a role in determining happiness. According to Social Comparison Theory, individuals evaluate their circumstances by comparing themselves with others within their reference groups (Festinger, 1954). The literature commonly showed a negative impact of income inequality on happiness (Graafland & Lous, 2018; Kollamparambil, 2020; Ma & Chen, 2022). Meanwhile, Yu & Wang (2017) argued that the relationship between income inequality and happiness follows an inverted U-shaped pattern, being positive when income inequality is relatively low but turning negative once inequality exceeds a critical threshold.

Unemployment has also been identified in the literature as an important determinant of happiness. This indicator can have opposing effects on happiness: a positive impact due to increased leisure time and a negative one because of reduced income, but the effect through income is expected to be stronger, and uncertainty arising from unemployment further diminishes happiness; consequently, the overall impact of unemployment on happiness tends to be negative (Wesselbaum, 2019). Similarly, Akgun et al. (2023) mentioned that employment contributes to improved happiness, as positive externalities like job satisfaction and income obtained from employment support happiness. Evidence from numerous empirical studies on happiness strongly suggests that unemployment has an adverse impact on happiness (e.g., Bonasia et al., 2022; Cimpoeu, 2023; Dolan et al., 2008; Kundu et al., 2024; Wesselbaum, 2019).

Although relatively underexplored, poverty and HDI deserve greater attention in analyses of the determinants of happiness. The relationship between poverty and happiness is commonly found in the literature as negative (Strotmann & Volkert, 2018; Wang et al., 2021). Evidence in the literature suggests that poverty alleviation policy contributes to improved happiness (Zhou et al., 2023). Meanwhile, the components of HDI, which comprise three dimensions: a long and healthy life, knowledge, and a decent standard of living, are generally found to contribute positively to happiness. Evidence for this relationship can be found in studies utilizing the overall HDI (Jannani et al., 2023), life expectancy (Wesselbaum, 2019), and education (Jiang, 2022).

METHODS

The data utilized in this study consisted of secondary panel data obtained from Statistics Indonesia (BPS) and the Ministry of Finance of the Republic of Indonesia. The dataset covered 33, 34, and 34 provinces in Indonesia for the years 2014, 2017, and 2021, respectively, resulting in a total sample of 101 observations. The periods selected followed the data collection time points of SPTK – the survey measuring the level of happiness in Indonesia, as the dependent variable in this study used the happiness index calculated by BPS based on the SPTK. For the independent variables, the data included local government budget information obtained from the official website of the Directorate General of Fiscal Balance, Ministry of Finance of the Republic of Indonesia, as well as macroeconomic indicators extracted from the official website of BPS.

For the analysis, this study employed FGLS panel regression alongside pooled OLS regression. The FGLS method is considered superior to OLS because it can account for heteroskedasticity and autocorrelation issues commonly encountered in panel data (Bai et al., 2021). Moreover, for other methods, particularly random effects and fixed effects, in the presence of heteroskedasticity, the usual Hausman test cannot reliably determine the appropriateness between random effects and fixed effects (Sani et al., 2023). Despite its widespread use in panel data analysis, the fixed effects method has several limitations. First, fixed effects coefficients may be biased and less reliable when applied to panel datasets with short time periods (Hill et al., 2020). Second, fixed effects models may suffer from external validity concerns for generalizability of estimations because parameter estimates are derived solely from within-unit variation, whereas pooled OLS models incorporate both within-unit and between-unit variation, potentially enhancing the generalizability of findings, as cited in Collischon & Eberl, (2020). Third, the fixed effects approach may cause explanatory variables that exhibit limited variation over time to lose statistical significance. Given the exploratory nature of this research, these limitations, especially the third one, made the fixed effects method unsuitable for use in this study.

Heteroskedasticity, autocorrelation, and multicollinearity diagnostics were also performed. Heteroskedasticity was assessed using the Breusch-Pagan/Cook-Weisberg test, the White's test, and the Modified Wald test. Autocorrelation was examined using the Wooldridge test. If these problems occurred, robust standard errors were applied for the OLS regression, while the FGLS models were adjusted for heteroskedasticity and/or autocorrelation. In addition, Variance Inflation Factors (VIFs) were calculated to assess potential multicollinearity among the explanatory variables. All the regression analyses were conducted using Stata version 19.5.

As mentioned in Dolan et al. (2008), subjective well-being or happiness is shaped by a range of determinants (X 's) modelled empirically as the following function.

$$Happiness_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \varepsilon_{it}$$

With the factors of focus in this study and following Dolan et al. (2008) approach, the panel data regression was specified as follows.

$$HI_{it} = \beta_0 + \beta_1 \text{LocBudget}_{it} + \beta_2 \text{MacEcon}_{it} + \varepsilon_{it}$$

where i stands for provinces as the clusters, t represents time, β is the vector of parameter estimation, and ε is the error term. The dependent variable was HI representing the happiness index, whereas the independent variables were the vectors of local government budget variables (**LocBudget**) and macroeconomic indicators (**MacEcon**). To prevent endogeneity issues due to reverse relationships between happiness and fiscal indicators, lags of fiscal variables using the previous year indicators were used; therefore, the above equation became the following.

$$HI_{it} = \beta_0 + \beta_1 \text{LocBudget}_{i,t-1} + \beta_2 \text{MacEcon}_{it} + \varepsilon_{it}$$

With regard to the main explanatory variables, the local government budget variables comprised local government tax revenue and the three largest categories of local government expenditure: personnel expenditure, goods and services expenditure, and capital expenditure. The local government budget data were specified relative to the size of the economy of each province, or in other words, as a percentage of GRDP at current prices (the share of government budgets in output), as commonly applied in most literature (Akgun et al., 2023; Perovic & Golem, 2010). Specifically, the fiscal variables included the local tax ratio (*LocTax*), the ratio of local personnel expenditure to GRDP (*LocPersonnelExp*), the ratio of local goods and services expenditure to GRDP (*LocGoodsExp*), and the ratio of local capital expenditure to GRDP (*LocCapitalExp*). Meanwhile, the macroeconomic factors included HDI, GRDP per capita in log natural form at 2010 constant prices (*GRDPCap*), the poverty headcount ratio (*Poverty*), the Gini index for measuring inequality (*Gini*), and the unemployment rate (*Unemployment*). Using all these variables, the full specification can be outlined in Equation (1) below.

$$HI_{it} = \beta_0 + \beta_1 \text{LocalTax}_{i,t-1} + \beta_2 \text{LocalPersonnelExp}_{i,t-1} + \beta_3 \text{LocalGoodsExp}_{i,t-1} + \beta_4 \text{LocalCapitalExp}_{i,t-1} + \beta_5 \text{HDI}_{it} + \beta_6 \text{GRDPCap}_{it} + \beta_7 \text{Poverty}_{it} + \beta_8 \text{Gini}_{it} + \beta_9 \text{Unemployment}_{it} + \varepsilon_{it} \quad (1)$$

Alternative full-model specifications employing a compositional approach to local government expenditure variables were also examined to mitigate potential multicollinearity among the fiscal variables. Specifically, instead of using the proportion of GRDP, the expenditure variables took the form of the share of local personnel expenditure (*ShareLocalPersonnelExp*), the share of local goods and services expenditure (*ShareLocalGoodsExp*), and the share of local capital expenditure (*ShareLocalCapitalExp*) in the total of these three types of expenditure. As the compositional specification is used, one type of expenditure must be excluded in each equation, resulting in three additional equations below.

$$HI_{it} = \beta_0 + \beta_1 \text{LocalTax}_{i,t-1} + \beta_2 \text{ShareLocalPersonnelExp}_{i,t-1} + \beta_3 \text{ShareLocalGoodsExp}_{i,t-1} + \beta_4 \text{HDI}_{it} + \beta_5 \text{GRDPCap}_{it} + \beta_6 \text{Poverty}_{it} + \beta_7 \text{Gini}_{it} + \beta_8 \text{Unemployment}_{it} + \varepsilon_{it} \quad (2a)$$

$$HI_{it} = \beta_0 + \beta_1 \text{LocalTax}_{i,t-1} + \beta_2 \text{ShareLocalPersonnelExp}_{i,t-1} + \beta_3 \text{ShareLocalCapitalExp}_{i,t-1} + \beta_4 \text{HDI}_{it} + \beta_5 \text{GRDPCap}_{it} + \beta_6 \text{Poverty}_{it} + \beta_7 \text{Gini}_{it} + \beta_8 \text{Unemployment}_{it} + \varepsilon_{it} \quad (2b)$$

$$HI_{it} = \beta_0 + \beta_1 \text{LocalTax}_{i,t-1} + \beta_2 \text{ShareLocalGoodsExp}_{i,t-1} + \beta_3 \text{ShareLocalCapitalExp}_{i,t-1} + \beta_4 \text{HDI}_{it} + \beta_5 \text{GRDPCap}_{it} + \beta_6 \text{Poverty}_{it} + \beta_7 \text{Gini}_{it} + \beta_8 \text{Unemployment}_{it} + \varepsilon_{it} \quad (2c)$$

In addition to adjustments made to address potential endogeneity, heteroskedasticity, autocorrelation, and multicollinearity issues (where present), further methodological adjustments were implemented. Given that the dataset comprised a small panel, robust standard errors were estimated using the wild-cluster bootstrap procedure proposed by Cameron et al. (2008). Furthermore, as the samples consisted of only 34 clusters with small periods (over three years), there were inadequate common observations to conduct Pesaran's, Frees', or Friedman's tests for cross-sectional dependence in panel data. Therefore, Driscoll-Kraay standard errors were also applied for robust standard errors under cross-sectional dependence, as this dependence is an issue in many panel data with non-randomly sampled cross-sectional units (Driscoll & Kraay, 1998). Although the Driscoll-Kraay approach is generally recommended for panel datasets with a large time dimension, Hoechle (2007) noted that it exhibits considerably better small-

sample properties than commonly used alternative methods for estimating standard errors in the presence of cross-sectional dependence. Additionally, the COVID-19 pandemic should also be considered in the analyses, as this pandemic happened during the periods covered in this study. In this sense, three approaches were conducted – using the full samples, excluding 2021 data, and adding a COVID-19 pandemic dummy variable for the year 2021. For the first approach (which utilized the full sample) and the second approach (which excluded the 2021 observations), the estimated equations were identical to Equations (1), (2a), (2b), and (2c), with the second approach differing only in the reduced sample size. For the third approach, a COVID-19 pandemic dummy variable for the year 2021 was included as an additional explanatory variable, and Equations (1), (2a), (2b), and (2c) were modified accordingly. For example, the specification of Equation (1) was modified as follows.

$$HI_{it} = \beta_0 + \beta_1 LocalTax_{i,t-1} + \beta_2 LocalPersonnelExp_{i,t-1} + \beta_3 LocalGoodsExp_{i,t-1} + \beta_4 LocalCapitalExp_{i,t-1} + \beta_5 HDI_{it} + \beta_6 GRDPCap_{it} + \beta_7 Poverty_{it} + \beta_8 Gini_{it} + \beta_9 Unemployment_{it} + \beta_{10} CovidDummy_{it} + \varepsilon_{it} \quad (3)$$

RESULT AND DISCUSSION

Descriptive statistics in Table 1 indicate that the average happiness and most macroeconomic indicators in Indonesia improved over the periods of 2014, 2017, and 2021, with the exception of the unemployment rate. The average happiness index in Indonesia increased from 68.79 in 2014 to 71.47 in 2017 and continued to increase to 72.61 in 2021, with an average of 70.98 across these periods. Regarding the macroeconomic indicators, improvements can be observed in the consistent upward trend of the mean HDI and GRDP per capita, as well as in the decline of the average poverty rate and Gini index. Meanwhile, the average unemployment rate increased in 2021 after declining in 2017 relative to its 2014 level.

Table 1 Descriptive Statistics of the Happiness Index and Macroeconomic Indicators

Variable	N	Mean	Standard Deviation	Min	Max
Happiness index	101	70.98	2.52	60.97	76.34
2014	33	68.79	2.08	60.97	72.42
2017	34	71.47	1.70	67.52	75.68
2021	34	72.61	2.10	68.08	76.34
Human development index	101	69.71	4.27	56.75	81.11
2014	33	67.96	4.23	56.75	78.39
2017	34	69.75	4.07	59.09	80.06
2021	34	71.36	3.94	60.62	81.11
GRDP/capita (million Rupiah)	101	40.05	30.85	10.74	175.00
2014	33	35.90	29.27	10.74	136.31
2017	34	40.49	30.67	11.86	157.64
2021	34	43.64	32.89	13.08	175.00
Poverty ratio (%)	101	11.02	5.70	3.78	27.80
2014	33	11.69	6.01	4.09	27.80
2017	34	10.95	5.79	3.78	27.76
2021	34	10.43	5.41	4.56	27.38
Gini index	101	0.362	0.044	0.247	0.459
2014	33	0.382	0.046	0.295	0.459
2017	34	0.360	0.038	0.276	0.440
2021	34	0.346	0.042	0.247	0.436
Unemployment rate (%)	101	5.33	1.91	1.48	10.51
2014	33	5.40	2.10	1.90	10.51
2017	34	5.10	1.84	1.48	9.29
2021	34	5.49	1.82	3.01	9.91

Source: BPS and processed by the author

With regard to the fiscal indicators, different patterns emerged across local government budget variables. Consistent with the methodology described in the previous section, the fiscal indicators were lagged by one year. Accordingly, Table 2 presents the descriptive statistics of the fiscal indicators for the preceding years, namely 2013, 2016, and 2020. As shown in the table, the average local tax ratio and personnel expenditure appeared to decrease over the specified periods, while the average local goods and services expenditure and capital expenditure increased in 2016 compared to 2013 but then declined in 2020. Specifically, the average local tax ratio, which amounted to 1.18% of GRDP in both 2013 and 2016, declined to 1.11% of GRDP in 2020. Local government personnel expenditure also decreased gradually from 5.55% of GRDP in 2013 to 4.97% of GRDP in 2016 and further to 4.24% of GRDP in 2020. Meanwhile, local goods and services expenditure experienced an increase in 2016, with an average value of 3.25% of GRDP from the previous period (2013), with an average of 2.80% of GRDP, before declining in 2020 to 3.13% of

GRDP. Such a trend can also be observed in the average local capital expenditure, increasing from 3.18% of GRDP in 2013 to 3.70% of GRDP in 2016, but decreasing to 2.15% of GRDP in 2020.

Table 2 Descriptive Statistics of Local Government Fiscal Indicators

Variable	N	Mean	Standard Deviation	Min	Max
<i>Local tax</i>					
Local tax ratio (% of GRDP)	101	1.16	0.53	0.45	3.89
2013	33	1.18	0.62	0.45	3.89
2016	34	1.18	0.56	0.47	3.57
2020	34	1.11	0.40	0.47	2.41
<i>Local personnel expenditure</i>					
As a percentage of GRDP	101	4.91	2.70	0.60	12.74
2013	33	5.55	3.06	0.77	12.74
2016	34	4.97	2.68	0.90	11.43
2020	34	4.24	2.22	0.60	9.56
As a share of expenditure	101	0.46	0.08	0.24	0.64
2013	33	0.48	0.09	0.27	0.64
2016	34	0.44	0.07	0.24	0.53
2020	34	0.46	0.06	0.27	0.54
<i>Local goods and services expenditure</i>					
As a percentage of GRDP	101	3.06	1.97	0.61	8.89
2013	33	2.80	1.76	0.82	6.97
2016	34	3.25	2.22	0.61	8.89
2020	34	3.13	1.93	0.61	7.61
As a share of expenditure	101	0.28	0.06	0.16	0.46
2013	33	0.24	0.05	0.16	0.36
2016	34	0.27	0.04	0.20	0.37
2020	34	0.33	0.04	0.27	0.46
<i>Local capital expenditure</i>					
As a percentage of GRDP	101	3.01	2.15	0.11	9.87
2013	33	3.18	1.93	0.69	8.79
2016	34	3.70	2.59	0.42	9.87
2020	34	2.15	1.57	0.11	6.80
As a share of expenditure	101	0.26	0.07	0.08	0.51
2013	33	0.28	0.07	0.16	0.51
2016	34	0.29	0.05	0.21	0.40
2020	34	0.21	0.05	0.08	0.34

Note: the share of each type of expenditure represents its proportion in total three specified types of expenditure (local personnel expenditure, local goods and services expenditure, and local capital expenditure)

Source: The Ministry of Finance of Indonesia and processed by the author

Because the alternative model specifications described in the previous section employed expenditure shares of local government spending categories, Table 2 also presents the descriptive statistics for these expenditure shares. The patterns of these shares were different from those of the proportions of GRDP for local personnel expenditure and local goods and services expenditure. In particular, unlike local personnel expenditure as a proportion of GRDP, the share of local personnel expenditure appeared to decrease in 2016 and then increase in 2020. Meanwhile, the share of local government expenditure on goods and services increased gradually over the study periods compared with the respective preceding periods. In contrast, local government capital expenditure, measured both as a proportion of GRDP and as a share of total expenditure, increased in 2016 but declined in 2020.

As mentioned in the previous sections, pooled OLS and FGLS regression models were employed to address the research questions of this study. Specifically, Equations (1), (2a), (2b), and (2c) were estimated using these two methods. The results of each method are presented below.

For the pooled OLS regression models, diagnostic tests revealed no serious concerns regarding heteroskedasticity and multicollinearity. Specifically, the results of the Breusch–Pagan/Cook–Weisberg test yielded p-values of 0.4372 for Model (1) and 0.2841 for Models (2a), (2b), and (2c). As these values exceeded the 0.05 significance level, the null hypothesis of homoskedasticity could not be rejected, indicating that heteroskedasticity was not present in the models. However, based on White's test, the heteroskedasticity issue occurred in Model (1) with a p-value of 0.0099 but did not present in Model (2a), (2b), and (2c) with a p-values of 0.0682. Regarding multicollinearity, using the common rule of thumb that a VIF of greater than 10 indicates serious multicollinearity (Verbeek, 2017), all the specified models above did not suffer from these issues, as all the VIFs were much less than 10. However, Kim (2019) also noted that a VIF above 5 warrants concern. With respect to the VIFs, Models (2a), (2b), and (2c), which employed

a compositional specification of fiscal variables, performed better than Model (1), which used fiscal indicators expressed relative to GRDP. In particular, no evidence of multicollinearity was observed in Models (2a), (2b), and (2c), as all VIF values were below 4, ranging from 1.30 to 3.56. In contrast, Model (1) warrants closer attention because the VIF values for all expenditure variables were approximately 6, while those for the remaining variables ranged from 1.26 to 4.23. Nevertheless, these values remain within the commonly accepted threshold of 10, suggesting that multicollinearity is not severe. As stated in the methodology, wild-cluster bootstrap and Driscoll-Kraay approaches were applied to get robust standard errors. The regression results were presented in the following order: firstly, with full samples; then, without 2021 data; and lastly, with the COVID-19 pandemic dummy variable. The results were reported in Table 3 for Model (1) and Table 4 for Models (2a), (2b), and (2c).

Table 3 Pooled OLS Regression Results for Model (1)

Variables	Full Samples		Without 2021		With COVID Dummy	
	Wild-Cluster	Driscoll-Kraay	Wild-Cluster	Driscoll-Kraay	Wild-Cluster	Driscoll-Kraay
Local tax ratio	-1.436*** (0.445)	-1.436*** (0.492)	-0.825** (0.383)	-0.825*** (0.107)	-1.126** (0.444)	-1.126*** (0.392)
Local personnel expenditure (% of GRDP)	-0.248 (0.244)	-0.248*** (0.029)	-0.233 (0.209)	-0.233*** (0.038)	-0.139 (0.230)	-0.139** (0.055)
Local goods and services expenditure (% of GRDP)	1.036*** (0.297)	1.036*** (0.287)	0.304 (0.420)	0.304 (0.405)	0.552 (0.375)	0.552 (0.334)
Local capital expenditure (% of GRDP)	-0.022 (0.273)	-0.022 (0.261)	0.588* (0.315)	0.588* (0.311)	0.326 (0.314)	0.326 (0.276)
Human development index	0.461*** (0.089)	0.461*** (0.079)	0.519*** (0.104)	0.519*** (0.018)	0.389*** (0.092)	0.389*** (0.091)
Ln(GRDP/capita)	-0.676 (0.822)	-0.676*** (0.239)	-0.931 (0.858)	-0.931*** (0.094)	-0.342 (0.824)	-0.342 (0.347)
Poverty ratio	-0.123* (0.061)	-0.123** (0.057)	-0.062 (0.053)	-0.062** (0.027)	-0.121** (0.057)	-0.121** (0.056)
Gini index	-7.099 (7.100)	-7.099*** (2.108)	-3.771 (6.772)	-3.771*** (0.882)	-4.294 (7.059)	-4.294*** (0.922)
Unemployment rate	-0.235 (0.163)	-0.235*** (0.065)	-0.085 (0.134)	-0.085 (0.065)	-0.185 (0.149)	-0.185** (0.084)
COVID-19 dummy					1.511** (0.568)	1.511** (0.639)
Constant	55.536*** (14.194)	55.536*** (2.335)	52.328*** (13.849)	52.328*** (1.029)	52.491*** (13.959)	52.491*** (1.675)
The number of observations	101	101	67	67	101	101
R-squared	0.510	0.510	0.540	0.540	0.547	0.547
Adjusted R-squared	0.462		0.467		0.497	

Note: Standard errors are in parentheses. ***p<0.01; **p<0.05; *p<0.10

Source: Processed by the author

Table 4 Pooled OLS Regression Results for Models (2a), (2b), and (2c)

Variables	Full Samples			Without 2021			With COVID Dummy		
	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)
Local tax ratio	-1.323 (0.6)** (0.4)***	-1.323 (0.6)** (0.4)***	-1.323 (0.6)** (0.4)***	-0.834 (0.5)	-0.834 (0.5)	-0.834 (0.5)	-0.990 (0.6) (0.2)***	-0.990 (0.6) (0.2)***	-0.990 (0.6) (0.2)***
Share of local personnel expenditure	-14.658 (3.6)*** (1.4)***	-22.141 (5.6)*** (1.9)***		-17.170 (3.8)***	-18.629 (7.6)** (5.3)***		-17.602 (4.1)*** (1.7)***	-13.252 (6.98)* (4.3)***	
Share of local goods & services expenditure	7.483 (4.2)* (0.6)***		22.141 (5.6)*** (1.9)***	1.459 (7.8)		18.629 (7.6)**	-4.349 (7.1) (4.2)		13.252 (6.98)* (4.3)***
Share of local capital expenditure		-7.483 (4.2)* (0.6)***	14.658 (3.6)*** (1.4)***		-1.459 (7.8) (5.3)	17.170 (3.8)***		4.349 (7.1) (4.2)	17.602 (4.1)*** (1.7)***
Human development index	0.480 (0.1)*** (0.05)***	0.480 (0.1)*** (0.05)***	0.480 (0.1)*** (0.05)***	0.537 (0.1)***	0.537 (0.1)*** (0.0)***	0.537 (0.1)***	0.416 (0.1)*** (0.1)***	0.416 (0.1)*** (0.1)***	0.416 (0.1)*** (0.1)***
Ln(GRDP/capita)	-2.200 (0.8)** (0.2)***	-2.200 (0.8)** (0.2)***	-2.200 (0.8)** (0.2)***	-2.481 (0.9)***	-2.481 (0.9)*** (0.02)***	-2.481 (0.9)***	-1.755 (0.9)* (0.5)***	-1.755 (0.9)* (0.5)***	-1.755 (0.9)* (0.5)***

Table 4 Pooled OLS Regression Results for Models (2a), (2b), and (2c) (Continued)

Variables	Full Samples			Without 2021			With COVID Dummy		
	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)
Poverty ratio	-0.031 (0.08) (0.03)	-0.031 (0.08) (0.03)	-0.031 (0.08) (0.03)	-0.003 (0.07)	-0.003 (0.07) (0.01)	-0.003 (0.07)	-0.027 (0.08) (0.03)	-0.027 (0.08) (0.03)	-0.027 (0.08) (0.03)
Gini index	-11.147 (7.8) (1.9)***	-11.147 (7.8) (1.9)***	-11.147 (7.8) (1.9)***	-5.649 (7.6)	-5.649 (7.6) (1.1)***	-5.649 (7.6)	-7.925 (7.6) (0.9)***	-7.925 (7.6) (0.9)***	-7.925 (7.6) (0.9)***
Unemployment rate	-0.255 (0.2) (0.1)***	-0.255 (0.2) (0.1)***	-0.255 (0.2) (0.1)***	-0.128 (0.18)	-0.128 (0.18) (0.05)***	-0.128 (0.18)	-0.169 (0.19) (0.1)***	-0.169 (0.19) (0.05)***	-0.169 (0.19) (0.05)***
COVID-19 dummy							1.716 (0.6)*** (0.6)***	1.716 (0.6)*** (0.6)***	1.716 (0.6)*** (0.6)***
Constant	87.494 (12)*** (3.5)***	94.977 (13)*** (4.0)***	72.837 (10)*** (2.4)***	87.319 (12)***	88.778 (15)*** (4.5)***	70.149 (10)***	86.294 (12)*** (1.5)***	81.945 (15)*** (4.8)***	68.692 (10)*** (0.6)***
Observations	101	101	101	67	67	67	101	101	101
R-squared	0.449	0.449	0.449	0.481	0.481	0.481	0.489	0.489	0.489
Adj. R-squared	0.402	0.402	0.402	0.409	0.409	0.409	0.438	0.438	0.438

Note: Standard errors are in parentheses: the first one is for the wild-cluster approach, while the second one is for the Driscoll-Kraay approach. For the without 2021 regression models, some Driscoll-Kraay estimations cannot be performed, as the variance matrix produced is non-symmetric or highly singular, due to too small time periods and not sufficient independent temporal variation. The asterisks represent the significance of the respective coefficients using each of these standard error estimations. ***p<0.01; **p<0.05; *p<0.10

Source: Processed by the author

Table 5 FGLS Regression Results for Model (1)

Variable	Full Samples	Without 2021	With COVID Dummy
Local tax ratio	-1.261*** (0.313)	-0.718** (0.283)	-1.067*** (0.312)
Local personnel expenditure (% of GRDP)	-0.420*** (0.134)	-0.295** (0.118)	-0.393*** (0.134)
Local goods and services expenditure (% of GRDP)	1.360*** (0.158)	0.751*** (0.255)	0.936*** (0.207)
Local capital expenditure (% of GRDP)	-0.121 (0.155)	0.320* (0.172)	0.243 (0.178)
Human development index	0.455*** (0.058)	0.503*** (0.054)	0.428*** (0.060)
Ln(GRDP/capita)	-0.508 (0.420)	-0.246 (0.531)	-0.424 (0.476)
Poverty ratio	-0.127*** (0.039)	-0.072** (0.033)	-0.119*** (0.035)
Gini index	-6.147* (3.686)	-5.670* (3.099)	-3.331 (3.179)
Unemployment rate	-0.292*** (0.065)	-0.169** (0.068)	-0.286*** (0.074)
COVID-19 dummy			1.200*** (0.352)
Constant	53.071*** (6.008)	42.630*** (7.955)	51.729*** (7.066)
Observations	101	67	101
Wald chi2	366.68	241.40	391.73
Prob > chi2	0.000	0.000	0.000

Note: Standard errors in parentheses. ***p<0.01; **p<0.05; *p<0.10

Source: Processed by the author

For the FGLS regression models, the diagnostic tests indicated the presence of heteroskedasticity but no evidence of autocorrelation. Specifically, the Modified Wald test produced p-values of 0.000, which were below the 0.05 significance level, indicating the presence of heteroskedasticity. In contrast, the Wooldridge test yielded p-values of 0.6127 for Model (1) and 0.7309 for Models (2a), (2b), and (2c), both of which exceeded the 0.05 threshold, suggesting that autocorrelation was not present. Therefore, in this study the FGLS regression was adjusted for only heteroskedasticity. Regarding multicollinearity issues, the above VIFs can be used. Specifically, there was no serious concern of multicollinearity, but the VIFs were above 5

for expenditure variables, which need attention. Following the same analytical framework applied in the pooled OLS regression, the FGLS estimations were conducted using the full sample, a reduced sample excluding the 2021 observations, and a specification incorporating a COVID-19 dummy variable. The results for Model (1) are presented in Table 5, while the results for Models (2a), (2b), and (2c) are reported in Table 6.

Table 6 FGLS Regression Results for Models (2a), (2b), and (2c)

Variables	Full Samples			Without 2021			With COVID Dummy		
	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)	(2a)	(2b)	(2c)
Local tax ratio	-1.14*** (0.362)	-1.14*** (0.362)	-1.14*** (0.362)	-0.59** (0.269)	-0.59** (0.269)	-0.59** (0.269)	-0.82** (0.338)	-0.82** (0.338)	-0.82** (0.338)
Share of local personnel expenditure	-12.0*** (2.149)	-22.2*** (2.439)		-15.2*** (2.401)	-20.7*** (3.674)		-15.7*** (2.428)	-14.9*** (3.984)	
Share of local goods & services expenditure	10.2*** (2.313)		22.2*** (2.439)	5.51 (4.318)		20.7*** (3.674)	-0.84 (4.541)		14.9*** (3.984)
Share of local capital expenditure		-10.2*** (2.313)	12.0*** (2.149)		-5.51 (4.318)	15.2*** (2.401)		0.84 (4.541)	15.7*** (2.428)
Human development index	0.45*** (0.056)	0.45*** (0.056)	0.45*** (0.056)	0.51*** (0.052)	0.51*** (0.052)	0.51*** (0.052)	0.43*** (0.064)	0.43*** (0.064)	0.43*** (0.064)
Ln(GRDP/capita)	-1.71*** (0.446)	-1.71*** (0.446)	-1.71*** (0.446)	-1.69*** (0.511)	-1.69*** (0.511)	-1.69*** (0.511)	-1.37*** (0.517)	-1.37*** (0.517)	-1.37*** (0.517)
Poverty ratio	-0.046 (0.043)	-0.046 (0.043)	-0.046 (0.043)	-0.008 (0.042)	-0.008 (0.042)	-0.008 (0.042)	-0.024 (0.041)	-0.024 (0.041)	-0.024 (0.041)
Gini index	-10.2*** (3.580)	-10.2*** (3.580)	-10.2*** (3.580)	-7.05* (3.744)	-7.05* (3.744)	-7.05* (3.744)	-7.02* (3.750)	-7.02* (3.750)	-7.02* (3.750)
Unemployment rate	-0.38*** (0.062)	-0.38*** (0.062)	-0.38*** (0.062)	-0.18** (0.078)	-0.18** (0.078)	-0.18** (0.078)	-0.30*** (0.085)	-0.30*** (0.085)	-0.30*** (0.085)
COVID-19 dummy							1.60*** (0.472)	1.60*** (0.472)	1.60*** (0.472)
Constant	79.3*** (6.677)	89.4*** (6.835)	67.3*** (5.690)	73.9*** (7.457)	79.4*** (8.305)	58.6*** (6.891)	77.1*** (7.303)	76.3*** (8.878)	61.4*** (6.665)
Observations	101	101	101	67	67	67	67	67	67
Wald chi2	313.86	313.86	313.86	208.36	208.36	208.36	272.14	272.14	272.14
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: Standard errors are in parentheses. ***p<0.01; **p<0.05; *p<0.10

Source: Processed by the author

The regression analyses conducted using both pooled OLS and FGLS estimators generally produced robust results, as the findings remained consistent across estimation methods and alternative model specifications. The relationships between fiscal indicators and happiness were also broadly aligned whether the fiscal indicators for expenditure took the form of the proportion of GRDP or the share of expenditure. Based on the regression results in Table 3 and 4 using pooled OLS and Table 5 and 6 using FGLS, fiscal and macroeconomic indicators appeared to be important determinants of happiness in Indonesia. The statistical significance of the COVID-19 dummy variable indicates that the COVID-19 pandemic should be taken into account when the analysis of the determinants of happiness covers the period of this pandemic.

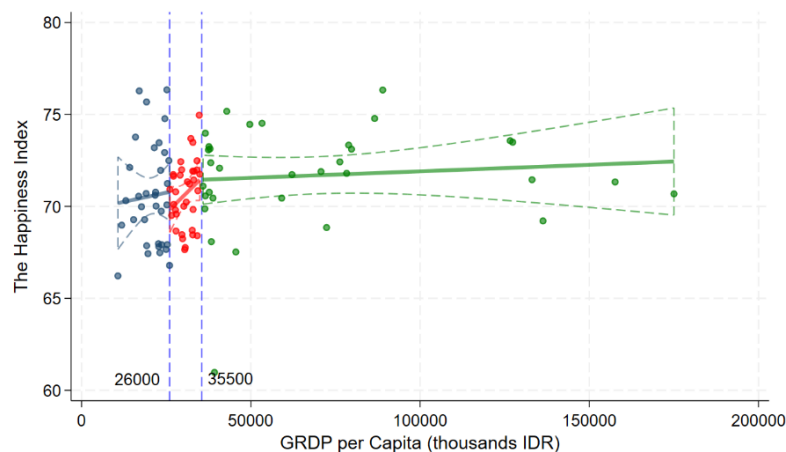
From a fiscal perspective, local taxes and personnel expenditure generally did not exhibit positive relationships with happiness, whereas local expenditure on goods and services and capital expenditure showed positive associations with happiness under certain circumstances. The findings suggest that allocating a greater share of local government spending to goods and services rather than personnel expenditure is associated with higher levels of public happiness, regardless of whether the COVID-19 period is included in the analysis. Meanwhile, the association between local goods and services expenditure and happiness was significantly positive at the expense of local capital expenditure when the time frame included the COVID-19 period but insignificant at the expense of this expenditure during non-COVID-19 periods and when the COVID-19 pandemic factor was controlled in the analysis. Moreover, the relationship between local capital expenditure and happiness was significantly positive only during the non-COVID-19 periods but insignificant under the inclusion of the COVID-19 pandemic factor or period. When expenditure shares were considered, the association between local capital expenditure and happiness was significantly positive when capital expenditure increased at the expense of personnel expenditure. However, this association was statistically insignificant when capital expenditure increased at the expense of local goods

and services expenditure during the non-COVID-19 pandemic periods and after controlling for the COVID-19 pandemic. Furthermore, when the time frame includes the COVID-19 pandemic period, the association with happiness becomes significantly negative if capital expenditure increases at the expense of local goods and services expenditure.

In addition to government budgetary factors, various macroeconomic indicators were also found to be associated with happiness. In general, the association was positive for the human development index but negative for poverty, inequality, and unemployment. These findings are consistent with most happiness literature that included these determinants as explained in the literature review above. Meanwhile, the association between GRDP per capita and happiness was generally insignificant when expenditure variables were measured as proportions of GRDP. However, the association became significantly negative when expenditure variables were expressed as expenditure shares. These contrasting patterns warrant further investigation to better understand the underlying mechanisms driving the relationship between economic prosperity and happiness.

As shown in Figure 4, structural heterogeneity in real GRDP per capita was observed across Indonesian regions during the study periods. The distribution appeared to form three distinct clusters corresponding to low-, medium-, and high-income groups. Using a data-driven clustering approach based on terciles, observations were classified into the low-income cluster when real GRDP per capita was below IDR 26.0 million, the medium-income cluster when real GRDP per capita ranged from IDR 26.0 million to IDR 35.5 million, and the high-income cluster when real GRDP per capita exceeded IDR 35.5 million. The low-income and high-income clusters had roughly flat slopes (with the correlation values of 0.06 and 0.10, respectively), while the medium-income cluster had a steeper positive slope (with the correlation coefficient of 0.27). However, all correlation coefficients between real GRDP per capita and the happiness index for these clusters were not statistically significant. Segmented regression analyses using data-driven breakpoints based on the tercile classification, across various model specifications including bivariate regressions between real GRDP per capita (and its natural logarithm) and the happiness index, as well as multivariate regressions incorporating all explanatory variables examined in this study, including alternative specifications of expenditure variables, consistently produced insignificant associations between real GRDP per capita and happiness across all income groups. The lack of statistical significance in the relationship between real GRDP per capita and happiness provides support for the Easterlin paradox, which posits that higher income does not necessarily lead to greater happiness (Easterlin, 1974).

Figure 4 The Happiness Index and Real Gross Regional Domestic Product per Capita



Source: BPS and processed by the author

Based on the empirical findings of this study presented above, regional fiscal policy appears to be an important determinant of societal well-being in Indonesia. The allocation of local government expenditure across personnel, goods and services, and capital spending was associated with variations in happiness, suggesting that different types of public expenditure may affect well-being in distinct ways. With respect to personnel expenditure, it is not surprising that higher spending in this category was not associated with greater societal happiness, given that such expenditure is primarily allocated to compensating government employees rather than directly providing benefits to the broader population. However, local personnel expenditure is compulsory for running the government. On the other hand, local goods and services expenditure and local capital expenditure were positively associated with happiness in certain circumstances. An increase in local goods and services expenditure or local capital expenditure at the expense of local personnel expenditure was predicted to exhibit greater happiness. When there was the COVID-19 pandemic during the periods, among the three types of expenditure (local personnel expenditure,

local goods and services expenditure, and local capital expenditure), local goods and services expenditure was preferred for happiness, including shifting the other two types of expenditure to local goods and services expenditure. Furthermore, during the COVID-19 period, shifting expenditure from goods and services to capital expenditure was associated with lower happiness. This finding suggests that expenditure on goods and services was more critical than capital expenditure in addressing the immediate needs arising from the COVID-19 pandemic and supporting societal well-being. Meanwhile, an increase in local capital expenditure was associated with higher happiness, especially when there were no COVID-19 pandemic shocks. In this sense, operational spending is essential for immediate needs like medical and health-care goods during the COVID-19 pandemic, but spending on capital is fundamental for development that can improve long-term living conditions, both of which are crucial for societal well-being. Public goods that are expected to promote happiness can be in the form of parks, libraries, highways, recreational amenities, educational facilities, and health-care services, as suggested by Flavin (2019) and Gumede et al. (2024). The positive association of government spending on happiness aligns with the traditional neoclassical view that regards government as a benevolent actor with beneficial interventions (Bjørnskov et al., 2007; Perovic & Golem, 2010). All these findings provide further details on the relationships between different types of government expenditure and happiness to complement the empirical evidence in existing literature, like Perovic & Golem (2010), who showed a positive contribution of government expenditure to happiness, and Pranoto & Sihalo (2025), who found a negative impact of local government expenditure on happiness in Indonesia. In particular, these findings suggest that the composition of government expenditure matters for happiness, advancing the body of knowledge in the happiness literature. Nevertheless, it is important to note that the expenditure analyzed in this study is limited to the three types of local government spending in Indonesian provinces, while central government expenditure across these regions and other expenditure types can also play a role in shaping happiness.

From the revenue side, the negative relationship between the local tax ratio and happiness should be interpreted with caution and not generalized, as the incidence of taxation falls on a relatively limited segment of the population, and aggregation may obscure the true effects. Şaşmaz & Şakar (2020) and Hutchinson et al. (2017) argued that taxes reduce disposable income and are often perceived as a financial burden, which may adversely influence happiness. However, the taxes covered in this study were only local taxes, which do not include personal income tax. Şaşmaz & Şakar (2020) also stated that when tax systems are fair and well-established, and taxes are utilized for financing government expenditure efficiently and effectively, the impact of taxes on happiness may be positive. In particular, it is not only about taxes per se, but what society receives in return is also important. From an economic perspective, happiness is related to the extent to which citizens perceive benefits from taxes used to finance social services (Novo et al., 2020, as cited in Núñez-Barriopedro et al., 2024) and the extent to which taxation contributes to reducing income inequality through progressive tax systems (Oishi et al., 2018). In addition, tax compliance plays an important role in enhancing well-being (Delgado-Rodríguez & De Lucas-Santos, 2022). Therefore, fair and well-established tax systems, together with the efficient and effective use of tax revenues to finance public expenditure, are essential for promoting societal welfare.

Furthermore, macroeconomic indicators also emerged as important determinants of happiness. The associations of the HDI, poverty, inequality, and unemployment with happiness were consistent with the expected direction, being positive for the HDI and negative for poverty, inequality, and unemployment. In particular for the human development index, it appeared as the most robust happiness determinant from macroeconomic indicators with consistently positive associations across various approaches. This finding suggested that improvements in health, education, and standards of living (dimensions covered in the human development index) translated into greater happiness. In addition, the finding that the relationship between real GRDP per capita and happiness was insignificant suggests that happiness tends to be associated with more holistic measures of development, such as the HDI, rather than with economic growth alone. Therefore, governments should also invest in health, education, and income-generating opportunities to improve welfare, rather than focusing solely on economic growth.

In addition, the segmented analysis of GRDP per capita across low-, middle-, and high-income categories showed that the steepest slope was observed in the middle-income group, suggesting that financial resources may have the strongest association with happiness among middle-income individuals. However, both the correlation and regression coefficients were statistically insignificant across all income categories. In this sense, other factors beyond income are important in explaining happiness (Delsignore et al., 2021; Frey & Stutzer, 2002), and indeed, for the context of Indonesia, as shown in the regression results above, the positive association of the human development index and the negative associations of poverty, inequality, and unemployment with happiness were more pronounced. Therefore, government macroeconomic policies should consider multidimensional human development, poverty, inequality, and unemployment, rather than concentrating solely on economic growth. In addition, policy design should take

into account other relevant factors and be tailored to specific needs and circumstances. In particular, for low-income regions, basic constraints with regard to service access, security, and social capital may be more crucial; therefore, the government should invest in service access and basic quality. For middle-income regions, considering the steeper positive slope, productivity and income growth policies may have the largest well-being return. For high-income regions, factors such as the working environment (e.g., job stress) and traffic congestion may be more strongly associated with happiness than income alone, suggesting that policies aimed at improving livability by addressing these factors may be beneficial for this group. Since happiness encompasses not only material dimensions but also non-material aspects of life, as highlighted by Matusiewicz (2025), factors beyond monetary considerations should not be overlooked.

CONCLUSION

The findings of this study revealed that fiscal policy, as reflected in local government budgets, serves as an important determinant of happiness. From the revenue side, the relationship between local taxes and happiness appeared to be negative; however, this association should be interpreted with caution and should not be generalized, given the relatively narrow local tax base. Meanwhile, from the expenditure side, among local personnel expenditure, goods and services expenditure, and capital expenditure, the types of local government expenditure that were positively associated with societal happiness were local goods and services expenditure and local capital expenditure in some circumstances. During crises, such as the health crisis caused by the COVID-19 pandemic, which affected multiple aspects of society, including the economy, local goods and services expenditure should be prioritized over local capital expenditure when fiscal resources are constrained. An increase in local capital expenditure was generally associated with higher happiness when there were no COVID-19 pandemic shocks. The empirical evidence presented in this study provides valuable insights for policymakers to utilize fiscal policy through goods and services expenditure as well as capital expenditure as instruments for enhancing happiness by prioritizing government expenditure that can give more benefits to society. In addition, the negative association between local taxes and happiness warrants attention, suggesting that government fiscal policy should be carefully designed by considering both taxation levels and expenditure priorities, so that the benefits of local government spending outweigh the perceived costs of local taxation.

Furthermore, macroeconomic indicators were also found to be associated with happiness. Specifically, higher levels of human development, lower poverty, reduced income inequality, and lower unemployment were associated with greater levels of happiness. These findings underscore the importance of promoting inclusive economic growth that not only emphasizes the pace of economic expansion but also ensures that its benefits are distributed equitably across all segments of society, as reflected in reductions in poverty, inequality, and unemployment. These findings also highlighted the need for fiscal policy to address more holistic development such as the Human Development Index covering health, education, and living standards, to improve welfare. The insights gained from this research shed new light on fundamental concerns regarding how macroeconomic and fiscal policy relates to happiness, particularly in the context of fiscal constraints and the prioritization of government spending. The findings of this research enrich the knowledge in the happiness literature with regard to the determinants of happiness from fiscal and macroeconomic policy, highlighting the importance of different types of local government budgets and holistic development, including inclusive economic growth, for enhancing societal happiness. Although this study contributes to the growing body of the happiness literature and offers meaningful policy implications for policymakers, further research is needed to better understand the relationship between government budgets and happiness. In particular, future studies should expand the scope beyond local government budgets, as the present study is limited to government budgets at the regional level. One important suggestion is to include central government expenditure disbursed in each province, as other types of expenditure, such as social assistance expenditure from central government budgets directed to help society across provinces, are likely to be associated with public welfare. Moreover, the inclusion of the share of taxpayers, along with the coverage of government budget support, in analyzing the relationship between fiscal policy and happiness can expand the research further.

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