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Study Of The Influence Of Public Expenditure And Macroeconomic Variables On The Happiness Index In Sumatera

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ABSTRACT

This study aims to analyze the effect of public spending and macroeconomic variables (local government size, per capita GRDP, Gini coefficient, unemployment, inflation and tax revenue) on the happiness index in Sumatra. The types of data used in this study are cross-section data and time series data. Cross-section data covers 10 provinces in Sumatra, namely Aceh, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, Bangka Belitung Islands and Riau Islands. While the time series data consists of data from 2014, 2017 and 2021. The data sources are secondary data from the Central Statistics Agency and the Directorate General of Fiscal Balance, Ministry of Finance. The data were analyzed using the panel data regression method with the Common Effect Model approach. The results of the study show that Per Capita Income and Inflation have a significant effect on the happiness index in Sumatra. Meanwhile, public spending, local government size, Gini coefficient, unemployment rate, and local tax revenue do not show a significant effect on happiness. These findings suggest that while economic factors and the size of local government play an important role in improving well-being, the direct impact on people's happiness is influenced by a complex of other factors, including people's perceptions, social inequality, and the efficiency of resource management.

INTRODUCTION

Happiness is a state of mind, considered the ultimate goal of life. Every individual strives to be happy in his or her own way. Economics, on the other hand, is an invention that helps humans maintain and develop a developed society. It is a system that promotes cooperation and coexistence. Therefore, happiness is – or should be – the primary focus of economics.

Governments and policymakers around the world have taken different approaches to addressing this issue. Tax breaks, increased social support, and increased education spending are just a few of the measures that have been implemented (Education Week, 2021). The economic impact of these decisions tends to be carefully calculated, as opposed to their impact on national welfare.

Although the economics of happiness has been studied since the 60s, there is still no clear picture of the interaction between explanatory macroeconomic variables and happiness (Di Tella, MacCulloch, & Oswald, 2003). There is always an ambiguous view when approaching the economics of happiness. Perovic & Golem (2010) concluded that there is no comprehensive theoretical framework stating that macroeconomic variables drive happiness. As a result, empirical progress plays a major role in the progress in determining the determinants of experienced happiness.

In Indonesia, the happiness index shows an increase during the period of 2014, 2017 and 2021, namely from 68.28 to 70.69 and again to 71.49. Meanwhile, at the provincial level, it turns out that the development is diverse, some have increased and some have decreased. This study will analyze the happiness index of provinces in Sumatra during the period 2014, 2017 and 2021.

Public expenditure, financed by taxes, covers a wide range of expenditures as part of the needs of the state and whether public expenditure is used with the needs of the state in mind or not, can have various impacts on individuals and, therefore, on social satisfaction. In addition, other macroeconomic variables that need to be seen for their influence on happiness are the size of the local government, per capita GDP, Gini coefficient, inflation, unemployment rate, and tax revenues on GDP. Based on these reasons, it is important to investigate the impact of public expenditure and macroeconomic variables on happiness.

The formulation of the research problem is how the influence of public expenditure and macroeconomic variables (size of local government, GRDP per capita, Gini coefficient, unemployment, inflation and tax revenue) on the happiness index in Sumatra. The purpose of this study is to analyze the influence of public expenditure and macroeconomic variables (size of local government, GRDP per capita, Gini coefficient, unemployment, inflation and tax revenue) on the happiness index in Sumatra.

LITERATURE REVIEW

There are studies in the literature on the relationship between public spending and happiness (Ram, 2009; Flavin et al., 2014; Kasmaoui and Bourhaba, 2017; Dao, 2017). The studies conducted concluded that public spending generally has a positive effect on happiness (Flavin et al., 2014; Kasmaoui and Bourhaba, 2017). However, in the literature, there are also studies that determine that public spending does not reduce happiness (Ram, 2009) or studies that determine that public spending affects happiness in the short term (Dao, 2017).

In another study, Ram (2009) investigated the relationship between government spending and population and happiness using a large cross-country sample. Various criteria of happiness, income, and government spending were used in this study. The results of the study concluded that increasing government spending does not decrease happiness in a broad context across countries.

Flavin et al. (2014) investigated the effect of state size on human well-being in industrial democracies over the period 1981–2017. As a result of the study, it was determined that people felt their lives were more satisfying as the level of government intervention in the economy increased. In a similar study, Dao (2017) investigated the effect of state size on happiness in 183 countries over the period 1990–2016 using panel data analysis. The results showed that government spending affects happiness in the short run.

Furthermore, Kasmaoui and Bourhaba (2017) investigated the relationship between public spending and happiness in 132 countries in the period 2006-2015 using panel data analysis. As a

result of the study, it was determined that higher levels of public spending worldwide are associated with greater happiness. Bjornskov et al. (2007) studied the impact on total government spending in 74 developed countries, not only focusing on education. The results showed a negative relationship between government spending and happiness. Ram (2009) replicated this analysis but included a wider range of countries, including developing countries. Contrary to previous results, there was a statistically significant positive correlation.

In Tella, MacCulloch & Oswald (2003) show that there is a strong macroeconomic pattern in happiness. This is based on European countries and the United States in 1975-1992. This study found that GDP levels and GDP growth are strongly correlated with happiness. This finding is in line with the general assumption of economists about a positive correlation between GDP and happiness.

Previous findings on the relationship between income inequality and happiness are somewhat complex and ambiguous. De Neve & Powdthavee (2016) found a strong correlation between income inequality and well-being; overall well-being declined as inequality increased. Accumulating research evidence suggests a similar negative relationship between happiness and inequality; Alesina & Di Tella (2004), Blanchflower & Oswald (2011) and Berg & Veenhoven (2010). However, the correlation is more complex than it might seem at first glance. Alesina & Di Tella (2004) found a positive correlation for European countries but no correlation when examining American countries. The opposite effect was found by Frey & Stutzer (2002a) in the United States, where average national happiness fell from 1946 to 1991 while real GDP per capita increased.

Unemployment is expected to have a clear negative relationship with happiness, since unemployment has had a major impact on human suffering throughout history (Fryer & Payne, 1986). Di Tella, MacCulloch, & Oswald (2001) observed, among others, this relationship and found a negative correlation. Frey & Stutzer (2002b) found a similar correlation. Other studies have come to the same conclusion; being unemployed makes people unhappy (Ravallion & Lokshin, 2001; Björklund & Eriksson, 1998). Frey and Stutzer (2002a) provide an interesting explanation for the negative correlation between happiness and unemployment: higher unemployment may also affect workers' happiness, since they may feel bad about being unemployed. Furthermore, Sanfey and Teksoz (2005) analyzed the effects on happiness of various macroeconomic variables and found that unemployment was not statistically significant.

The impact of taxation on happiness does not seem to have been comprehensively studied. Hutchinson, Ahmed & Buryi (2016) studied the relationship between income taxes and happiness in America. They defined happiness as the likelihood of committing suicide. The study was conducted by comparing happiness between populations in states with and without additional state income taxes. The report justified the use of the likelihood of suicide as a measure of happiness by stating that reduced personal income, increased tax debt burden, and potential consequences in the case of under-reporting taxes make people unhappy.

Di Tella, MacCulloch, & Oswald (2001) concluded that people appear happier when inflation is low. This correlation is found through accumulated research. Frey & Stutzer (2002b) found that inflation systematically and significantly decreases individual well-being. Blanchflower, Montagnoli & Moro et al. (2014) identified the negative impact on happiness caused by increasing inflation. This literature mainly analyzes inflation as a trade-off between happiness and unemployment. Frey (2008) found that a 1.7 percent increase in inflation has the same negative impact on happiness as a 1 percent increase in unemployment.

METHODS

The type of research is quantitative descriptive. This study intends to provide an explanation of each variable studied by presenting quantitative data. The types of data used in this study are cross-section data and time series data. Cross-section data covers 10 provinces in Sumatra, namely the provinces of Aceh, North Sumatra, West Sumatra, Riau, Jambi, South

Sumatra, Bengkulu, Lampung, Bangka Belitung Islands and Riau Islands. While the time series data consists of data from 2014, 2017 and 2021. The data sources are secondary data from the Central Statistics Agency and the Directorate General of Fiscal Balance of the Ministry of Finance, which are collected using the documentation method.The dependent variable of this study is the Happiness Index, which is the happiness index of the provinces in Sumatra. While the independent variables consist of: (1) Public Expenditure, which is the ratio of total expenditure for education, health and social services to GRDP (%), (2) Regional Government Size (size) which is the ratio of total regional revenue to GRDP (%), (3) Per capita income, which is GRDP divided by the number of residents (thousands of Rupiah), (4) Gini Coefficient, which is the Gini coefficient (%), (5) Unemployment Rate, which is the open unemployment rate (%), (6) Inflation, which is the inflation rate (%), and (7) Regional Tax Revenue, which is the ratio of provincial regional tax revenue to GRDP (%)

The analysis method used in this study is the descriptive method and the panel data multiple regression analysis method, with the Common Effect Model (Panel Least Square) approach. The model used in this study is as follows:

$$IB_{it} = \beta_0 + \beta_1 PP_{it} + \beta_2 Size_{it} + \beta_3 PK_{it} + \beta_4 KG_{it} + \beta_5 TP_{it} + \beta_6 Inf_{it} + \beta_7 TR_{it} + \varepsilon_{it}$$

Where:

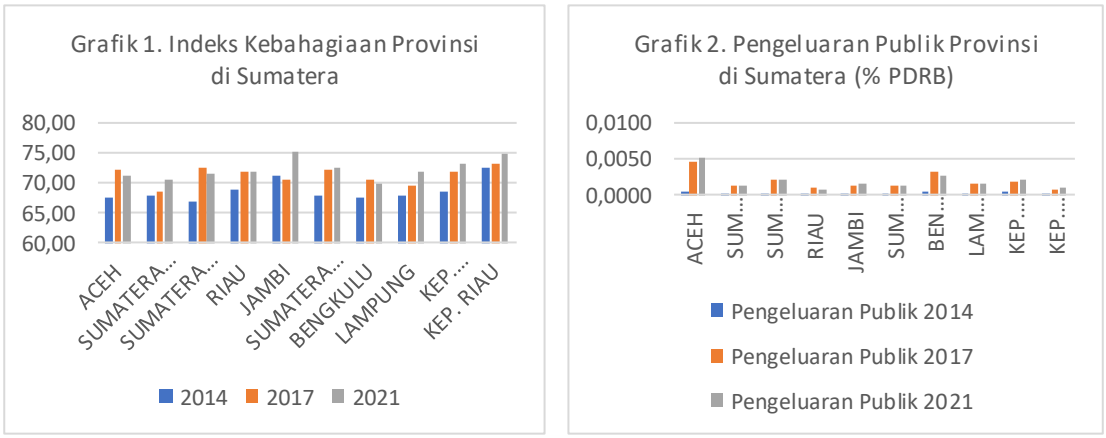
IB	: Happiness Index		
β_0	: Intercept;	$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$	: Regression Coefficients
PP	: ExpenditurePublic	*Size*	: Size of local government
PK	: Income per capita	KG	: Gini Coefficient
TP	: Unemployment Rate	Inf	: Inflation
TR	: Local Tax Revenue	ε	: Error term
i	: province	t	: year

RESULTS

Happiness Index Trends In Sumatra

The Happiness Index is one of the important indicators in assessing the social welfare of a region's community. Based on the data obtained, it can be seen that the trend of the Happiness Index in the provinces in Sumatra shows relatively stable fluctuations with an increasing tendency in several provinces throughout the period 2014 to 2021 (Chart 1). This increase, although not always consistent from year to year, reflects improvements in the quality of life and welfare of the community in several provinces.

Figure 1



Overall, these data illustrate the differences in happiness levels between provinces in Sumatra. Although most provinces show improvements, the factors that influence people's happiness levels are very diverse and complex. These include economic, social, political factors, as well as development policies implemented by each local government.

Public Expenditure Of Provinces In Sumatra

In this study, public expenditure is the main focus that is analyzed for its influence on the happiness index in Sumatra Island. Public expenditure refers to the allocation of government funds for Education, Health and Social Assistance programs that aim to improve public welfare. Theoretically, effective public expenditure can improve the quality of life, which in turn affects social and individual happiness. In the context of Sumatra, public expenditure data from several different provinces show variations in budget allocation and distribution between 2014, 2017, and 2021 (Figure 2). This data provides an overview of the dynamics and shifts in development priorities in each province that can directly affect the economic conditions of the community. This may reflect the limited resources available for public spending, or it may also be related to development priorities that are more focused on certain sectors, such as infrastructure or the extractive sector, which may not directly contribute to increasing social happiness.

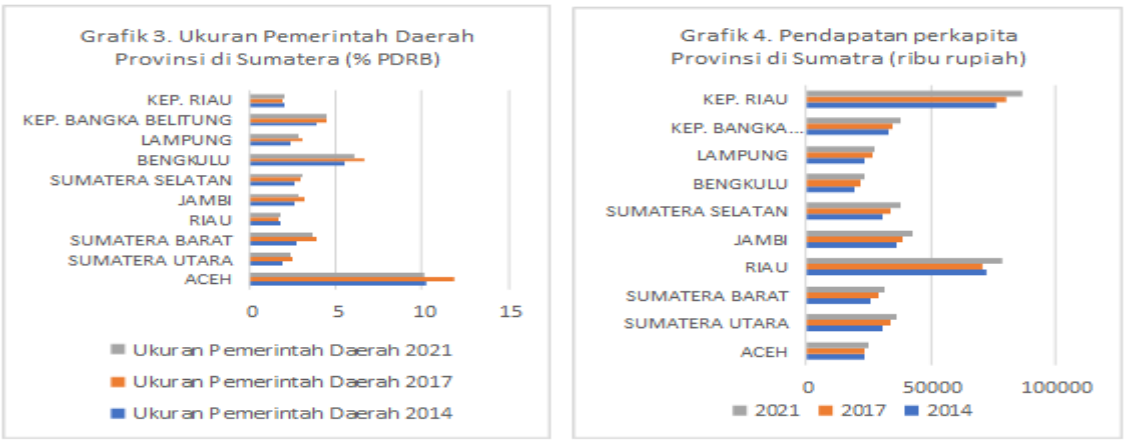
Government Size In Sumatra

Figure 3 illustrates the size of local governments in various provinces in Sumatra in three different periods. Although the size of local governments increased in some provinces, external factors such as economic crises or declining purchasing power can reduce the expected positive impact of the fiscal policy.

Per Capita Income Of Provinces In Sumatra

By looking at data from several provinces in Sumatra at three points in time, namely 2014, 2017, and 2021 (Chart 4), we can analyze the pattern of income changes that occurred during this period and how this variable relates to the level of happiness of the local community. Per capita income in the provinces of Sumatra showed a fairly significant upward trend in the period observed. Although there was an increase in income, its impact on the Happiness Index was not always linear, other factors such as income distribution, access to public services, and the quality of life of the community also played an important role in determining the level of happiness.

Figure 2



Gini Coefficient Of Provinces In Sumatra

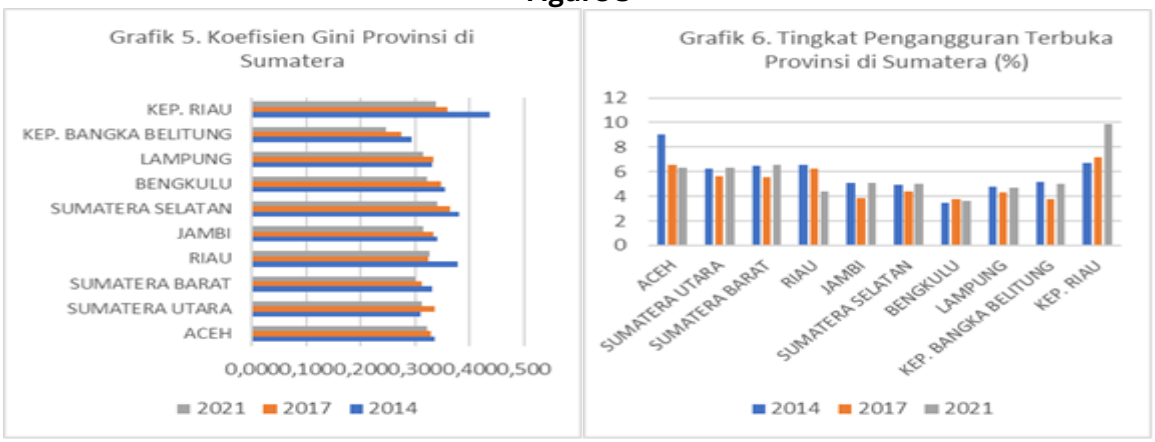
In the context of this study, the Gini coefficient is used to describe the level of economic inequality in each province in Sumatra in three different periods: 2014, 2017, and 2021 (Figure 5).

Observations of the Gini coefficient data in various provinces provide an important picture of how economic inequality fluctuates over time. The data presented shows significant variations in inequality between provinces, reflecting differences in social, economic factors, and government policies implemented in each region.

Open Unemployment Rate Of Provinces In Sumatra

Unemployment is one of the important indicators in macroeconomic analysis that can reflect the economic conditions of a region. In the context of provinces in Sumatra, unemployment rate data recorded in 2014, 2017, and 2021 (Chart 6) shows quite significant fluctuations. This data provides an overview of the dynamics of the labor market that directly affects the welfare and happiness of the community.

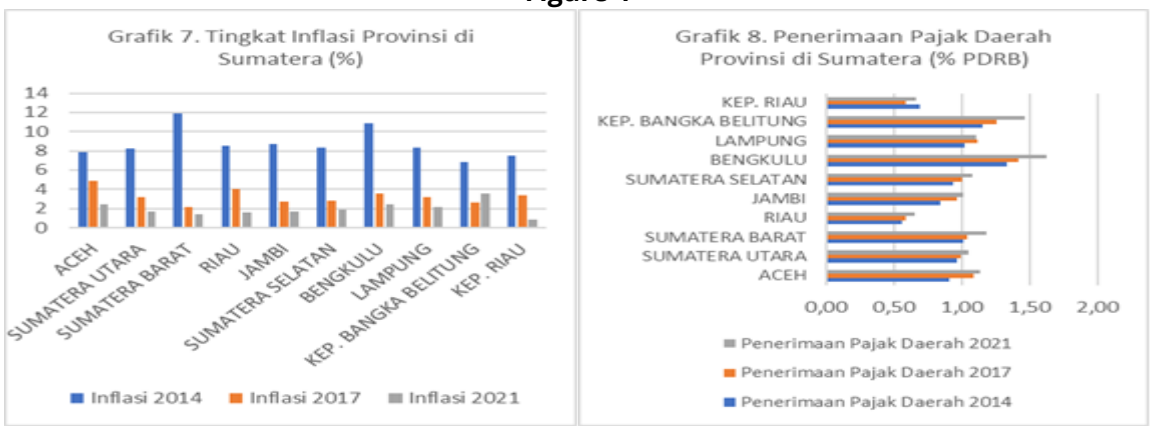
Figure 3



Inflation Rate Of Provinces In Sumatra

The data presented in Figure 7 illustrates inflation fluctuations in several provinces in the Sumatra region in 2014, 2017, and 2021. Inflation is one of the macroeconomic variables that has a significant impact on regional economic stability. High inflation can harm people's purchasing power and increase the cost of living. When the price of goods and services increases, people's purchasing power decreases, which can lead to a decline in the quality of life and negatively affect happiness. This is especially relevant in Sumatra, where fluctuations in the price of basic goods and the cost of living are often major issues affecting people's welfare. Although there has been a significant decline in inflation in most provinces, inflation rates continue to vary between provinces, indicating differences in economic conditions and levels of welfare in each region.

Figure 4



Local Tax Revenue Of Provinces In Sumatra

The data presented in Graph 8 reflects fluctuations in Local tax revenues in ten provinces in Sumatra in 2014, 2017, and 2021. In general, the data shows significant variations between provinces, as well as changes that occur over different time periods, reflecting the economic dynamics of each region.

In the overall context, the differences in tax revenue figures between provinces on the island of Sumatra reflect the disparities in fiscal capacity and economic growth of each region. Higher tax revenues can be related to the ability of regions to increase effective public spending, which in turn can improve public welfare, as measured by the Happiness Index.

DISCUSSION

The discussion of the regression results will discuss the influence of each independent variable in depth. The regression results obtained are presented in table 1.

The Effect Of Public Spending On The Happiness Index

Public expenditure, which includes expenditure on education, health, and social assistance, does not show a significant effect on the happiness index in Sumatra, with a probability value of 0.2417, greater than the significance threshold of 0.05. This may be due to the imbalance in the distribution of expenditure in various regions or the uneven impact of such expenditure on people's welfare. Previous studies by Easterlin (2012) and Deaton (2013) also show that although public expenditure can contribute to improving welfare, its effect is not always linear and is highly influenced by local contextual factors.

Table 1 Common Effect Model Regression Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	68.81416	5.277731	13.03859	0.0000
PP	592.9340	492.7875	1.203225	0.2417
SIZE	-0.083445	0.216984	-0.384567	0.7043
PK	6.09E-05	2.51E-05	2.427836	0.0238
KG	-2.163625	10.16510	-0.212848	0.8334
TP	0.034613	0.256448	0.134970	0.8939
INF	-0.295929	0.142146	-2.081858	0.0492
TR	0.832809	2.099072	0.396751	0.6954
R-squared	0.681211	Mean dependent variable		70.66167
Adjusted R-squared	0.579778	SD dependent var		2.232299
SE of regression	1.447078	Akaike information criterion		3.800148
Sum squared residual	46.06874	Black criterion		4.173800
Log likelihood	-49.00222	Hannan-Quinn critter.		3.919682
F-statistic	6.715874	Durbin-Watson stat		1.729952
Prob(F-statistic)	0.000254			

Source: Processed data, 2024

The Influence Of Local Government Size On Happiness Index

The variable of local government size shows a negative coefficient of -0.083445, but is not significant with a probability value of 0.7043, much greater than the significance limit of 0.05. One potential reason for this insignificance could be related to the existing government structure in the Sumatra region, where even though the size of the local government is larger, the direct

influence on the quality of life of the community may be hampered by less efficient bureaucratic factors or uneven public services. A study by Glaeser and Ponzetto (2014) also found that the size of the local government is not always positively related to social welfare, especially if government efficiency is inadequate.

The Influence Of Per Capita Income On The Happiness Index

Per capita income shows a significant effect on the happiness index, with a probability value of 0.0238, which is smaller than the significance limit of 0.05. The positive coefficient of 6.09E-05 indicates that every increase in per capita income tends to be followed by an increase in the happiness index. This is consistent with economic theory which states that individual welfare is often correlated with income levels, where people with higher incomes tend to have better access to basic needs such as health, education, and housing. Research by Stevenson and Wolfers (2008) also found that higher per capita income is associated with increased happiness, although the effect begins to diminish at very high income levels.

The Influence Of The Gini Coefficient On The Happiness Index

The Gini coefficient, which measures income inequality, does not show a significant effect on the happiness index with a probability value of 0.8334. This may be due to differences in perceptions of social inequality between rich and poor individuals. Research by Alesina, Di Tella, and MacCulloch (2004) shows that income inequality has a negative impact on happiness, but this effect is also influenced by other factors such as the level of social trust and political stability in a country or region.

The Influence Of Unemployment Rate On Happiness Index

The unemployment rate has a positive coefficient of 0.034613, but is not significant with a probability value of 0.8939. This shows that the unemployment rate does not have a significant effect on the happiness index in Sumatra. Although in theory unemployment can reduce happiness through its impact on income and social security, this effect may not be detected in this model because other variables that are more dominant in influencing happiness, such as broader social and cultural factors. According to Stiglitz et al. (2009), the impact of unemployment on welfare is often influenced by the social context and existing policy support, such as social protection programs and job training.

The Effect Of Inflation On The Happiness Index

Inflation has a significant effect on the happiness index with a probability value of 0.0492, which is smaller than 0.05. The negative coefficient of -0.295929 indicates that an increase in the inflation rate tends to decrease happiness. This is understandable because high inflation often has a negative impact on people's purchasing power, which in turn affects their ability to meet basic needs. This finding is in line with research by Di Tella, MacCulloch, and Oswald (2001) which shows that inflation can decrease happiness through economic uncertainty and reduced life satisfaction. In many happiness studies, economic uncertainty is often identified as a major inhibiting factor in achieving long-term happiness (Frey & Stutzer, 2002).

The Influence Of Regional Tax Revenue On The Happiness Index

Regional tax revenues do not show a significant effect on the happiness index with a probability value of 0.6954. Although tax revenues can be used to improve the quality of public services, such as education, health, and infrastructure, their effect on public happiness was not detected significantly in this study. One possibility is the mismatch between regional tax allocations and the basic needs of the community, or public distrust of tax management that is not transparent and efficient. Research by Fuest et al. (2016) shows that although tax revenues

can improve welfare, it is highly dependent on how tax funds are used and managed by the local government.

Regression Model Evaluation

The regression model used in this study produced an R-squared value of 0.681211 and an adjusted R-squared of 0.579778, indicating that this model can explain about 68% of the variation in the happiness index, although there are still other factors that are not explained by the model. The significant F-statistic value (0.000254) indicates that overall this regression model is acceptable and significant. However, several independent variables such as the size of the local government and local tax revenues do not have a significant effect, indicating that there are other factors outside the variables analyzed that affect people's happiness.

CONCLUSION

Based on the results of this study, it can be concluded that per capita income and inflation have a significant effect on the happiness index in Sumatra. Meanwhile, the size of the local government, the size of the local government, the Gini coefficient, the unemployment rate, and local tax revenues do not show a significant effect on happiness. These findings indicate that although economic factors and the size of the local government play an important role in improving welfare, the direct effect on people's happiness is influenced by the complexity of other factors, including public perception, social inequality, and efficiency of resource management.

LIMITATION

This study has several limitations, one of which is the failure of the model to show a significant relationship between several important variables, such as the size of the local government and local tax revenues. Therefore, further research can dig deeper into other factors that influence people's happiness, such as social and psychological aspects, and expand the scope of the sample or a longer time duration. In addition, the regression analysis can be enriched with more complex models, such as the Fixed Effect or Random Effect models, to take into account heterogeneity between regions.

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