

Original Article

Correlation of Regional Gross Domestic Product with Happiness Index in Each Province in Indonesia

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Abstract - This study seeks to investigate the relationship between regional gross domestic product (GDP) and the happiness index across provinces. Employing a quantitative descriptive and inferential approach, the research utilizes happiness survey data and Gross Domestic Product (GDP) from the Central Statistics Agency (BPS) of the Republic of Indonesia. BPS released national and provincial happiness index data in 2014, 2017, and 2021, while GDP figures for each province are based on the years 2014, 2017, and 2021. Initial research analysis involved the use of graphs/diagrams, and further analysis tested the correlation between GDP and the happiness index by employing the Pearson correlation.

The data analysis for the happiness index and the regional gross domestic product (GDP) of Indonesian provinces in 2014 and 2017 reveals a lack of significant correlation between these two variables. This suggests that GDP does not directly lead to an increase or decrease in the happiness of a province's population. However, in 2021, there was a somewhat notable connection, as the rise in GDP had a discernible impact on the decrease in the happiness index. It is evident that an increase in the regional gross domestic product of a province does not necessarily result in an elevation of the happiness index among its population.

Keywords - Gross Domestic Product, Happiness Index, Correlation.

1. Introduction

The fundamental purpose of the Negara Kesatuan Republik Indonesia (NKRI) (tr. The Archipelagic State of The Republic of Indonesia) is clearly articulated in the preamble of the Constitution of the Republic of Indonesia. It emphasizes the protection of all Indonesian people and their entire native land, aiming to enhance public welfare, advance intellectual life, and contribute to establishing a global order based on freedom, abiding peace, and social justice. The concept of "public welfare" in the constitution has been a guiding principle for development in Indonesia since its inception, becoming a crucial term for the success of national development and a central objective for many nations worldwide. Indonesian presidents have pursued various efforts to attain citizen welfare, outlining state guidelines and development plans spanning long-term, medium-term, and short-term periods. These plans are further detailed at the provincial and district/city levels. [1]. The government's development work plan 2023 maintains seven National Priorities (PN) derived from the seven development agendas for 2020-2024. These priorities encompass strengthening economic resilience, developing regions, improving human resource quality and competitiveness, fostering a mental revolution and cultural development, enhancing infrastructure, building a resilient living environment, and

fortifying political, security, and public service transformation [2].

The development agendas primarily focus on enhancing citizen's physical-economic welfare, followed by improving human resources, mental and cultural development, and environmental concerns. Economic success is often measured by gross national income, with the assumption that an increase in a country's income correlates with improved well-being and a higher overall happiness index [3]. However, some researchers challenge this notion, asserting that a country's income, even if substantial, does not necessarily guarantee a positive correlation with the happiness index of its citizens [4].

Richard A. Easterlin and Kelsey J. O'Connor asserted that initially, there is a positive correlation between income and happiness. Individuals with higher income levels tend to feel better and more fortunate than those with lower incomes. In a religious context, higher-income individuals often express gratitude, while in a psychological context, they may feel a sense of superiority over those with lower incomes. Notably, these researchers highlighted that the happiness index does not necessarily increase proportionally with income growth [5].

Additional research has supported the inconsistency in the correlation between income and happiness. It concluded



that communities with indicators of urban physical well-being and infrastructure are not necessarily happier than rural communities with rural infrastructure [6]. In the present study, the happiness scores of rural residents living on mountain slopes surpass those of residents on the city's outskirts despite having easy access to more modern facilities. This highlights a paradox in rural versus urban happiness. The happiness index in this study area exceeds the national happiness index for the year 2021, which is reported at 71.49, in accordance with the Central Statistics Agency [7].

The happiness index is a complex metric influenced by various factors, variables, and indicators [8]. Social conditions and harmony are emphasized by some researchers as crucial elements in shaping happiness [9]. Additionally, individual factors, socio-economic conditions, and social participation of the population play a role in determining a person's happiness [10]. Happiness research, in general, explores aspects such as personal life satisfaction, individual feelings, and the meaning of life on both individual and societal levels [11][12][13][14][15]. Besides economic, social, psychological, and material factors, happiness is also associated with understanding and practicing religion [16].

Economists highlight the assessment of national progress based on metrics like gross national income, per capita income, and average income among the populace. While acknowledging that increased income, particularly per capita income, contributes to population welfare, it is recognized that overall well-being is influenced by factors beyond economic variables [17]. The well-being of a region's population affects the happiness of the people in that area, especially concerning income variables.

The Easterlin paradox, suggesting that increased income leads to increased happiness has been nuanced by Easterlin himself, stating that further income increases do not necessarily result in higher happiness. Thus, the current study focuses on exploring the happiness paradox proposed by Easterlin, utilizing the Easterlin paradox theory approach. The study aims to demonstrate the connection between income (represented by GDP) and happiness, measured by the happiness index. The primary goal is to examine and detail trends in GDP and happiness indexes across Indonesian provinces from 2014 to 2021, with a secondary aim of scrutinizing the correlation between GDP values and happiness indexes for the same period.

2. Literature Review

Easterlin's theory proposes a short-term correlation between income and the happiness index. In the immediate context, happiness tends to increase with growing income. However, over the long term, changes in income do not exhibit a consistent association with the happiness index. An increase in income does not necessarily lead to a proportional growth in happiness, and vice versa [5].

Another research team, led by Oishi [18], identified a correlation between income and happiness. In the United States, this correlation has been on the rise since 1972, aligning with the increase in per capita GDP and income inequality. However, Oishi's research in Japan presented a different narrative, indicating no clear relationship between income and happiness.

Additionally, Oishi examined the income-happiness correlation in 16 European countries, revealing an overall increase since the 1970s. This correlation is notably high in years marked by high per capita GDP and substantial income inequality. Notably, among Latin American countries, the average income-happiness correlation has experienced a decline since 1997, coinciding with a decrease in income inequality. Contrary to expectations, the income-happiness correlation has increased, not decreased, in the United States and certain European countries over the last five decades. The correlation tends to rise in periods of high per capita GDP and income inequality. In contrast, it tends to be lower in periods of low per capita GDP and/or income inequality. These findings emphasize the significance of considering income inequality alongside national wealth in comprehending the role of money in happiness [18].

Another study by Killingsworth et al. supports a connection between income and happiness. An increase in income is positively linked to happiness until an individual's income reaches \$60,000 - \$90,000. Upon closer examination, it was discovered that this income increase had no impact on the happiness of 20% of the participants. Consequently, it inferred that the happiness of 20% of individuals remains unaffected by their income [19].

3. Methods

The research adopted a quantitative descriptive and differential quantitative approach [20]. This method falls under the category of secondary data methods since all research data were derived from the statistical survey data. Data for the Gross Regional Domestic Product (GRDP) of each province in Indonesia were collected from the statistical survey data published by the Central Statistics Agency (Badan Pusat Statistik) from 2014 to 2021.

Happiness index data for each province in Indonesia were obtained from the published happiness index data for the years 2014, 2017, and 2021 [7][21][22]. The first research objective was accomplished by scrutinizing and interpreting charts illustrating each province's happiness index and GRDP. For the second research objective, the values of GRDP were correlated with the happiness index values for each province, employing the Pearson correlation formula. Following the computation of correlation values between GRDP and the happiness index, the findings were elucidated through textual and contextual interpretation.

4. Results and Discussion

4.1. Overview of the Happiest Province in Indonesia

The happiness index in Indonesia has shown an increase based on the survey data from BPS in the years 2014, 2017, and 2021. The progression is observed in the following graph.

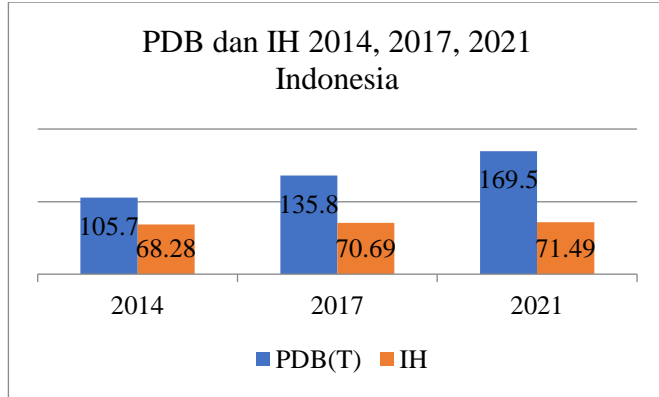


Fig. 1 Happiness Index in Indonesia from 2014 to 2021

The general rise in Gross Domestic Product (GDP) correlates with increased income. The assertion that income is related to happiness has been made by numerous researchers [18], such as Oishi et al., who wrote about the relationship between wealth and happiness. Killingsworth et al. also states that there is a connection between income and happiness up to a certain income limit [19]. Income becomes one of the crucial factors shaping happiness, a statement supported by various studies [10] [15][12][23].

The five provinces with the highest happiness index in 2014 were Riau Islands, Maluku, East Kalimantan, Jambi, and North Sulawesi. A comprehensive overview is in the following table.

Table 1. Five Provinces with the Highest Happiness Index in 2014

Province	Happiness Index	GDP (Trillion Rupiah)
Riau Island	72,42	180,88
Maluku	72,12	31,656
East Kalimantan	71,45	527,515
Jambi	71,1	144,814
North Sulawesi	70,79	80,668

Table 1 showed no correlation between GDP and the Happiness Index. As the happiest province, Riau Islands does not have a higher GDP than East Kalimantan, whose GDP reaches 527.515 trillion rupiahs. This data indicates that the happiness index is unrelated to the GDP value.

The following table shows the five provinces with the highest happiness index based on a 2017 survey.

Table 2. Five Provinces with the Highest Happiness Index in 2017

Province	Happiness Index	GDP (Trillion Rupiah)
North Maluku	75,68	32,273
Maluku	73,77	39,882
North Sulawesi	73,69	101,121
East Kalimantan	73,57	592,28
North Kalimantan	73,33	76,928

Table 2 above further reinforces the lack of a relationship between the GDP and the happiness index observed in 2014. North Maluku and Maluku, ranking first and second in happiness, have GDPs far below those of North Sulawesi and East Kalimantan.

In addition, the government conducted another survey in 2021, as shown in the following table.

Table 3. Five Provinces with the Highest Happiness Index in 2021

Province	Happiness Index	GDP (Trillion Rupiah)
North Maluku	76,34	52,481
North Kalimantan	76,33	110,669
Maluku	76,28	48,642
Jambi	75,17	232,064
North Sulawesi	74,96	142,615

In 2021, North Maluku, North Kalimantan, Maluku, Jambi, and North Sulawesi became the provinces with the highest happiness index (see Table 3). North Maluku does not have a high GDP but has the highest happiness index. Therefore, it is clearly stated that the happiness index does not align with the GDP.

4.2. The Correlation between Gross Regional Domestic Product (GRDP) and the Happiness Index

Based on the descriptions in Tables 1, 2, and 3, it is evident that a high happiness level does not always occur in provinces with high GRDP. There is no discernible strong correlation pattern between a province's happiness index and GRDP. An analysis of the correlation between the happiness index and GRDP data 2014 confirms this. The Pearson correlation value of -0.06 has a significance level of 0.739 (two-tailed), meaning there is no correlation between the happiness index and the GRDP of a province in Indonesia.

In 2017, the correlation between the happiness index and the GRDP of provinces in Indonesia was -0.225 (significance 0.202, two-tailed). This analysis value indicates a weak correlation (<0.25) between a province's happiness index and the GRDP. The negative correlation suggests that the higher

the GRDP of a province, the lower its happiness index. This situation is likely due to the uneven distribution of income [18][19].

In 2021, during the latest survey, the correlation value between the happiness index and the GRDP of provinces showed a figure of -0.354 with a significance level of 0.04 (2-tailed). This analysis result indicates a moderately strong negative correlation (35.4%). The higher the GRDP level, the lower the happiness index. This situation could be attributed to various factors such as imperfect income distribution [18], happiness not solely originating from income [13][15], and the cessation of income increase influencing happiness [5][19].

Happiness is not solely correlated with income. Many factors influence happiness, and even the factors shaping individual happiness may differ [24]. Individual happiness levels may be influenced by factors such as income increase, but the impact is not significant on a societal level. The increase in happiness when there is an increase in an individual's income is often attributed to competition levels or victories in competition [25]. Some also argue that happiness is influenced by economic, political, educational, health, religious beliefs, and personal character and profile factors [26]. To reconcile development programs prioritizing income growth and citizen's happiness, some researchers propose the concept of gross national happiness [27].

In 2017, a study reported that overall, people in the United States felt a decline in their happiness level despite being a developed country with a strong and respected economy worldwide. Concurrently, the study also reported an increase in the happiness of Black Americans. The rise in the happiness level of Black Americans began in the 1970s [28].

5. Conclusion

During the 2014, 2017, and 2021 surveys, Maluku and North Sulawesi consistently demonstrated a notably high happiness index among their residents. These provinces consistently secured positions in the top five happiest provinces in Indonesia. Notably, provinces with elevated

happiness index values do not necessarily correlate with high Gross Regional Domestic Product (GRDP) achievements. Despite their happiness, neither Maluku nor North Sulawesi boasts high GRDP figures. The top five happiest provinces also included the Riau Islands, Maluku, East Kalimantan, Jambi, and North Sulawesi in 2014. In 2017, the happiest provinces were North Maluku, Maluku, North Sulawesi, East Kalimantan, and North Kalimantan. Whereas in 2021, the leading provinces in happiness were North Maluku, Maluku, Jambi, and North Sulawesi.

Upon examining the happiness index and GRDP data for Indonesian provinces in 2014 and 2017, it can be affirmed that there is no robust correlation between these two variables. This suggests that GRDP does not directly influence an upturn or downturn in the happiness levels of a province's population. However, in 2021, a notable anomaly emerged; the rise in GRDP exhibited a somewhat close association with a decline in the happiness index.

In light of the conclusions drawn from this research, centralized development focused on increasing GRDP should incorporate other success indicators, such as indicators measuring the happiness of citizens. The values of material and immaterial happiness indices should ideally be balanced. For the balance of development outcomes, which are currently centred on purely physical and economic issues, to become outcomes that truly contribute to the happiness of citizens, the government should consider incorporating the concept of Gross National Happiness alongside the measurement of Gross National Product.

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