



THE EFFECT OF IPAK, REGIONAL GDP PER CAPITA, UNEMPLOYMENT RATE, AND HUMAN DEVELOPMENT INDEX ON THE TAX RATIO IN INDONESIA FOR THE 2020–2024 PERIOD

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Abstract

This study aims to analyze the influence of the Anti-Corruption Behavior Index (IPAK), Regional Gross Domestic Product (GRDP) per capita, unemployment rate, and Human Development Index (HDI) on the tax ratio across 34 provinces in Indonesia over the period 2020–2024. The tax ratio is a key fiscal performance indicator; however, Indonesia's tax ratio remains relatively low compared to its economic potential and the regional average of Asia-Pacific countries. This study employs a quantitative approach using panel data comprising 34 provinces over 5 observation years (2020–2024), yielding a total of 170 observations. The analysis utilizes panel data regression with the Fixed Effect Model (FEM), selected based on the results of the Chow Test and Hausman Test. Data were obtained from the Central Bureau of Statistics (BPS), the Ministry of Finance, and the Corruption Eradication Commission (KPK). The results indicate that, partially, the unemployment rate has a significant negative effect on the tax ratio, meaning that higher unemployment leads to lower tax revenue. Meanwhile, IPAK and GRDP per capita have a positive but insignificant effect on the tax ratio, while HDI has a negative but insignificant effect. Simultaneously, all four variables jointly exert a significant influence on the tax ratio in Indonesia. An Adjusted R-Squared value of 0.7313 indicates that 73.13% of the variation in the tax ratio is explained by the four variables in the model. This study recommends that the government focus on creating quality employment in the formal sector, improving the effectiveness of tax administration, broadening the tax base, and enhancing human resource quality through education, healthcare, and economic empowerment programs, in order to sustainably improve the tax ratio.

Keywords: *Tax Ratio, Anti-Corruption Behavior Index (IPAK), GRDP Per Capita, Unemployment Rate, Human Development Index (HDI).*

INTRODUCTION

Tax revenue is the primary source of government funding and plays a crucial role in supporting economic development, maintaining fiscal sustainability, and financing public services. One of the most widely used indicators for assessing the effectiveness of tax collection is the tax ratio, which is the ratio of tax revenue to Gross Domestic Product (GDP). The higher the tax ratio, the greater the government's ability to optimize domestic revenue to finance national development, whereas a low tax ratio reflects limited fiscal capacity and a suboptimal tax system (Todaro & Smith, 2021). Therefore, increasing the tax ratio is one of the primary objectives of fiscal policy, both in developed and developing countries.

According to the report Revenue Statistics in Asia and the Pacific, the average tax ratio among OECD member countries in 2022 reached approximately 34.0%, while the average tax ratio for countries in the Asia-Pacific region was only 19.3% (OECD, 2022). This gap indicates that most developing countries, including Indonesia, still face various challenges in optimizing tax revenue. Previous research indicates that differences in tax ratios across countries are influenced by various

factors, such as economic structure, tax administration capacity, taxpayer compliance rates, and institutional quality (Minh Ha et al., 2022). Thus, identifying the factors that influence the tax ratio is crucial as a basis for formulating more effective and sustainable fiscal policies.

As one of the countries with the largest economies in Southeast Asia, Indonesia remains heavily reliant on tax revenue as the primary source of funding for national development. Although tax revenue has shown a recovery trend following the COVID-19 pandemic, Indonesia's tax ratio remains relatively low compared to its economic potential (Fitriani et al., 2024). Provincial tax ratio data for the 2020–2024 period also reveal significant disparities across regions. Most provinces experienced an increase in their tax ratio during the post-pandemic economic recovery, but the magnitude of this increase was not uniform. This situation indicates that differences in regional economic characteristics, taxpayer compliance rates, and tax administration capacity also influence variations in tax ratios across provinces.

Economic factors are among the key determinants influencing tax revenue performance. Regional Gross Domestic Product (GRDP) per capita reflects both the population's income level and a region's economic capacity, which has the potential to broaden the tax base. Regions with higher income levels generally have greater economic activity, stronger purchasing power, and a more developed formal sector, enabling them to generate higher tax revenues. Conversely, high unemployment rates can reduce the number of people with taxable income, lower purchasing power, and narrow the tax base, thereby potentially reducing tax revenue (Todaro & Smith, 2021). Research by Pramudita & Binekas (2025), also shows that an increase in per capita RDP contributes positively to an increase in the tax ratio

In addition to economic factors, institutional quality also plays a significant role in determining tax performance. In the Indonesian context, institutional quality can be represented by the Anti-Corruption Behavior Index (IPAK), which reflects the level of anti-corruption behavior among the public. The higher the IPAK score, the higher the level of public integrity and trust in the government, which is expected to increase voluntary compliance with tax obligations. Transparent and accountable governance also contributes to the effectiveness of tax revenue collection by increasing public trust in the tax system. Santosa et al. (2025) demonstrate that increased public trust and improved governance have a positive impact on taxpayer compliance and government revenue.

Although various studies have examined the determinants of the tax ratio, the empirical results obtained remain inconsistent. Some studies have found that economic growth and income levels have a positive effect on the tax ratio, while others indicate that this relationship is not always significant because it is influenced by regional characteristics. Similarly, the effects of unemployment rates and institutional quality on the tax ratio continue to yield mixed results. Furthermore, most previous studies have used cross-sectional data or focused solely on a single set of variables; consequently, they have not been able to simultaneously examine the effects of economic and institutional factors using panel data, particularly during the periods before, during, and after the COVID-19 pandemic (Zuhrah et al., 2024).

Based on these conditions, this study integrates economic factors represented by per capita GRDP and the unemployment rate with institutional factors represented by the Anti-Corruption Behavior Index (IPAK) into a single analytical framework. Using balanced panel data from 38

provinces in Indonesia over the 2020–2024 period, this study aims to describe the dynamics of the tax ratio before, during, and after the COVID-19 pandemic. This approach is expected to provide a more comprehensive understanding of the factors influencing local tax revenue performance while enriching the literature on domestic revenue mobilization in developing countries.

Therefore, this study aims to analyze the effects of the Anti-Corruption Behavior Index (IPAK), per capita GRDP, and the unemployment rate on provincial tax ratios in Indonesia during the 2020–2024 period. The findings are expected to provide an empirical contribution to the development of literature in the fields of public finance and taxation, particularly regarding the economic and institutional determinants that influence tax ratios. Furthermore, the findings of this study are expected to serve as input for the government in formulating fiscal strategies capable of strengthening tax capacity, improving the quality of governance, and promoting the sustainable optimization of tax revenue across all provinces in Indonesia.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

1. Anti-Corruption Behavior Index (IPAK) and Tax Ratio

Institutional quality is one of the key factors influencing the government's ability to collect tax revenue. One indicator that can be used to assess institutional quality in Indonesia is the Anti-Corruption Behavior Index (IPAK), compiled by the Central Statistics Agency (BPS). The IPAK measures the level of anti-corruption behavior in society based on perceptions and experiences regarding corrupt practices on a scale of 0 to 5, where a higher score indicates a stronger anti-corruption culture and lower tolerance for corrupt practices (BPS, 2024). Therefore, the IPAK can serve as an indicator reflecting the level of public integrity in supporting good governance.

Theoretically, anti-corruption behavior plays a role in enhancing the effectiveness of the tax system by increasing public trust in the government. When the public believes that the government is capable of managing tax revenue transparently and accountably, the level of compliance with tax obligations tends to increase. Conversely, high levels of corruption can erode public trust, encourage tax evasion, and reduce the effectiveness of government revenue collection. In line with this, the OECD (2022) emphasizes that transparency, accountability, and institutional quality are key factors in supporting an effective and sustainable tax system.

The relationship between the IPAK and the tax ratio is becoming increasingly relevant in the Indonesian context because there are still disparities in the quality of governance and levels of public integrity across provinces. Provinces with better anti-corruption practices tend to have higher levels of tax compliance, enabling the government to optimize tax revenue more effectively. Furthermore, improved anti-corruption practices can also reduce potential revenue leakage and strengthen the effectiveness of tax administration. Thus, fostering an anti-corruption culture not only contributes to good governance but also has the potential to improve local fiscal performance.

Various previous studies support a positive relationship between anti-corruption behavior and the tax ratio. Minh Ha et al. (2022) found that corruption levels have a negative effect on the tax ratio because they undermine public trust in the government and reduce taxpayer compliance. Conversely, Santosa et al. (2025) showed that anti-corruption behavior has a positive effect on tax compliance, which ultimately increases tax revenue. These findings are also consistent with Todaro & Smith

(2021), who state that institutional quality is a key factor in enhancing fiscal capacity and supporting economic development. Overall, the results of previous studies indicate that strengthening anti-corruption behavior can improve the effectiveness of the tax system by increasing taxpayer compliance and the quality of governance.

Based on the theoretical framework and the results of previous research, this study posits that the higher the Anti-Corruption Behavior Index (IPAK) score, the greater the government's ability to optimize tax revenue through increased public trust, taxpayer compliance, and the effectiveness of tax administration. Therefore, the hypotheses proposed in this study are as follows.

H1: The Anti-Corruption Behavior Index (IPAK) has a positive effect on the tax ratio.

2. Regional Gross Domestic Product (RGDP) Per Capita and Tax Ratio

Economic capacity is one of the key factors determining a government's ability to collect tax revenue. One of the most commonly used indicators to describe a region's economic capacity is Gross Regional Domestic Product (GRDP) per capita, which reflects both the average income of the population and the level of prosperity in a region. The higher the GRDP per capita, the higher the level of economic activity, household purchasing power, and the region's economic capacity; consequently, the potential for tax revenue also tends to increase (BPS, 2024). Therefore, GRDP per capita is often used as an indicator representing a region's ability to support an increase in fiscal capacity.

Theoretically, an increase in per capita GRDP indicates economic growth that drives higher household income as well as increased production and consumption activities. These conditions will broaden the tax base because more individuals and businesses will have the ability to fulfill their tax obligations. According to Todaro & Smith (2021), economic growth is a key factor in enhancing a country's fiscal capacity because it broadens the tax base and enhances the government's ability to finance development. Consequently, regions with higher income levels are expected to generate greater tax revenue, thereby driving an increase in the tax ratio.

The relationship between per capita GRDP and the tax ratio is becoming increasingly important in the Indonesian context, given the continuing disparities in economic development levels among provinces. Provinces with relatively high per capita GRDP generally have a more developed formal economic sector, greater business activity, and a population better able to meet their tax obligations. Conversely, regions with relatively low income levels tend to have a narrower tax base, thereby limiting the ability of local governments to collect tax revenue. These conditions indicate that differences in regional economic capacity may be one factor explaining the variation in tax ratios across provinces.

Various previous studies provide empirical evidence regarding the relationship between per capita GRDP and the tax ratio. Pramudita & Binekas (2025) found that per capita GRDP has a positive effect on the tax ratio because an increase in public income can broaden the tax base and improve taxpayers' ability to meet their tax obligations. These findings are also supported by Rakhadita & Prabowo (2022), who demonstrated that an increase in per capita income contributes to a higher tax ratio through enhanced economic capacity among the population. Nevertheless, Fitriani et al. (2024) found that the effect of per capita GRDP on the tax ratio is not always significant, as this relationship can be influenced by other factors, such as income distribution inequality and the size of

the informal sector. Nevertheless, in general, previous studies indicate that per capita GRDP is one of the key determinants in increasing the tax ratio.

Based on the theoretical framework and the results of previous research, this study posits that the higher a province's per capita GRDP, the greater the government's ability to optimize tax revenue through the expansion of the tax base and the improvement of the community's economic capacity. Therefore, the hypothesis proposed in this study is as follows.

H2: Per capita GRDP has a positive effect on the tax ratio

3. Unemployment Rate and Tax Ratio

The unemployment rate is one of the macroeconomic indicators that reflects the state of the labor market and the public's ability to earn income. A high unemployment rate indicates that a portion of the labor force has not yet been absorbed into productive economic activities, thereby limiting the number of people earning an income. This situation not only impacts economic growth but also has the potential to reduce the government's ability to collect tax revenue due to a narrowing tax base (Khotimah & Tsani, 2025). Therefore, the unemployment rate is often used as an indicator of a region's economic capacity to support government revenue.

Theoretically, a rise in the unemployment rate can lower the tax ratio through a reduction in the number of individuals with taxable income and a weakening of economic activity. When people lose their jobs, household purchasing power and consumption tend to decline, so government revenue from various types of taxes—including income taxes and consumption taxes—is also likely to decrease. According to Todaro & Smith (2021), a high labor force participation rate is one of the factors that supports economic growth and strengthens a country's fiscal capacity. In line with this, the **OECD (2022)** emphasizes that a productive labor market contributes to increased economic activity and the optimization of tax revenue.

The relationship between the unemployment rate and the tax ratio is becoming increasingly important in the Indonesian context, given the continuing disparities in labor market conditions across provinces. Provinces with high unemployment rates generally have a higher proportion of low-income residents, which limits the government's ability to collect tax revenue. Conversely, regions with better labor market absorption tend to have higher economic activity, stronger purchasing power, and a broader tax base. These conditions indicate that labor market dynamics can be one of the factors explaining variations in the tax ratio across provinces.

Various previous studies have shown that the unemployment rate is related to tax revenue performance. Minh Ha et al. (2022) found that the unemployment rate has a negative effect on the tax ratio because an increase in the number of unemployed people leads to a decrease in the number of people with income and reduces potential tax revenue. However, Zuhrah et al. (2024) as well as Fitriani et al. (2024) found that the effect of the unemployment rate on the tax ratio is not always significant. These differing results indicate that the relationship between the unemployment rate and the tax ratio may be influenced by economic characteristics, the structure of the labor market, and socioeconomic conditions in each region.

Based on the theoretical framework and the results of previous research, this study argues that the higher a province's unemployment rate, the lower the government's ability to optimize tax revenue

due to a decrease in the number of people with income, a weakening of economic activity, and a narrowing of the tax base. Therefore, the hypothesis proposed in this study is as follows.

H3: The unemployment rate has a negative effect on the tax ratio.

4. The Effect of the Human Development Index (HDI) on the Tax Ratio

The Human Development Index (HDI) is a composite indicator that measures the quality of human development through three main dimensions: health, education, and a decent standard of living. According to the Central Statistics Agency (BPS), the HDI is calculated based on life expectancy at birth, expected years of schooling, average years of schooling, and adjusted real per capita expenditure. The higher the HDI value, the better the quality of human resources and the level of community well-being in a given region. Therefore, the HDI is often used as an indicator of development success as well as a reflection of a region's economic and social capacity (BPS, 2024)

From a public economics perspective, improving the quality of human resources has implications for enhancing the government's fiscal capacity. People with higher levels of education tend to earn higher incomes, have higher productivity, and participate more in the formal economy. These conditions will broaden the tax base and increase the public's ability to meet their tax obligations. Furthermore, better health outcomes also boost labor productivity, thereby driving economic growth and increasing local tax revenue.

The relationship between human development and tax revenue is also supported by various empirical studies. Research by Putri & Ribawati (2025) shows that the Human Development Index (HDI) has a positive and significant effect on tax revenue in Indonesia. These results indicate that improvements in the quality of education, health, and public welfare can boost economic activity, broaden the tax base, and strengthen the government's capacity to collect tax revenue. Thus, government investment in human development not only provides social benefits but also contributes to improved fiscal performance through the optimization of tax revenue.

Nevertheless, research specifically examining the impact of the Human Development Index (HDI) on the tax ratio remains relatively limited. Most previous studies have primarily used tax revenue as the dependent variable rather than the tax ratio as an indicator of fiscal capacity. This situation indicates that there remains an empirical gap regarding how the quality of human development influences the government's ability to optimize tax revenue relative to a region's economic activity. Based on the theoretical framework and previous empirical findings, this study proposes the hypothesis that an increase in the Human Development Index will raise the tax ratio through increased economic productivity, expansion of the formal sector, and improved public tax compliance.

H4: The Human Development Index (HDI) has a positive effect on the tax ratio.

RESEARCH METODE

This study employs a quantitative approach using panel data regression to analyze the effects of the Anti-Corruption Behavior Index (IPAK), Gross Regional Domestic Product (GRDP) per capita, the unemployment rate, and the Human Development Index (HDI) on the tax ratio in Indonesia. Panel data was chosen because it combines the characteristics of cross-sectional and time-series data, thereby

capturing both differences in characteristics across provinces and changes occurring over the observation period. In addition to producing more efficient and consistent estimates, this approach also provides a more comprehensive understanding of the relationships among the study variables.

This study uses balanced panel data covering 38 provinces in Indonesia over the 2020–2024 period, resulting in 190 observations. All data used are secondary data obtained from official government publications. Tax revenue data were obtained from the Directorate General of Taxes, Ministry of Finance of the Republic of Indonesia, while data on the Anti-Corruption Behavior Index (IPAK), per capita GRDP, unemployment rate, and Human Development Index (HDI) were obtained from the Central Statistics Agency (BPS). Data collection was conducted using the documentation method by compiling, verifying, and processing annual statistical reports and official publications from each agency.

The dependent variable in this study is the tax ratio, measured as the ratio of tax revenue to Regional Gross Domestic Product (RGDP), thereby reflecting the government's ability to collect tax revenue relative to a region's economic activity. The independent variables consist of the Anti-Corruption Behavior Index (IPAK), which describes the level of anti-corruption behavior among the public; per capita RDP as an indicator of the public's income level; the unemployment rate, which indicates the percentage of the labor force that is unemployed; and the Human Development Index (HDI), which reflects the quality of human development based on the dimensions of health, education, and a decent standard of living.

The empirical analysis was conducted using panel data regression. The best model was selected through the Chow test and the Hausman test to determine the most appropriate model among the Common Effects Model (CEM), the Fixed Effects Model (FEM), and the Random Effects Model (REM). Subsequently, the selected model was evaluated using the coefficient of determination (R^2), the F-test to assess the model's simultaneous significance, and the t-test to assess the significance of each regression coefficient. The entire data processing and analysis process was conducted using EViews 9 and Microsoft Excel software.

The regression model used in this study is formulated as follows:

$$TR_{it} = \alpha + \beta_1 IPAK_{it} + \beta_2 PDRBPK_{it} + \beta_3 TP_{it} + \beta_4 IPM_{it} + e$$

where TR is the tax ratio, IPAK is the Anti-Corruption Behavior Index, PDRB is the per capita Gross Regional Domestic Product, TP is the unemployment rate, IPM is the Human Development Index, α is the constant, β is the regression coefficient, and ϵ is the error term.

Table 1 Variable Measurement

Variable	Measurement	Source
Tax Ratio (TR)	Tax Revenue / GRDP (%)	Directorate General of Taxes, Ministry of Finance
Anti-Corruption Behaviour Index (IPAK)	Provincial IPAK Index (0–5)	Statistics Indonesia (BPS)
GRDP per Capita	GRDP divided by total population (IDR)	Statistics Indonesia (BPS)

Unemployment Rate (UR)	Percentage of unemployed labor force (%)	Statistics Indonesia (BPS)
Human Development Index (HDI)	Provincial HDI score (0–100)	Statistics Indonesia (BPS)

RESULTS AND DISCUSSION

RESULTS

This study uses panel data consisting of 170 observations, covering 34 provinces in Indonesia during the 2020–2024 period. The variables analyzed include the Tax Ratio (TR) as the dependent variable, as well as the Anti-Corruption Behavior Index (IPAK), GRDP per capita, the unemployment rate, and the Human Development Index (HDI) as independent variables.

Based on the descriptive statistics, the average Tax Ratio is 1.194318, with a minimum value of 0.099000 and a maximum of 5.069000, indicating differences in the ability of provinces to collect tax revenue. The IPAK variable has a mean of 1.161012, while per capita GRDP has a mean of 45.50459, indicating a disparity in economic capacity among provinces. Meanwhile, the average unemployment rate is 7.493376, while the Human Development Index (HDI) has an average of 72.22900, indicating that most provinces fall into the moderate- to high-human-development category.

Table 2 Estimation result

Variabel	CEM		FEM		REM	
	Koefisien	Prob.	Koefisien	Prob.	Koefisien	Prob.
<i>C</i>	-17.37778	0.0000	2.604692	0.5856	-6.271519	0.0228
<i>logIPAK</i>	-0.053113	0.0987	0.008969	0.8864	-0.002411	0.9516
<i>logPDRB</i>	-0.339846	0.0000	0.008288	0.9149	-0.066448	0.2163
<i>logTP</i>	0.035738	0.6699	-0.301469	0.0070	-0.145922	0.0686
<i>logIPM</i>	4.351774	0.0000	-0.455795	0.6681	1.610497	0.0124
R-squared				0.790139		
Adjusted R-squared				0.731314		
S.E of Regresion				0.212635		
F-statistic				13.43209		
Prob (F-statistic)				0.000000		
Uji Pemilihan Model						
<i>Chow Test</i>		209.63448		0.0000 (<0,05)		FE dipilih
<i>Hausman Test</i>		39.787158		0.0000 (<0.05)		FE dipilih

The selection of the panel data regression model was conducted using the Chow test and the Hausman test. The results of the Chow test showed a p-value of 0.0000, while the Hausman test also yielded a p-value of 0.0000. Since both values are less than the 5 percent significance level, the Fixed Effects Model (FEM) was selected as the best model for estimating the relationship between the independent variables and the tax ratio.

Furthermore, the results of the coefficient of determination test showed an Adjusted R² value of 0.731314, meaning that the variables IPAK, GRDP per capita, unemployment rate, and HDI were able

to explain 73.13% of the variation in the tax ratio, while the remaining 26.87% was influenced by other factors outside the research model.

The results of the estimation using the Fixed Effects Model (FEM) show that IPAK has a coefficient of 0.008969 with a p-value of 0.8864, indicating that it does not have a significant effect on the tax ratio. The per capita GRDP variable also shows a positive coefficient of 0.008288, but it is not significant with a p-value of 0.9149. In contrast, the unemployment rate has a coefficient of -0.301469 with a p-value of 0.0070, indicating that this variable has a negative and significant effect on the tax ratio. Meanwhile, the Human Development Index (HDI) has a coefficient of -0.455795 with a p-value of 0.6681, suggesting it does not have a significant effect on the tax ratio.

The results of the partial test show that only the unemployment rate has a significant effect on the tax ratio, while the IPAK, per capita GRDP, and HDI do not have a significant effect. Meanwhile, the results of the simultaneous test yielded a Prob(F-statistic) value of 0.000000, indicating that all independent variables collectively have a significant effect on the tax ratio in Indonesian provinces during the 2020–2024 period.

DISCUSSION

1. The Effect of the Anti-Corruption Behavior Index (IPAK) on the Tax Ratio

Estimation results using the Fixed Effects Model (FEM) show that the Anti-Corruption Behavior Index (IPAK) has a coefficient of 0.008969 with a p-value of 0.8864 (>0.05). These results indicate that the IPAK has a positive direction of relationship but does not have a significant effect on the tax ratio in Indonesian provinces during the 2020–2024 period. Thus, the first hypothesis (H1), which states that the IPAK has a positive effect on the tax ratio, is rejected. Although an increase in anti-corruption behavior tends to be followed by an increase in the tax ratio, this relationship is not yet strong enough to be statistically proven.

Theoretically, increased anti-corruption behavior should enhance public trust in the government, thereby promoting tax compliance and increasing tax revenue. However, the results of this study indicate that anti-corruption behavior has not yet directly influenced the tax ratio. This suggests that tax revenue is influenced not only by institutional factors but also by the effectiveness of tax administration, the quality of public services, the level of taxpayer compliance, and economic conditions during the study period, which was still in the post-COVID-19 recovery phase.

The results of this study are consistent with the research by Zuhrah et al. (2024), which found that corruption does not have a significant effect on the tax ratio. Conversely, these findings are inconsistent with the study by Santosa et al. (2025), which states that anti-corruption behavior has a positive effect on taxpayer compliance, as well as the study by Minh Ha et al. (2022), which found that corruption has a negative effect on the tax ratio. These differing results suggest that the impact of institutional quality on tax revenue may vary depending on the economic characteristics, tax systems, and conditions of each region.

The relatively small IPAK coefficient indicates that the impact of anti-corruption behavior on the tax ratio remains very limited. This suggests that improvements in anti-corruption behavior likely have an indirect impact by increasing public trust and tax compliance before ultimately affecting tax revenue. Additionally, the characteristics of Indonesia's tax system which employs a self-assessment

system, features a high proportion of the informal sector, and exhibits relatively small variations in IPAK values across provinces are believed to be the reason why the impact of IPAK on the tax ratio has not been significantly evident during the study period.

These findings indicate that improving anti-corruption practices remains a key aspect of strengthening fiscal capacity; however, its effectiveness must be supported by more comprehensive tax reforms, such as improving the quality of tax administration, digitizing services, strengthening oversight, and increasing transparency regarding the use of tax revenue. Thus, it is hoped that improved public integrity will translate into greater taxpayer compliance and, ultimately, an increase in the tax ratio.

2. The Effect of Per Capita GRDP on the Tax Ratio

The test results show that per capita GRDP has a coefficient of 0.008288 with a p-value of 0.9149 (>0.05). This finding indicates that per capita GRDP has a positive relationship with the tax ratio but does not have a significant effect on the tax ratio in Indonesia during the 2020–2024 period. Thus, the second hypothesis (H2), which states that per capita GRDP has a positive effect on the tax ratio, is rejected.

In theory, an increase in per capita GRDP reflects rising household income, which is expected to broaden the tax base and increase government revenue. However, the results of this study indicate that an increase in average household income has not directly led to an increase in the tax ratio. One reason for this is the significant contribution of the informal sector to the Indonesian economy, meaning that increased economic activity is not fully captured by the tax system. Furthermore, per capita GRDP is an average measure that does not necessarily reflect income equality across all regions. An increase in income that is concentrated only in certain groups or sectors does not necessarily lead to an increase in the number of taxpayers or in overall tax revenue.

The results of this study are inconsistent with the findings of Pramudita & Binekas (2025) and Rakhadita & Prabowo (2022), who found that per capita GRDP has a positive and significant effect on the tax ratio. Conversely, the results of this study support the findings of Fitriani et al. (2024), who stated that economic indicators do not always have a significant effect on the tax ratio, especially when economic conditions remain uncertain. From the perspective of fiscal capacity theory, an increase in household income does have the potential to boost tax revenue; however, this effect is highly dependent on the effectiveness of tax administration, the expansion of the tax base, and the level of taxpayer compliance.

The relatively small regression coefficient indicates that the economic influence of per capita GRDP on the tax ratio remains very weak. This situation may be influenced by differences in economic structure across provinces, where some regions have high per capita GRDP because they are dominated by the mining or natural resources sectors. The substantial value added from these sectors does not necessarily increase a region's tax ratio because tax administration may be centralized in other regions. Furthermore, during the 2020–2024 study period, the post-pandemic economic recovery led to increased economic activity that was not fully accompanied by an increase in tax revenue.

These findings indicate that economic growth alone is not sufficient to increase the tax ratio. For an increase in per capita GRDP to have an impact on tax revenue, policy support is needed in the form of broadening the tax base, improving taxpayer compliance, strengthening tax administration,

digitizing the tax system, and efforts to formalize the informal sector. Thus, economic growth can be more effectively converted into increased tax revenue and ultimately raise the tax ratio.

3. The Effect of the Unemployment Rate on the Tax Ratio

The test results show that the unemployment rate has a coefficient of -0.301469 with a p-value of 0.0070 (<0.05). These results indicate that the unemployment rate has a negative and significant effect on the tax ratio in Indonesia during the 2020–2024 period. Thus, the third hypothesis (H3), which states that the unemployment rate has a negative effect on the tax ratio, is accepted.

This finding indicates that the higher the unemployment rate, the lower the resulting tax ratio. An increase in the number of unemployed people leads to a decrease in the number of people with income, thereby reducing their ability to pay taxes. Furthermore, high unemployment also suppresses consumer spending, which ultimately leads to a decline in tax revenue both direct and indirect taxes. This situation aligns with conditions in Indonesia during the COVID-19 pandemic and the subsequent economic recovery period, when rising unemployment across various regions was accompanied by a slowdown in economic activity and a decline in tax revenue.

The results of this study support the Fiscal Capacity Theory, which states that labor market conditions are one of the factors determining the government's ability to collect tax revenue. The more people who are employed, the greater the potential for taxable income. Conversely, high unemployment narrows the tax base, thereby reducing the government's capacity to increase the tax ratio.

This finding is also consistent with the research by Khotimah & Tsani (2025), which states that high unemployment rates can reduce the economy's capacity and narrow the tax base. These results indicate that, compared to other variables in the study, labor market conditions have a more significant impact on the tax ratio. Therefore, efforts to increase tax revenue should not rely solely on tax policies but must also be supported by policies that create jobs, boost labor productivity, and expand employment opportunities. Consequently, reducing the unemployment rate is expected to enhance the economy's capacity while simultaneously driving an increase in the tax ratio.

4. The Effect of the Human Development Index (HDI) on the Tax Ratio

The test results show that the Human Development Index (HDI) has a regression coefficient of -0.455795 with a p-value of 0.6681 (>0.05). These results indicate that the HDI has a negative relationship with the tax ratio but does not have a significant effect on the tax ratio in Indonesia during the 2020–2024 period. Thus, the fourth hypothesis (H4), which states that the HDI has a positive effect on the tax ratio, is rejected.

Theoretically, improvements in human capital through education, health, and a higher standard of living should be able to boost economic productivity, broaden the tax base, and increase government revenue. However, the findings of this study show that an increase in the HDI has not yet been able to directly impact an increase in the tax ratio. This suggests that the benefits of human development require a relatively long time to be reflected in an increase in fiscal capacity. Furthermore, improvements in the quality of human resources do not necessarily lead to an increase in formal employment opportunities or economic productivity, both of which directly contribute to tax revenue.

This finding can also be explained by the fact that Indonesia, during the 2020–2024 period, was still in the post-COVID-19 pandemic recovery phase. During that period, various government policies were focused on improving the quality of health care, education, and social protection, thereby sustaining the rise in the HDI. However, the recovery of economic activity and employment has not yet proceeded optimally, so improvements in human development have not been fully accompanied by an increase in tax revenue. Furthermore, differences in economic structure across provinces can also mean that regions with high HDIs do not necessarily have high tax ratios, particularly if their economic activity remains dominated by the informal sector or sectors with relatively low tax contributions.

The results of this study differ from the findings of Putri & Ribawati (2025), Putriana (2022), and Sari & Rochmatullah (2023), who stated that the HDI has a positive and significant effect on tax revenue. These differences are likely influenced by variations in the research periods, regional characteristics, and the analytical methods used. Therefore, improvements in the HDI must be accompanied by policies that create formal jobs, increase labor productivity, and broaden the tax base. Thus, improving the quality of human resources not only enhances public welfare but can also make a more tangible contribution to increasing the tax ratio.

CONCLUSION

This study aims to analyze the effects of the Anti-Corruption Behavior Index (IPAK), Gross Regional Domestic Product (GRDP) per capita, the unemployment rate, and the Human Development Index (HDI) on the tax ratio across 34 provinces in Indonesia during the 2020–2024 period using panel data regression with a Fixed Effects Model (FEM) approach. The results show that, when analyzed individually, only the unemployment rate has a negative and significant effect on the tax ratio. Meanwhile, the IPAK and GRDP per capita have positive but insignificant effects, while the HDI has a negative but insignificant effect on the tax ratio. Nevertheless, the results of the simultaneous test indicate that all four variables collectively have a significant effect on the tax ratio. Furthermore, the Adjusted R^2 value of 0.731314 indicates that the research model explains 73.13% of the variation in the tax ratio, while the remainder is influenced by other factors outside the research model.

The findings of this study indicate that an increase in the tax ratio is influenced not only by economic factors but also by labor market conditions, institutional quality, and human development. However, improvements in human capital or economic activity do not automatically lead to increased tax revenue unless accompanied by a broadening of the tax base, improved taxpayer compliance, strengthened tax administration, and the creation of formal jobs. Therefore, efforts to increase the tax ratio require integrated policies that combine economic development, human capital development, tax reform, and strengthened governance to optimize tax revenue potential.

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