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The Influence of Audit, Supervision, and Taxpayer Compliance on Revenue Performance, Moderated by Tax Officer Training

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Abstract

Tax revenue performance is a key indicator of fiscal effectiveness and relies on strong administrative functions and taxpayer behavior. This study seeks to examine the impact of tax audits, supervision, and taxpayer compliance on tax revenue performance, while explicitly assessing whether tax officer training moderates these relationships. The study employs a saturated sampling technique and applies a quantitative causality design using multiple regression and moderated regression analysis. The findings indicate that tax audits have a positive but insignificant effect on tax revenue performance, whereas supervision and taxpayer compliance show positive and significant effects. Additionally, tax officer training is found to positively and significantly moderate the effects of audits, supervision, and taxpayer compliance, suggesting that these variables become more influential when supported by higher levels of training. In conclusion, the study highlights supervisory quality and taxpayer compliance as primary drivers of tax revenue performance. The significant moderating role of tax officer training underscores the importance of strengthening human resource capacity to enhance the overall effectiveness of tax administration.

Keywords

Audit, Revenue Performance, Supervision, Tax Officer Training, Taxpayer Compliance.

1. Introduction

Tax revenue serves as the primary foundation for national financing, supporting infrastructure development, public service delivery, and efforts to enhance societal welfare (Directorate General of Taxes, 2024). Within the broader framework of national development, the state's capacity to maximize tax collection is essential for preserving fiscal stability and ensuring the continuity of development initiatives. Since the adoption of the self-assessment system following the 1983 tax reform, taxpayers have borne full responsibility for calculating and fulfilling their own tax obligations. The effectiveness of this system is closely linked to the degree of taxpayer compliance and the quality of oversight carried out by tax authorities.

The contribution of taxes to state revenue demonstrates a very strategic role. According to data from the Central Bureau of Statistics of Indonesia (2024), tax revenue during the 2018–2024 period contributed an average of 78.84 percent to total state revenue. In the 2025 State Budget, the tax revenue target is set at IDR 2.490.9 trillion, or 82.88 percent of total state revenue (Ministry of Finance, 2025a). This figure reflects the increasing demand for tax revenue performance and underscores the importance of an effective and accountable taxation system, supported by public compliance.

Under the self-assessment mechanism, the submission of the Tax Return (*Surat Pemberitahuan/SPT*) becomes an important instrument in determining the amount of tax owed. Consequently, state tax revenue is greatly impacted by the degree of taxpayer compliance with filing tax returns. To ensure that the trust given in the self-assessment system is not misused, the tax authorities need to carry out oversight and audits. Tax audits are essential for confirming the accuracy of tax returns and promoting compliance (Susanto, 2023). Research by Pello (2023) and Wandira et al. (2023) states that increasing the intensity of tax audits has a positive impact on the level of compliance and tax revenue.

In addition to inspections, effective supervision is an instrument for enforcing compliance. Christian and Aribowo (2021) emphasize that targeted and continuous supervision can improve taxpayer compliance, thereby boosting state revenue. The implementation of technology-based tax administration systems such as Coretax, which began to be used in 2025, strengthens supervisory efforts and provides significant improvements in data integration, information accuracy, and administrative process efficiency. However, the success of this digital transformation depends on the quality of human resources, especially tax officials. Adequate training is an important factor in enhancing the technical competence, analytical skills, and communication abilities of tax officials. Windasari and Ernandi (2021) assert that the increased competence of personnel contributes to the effectiveness of tax supervision and inspection.

Nevertheless, previous research results show different findings. Wandira et al. (2023) reported that audits have a significant effect on tax revenue, while Riyadi et al. (2021) found no significant impact in the context of corporate income tax revenue, which was associated with a low risk-based approach. Afe et al. (2022) found a positive effect of supervision on tax revenue through the issuance of Letters of Request for Explanation of Data and/or Information (*Surat Permintaan Penjelasan atas Data dan/atau Keterangan/SP2DK*). However, Amilin (2016) stated that administrative supervision is not sufficiently effective in improving taxpayer compliance. The role of tax officer training also shows inconsistent results; studies by Dimas (2020) and Yani and Prasojo (2024) demonstrate a positive influence of training on employee performance, but Puspitasari and Juliarsa (2017) found that training does not necessarily serve as an effective moderating variable. These variations in results indicate a research gap that needs to be investigated further.

This study aims to evaluate the influence of tax audits, supervision, and taxpayer compliance on tax revenue performance, while also determining whether tax officer training strengthens the relationships among these variables. Centering on the East Java Regional Office of the Directorate General of Taxes, the study applies a quantitative approach to generate empirical evidence that contributes to the field of taxation. The results are expected to offer practical insights for improving audit practices, enhancing supervisory effectiveness, and advancing the competence of tax officials, thereby supporting the optimization of national tax revenue.

2. Literature Review and Hypothesis Development

2.1. Tax Audits and Tax Revenue Performance

Public law enforcement is explained through the public enforcement of law theory, which emphasizes the role of state agents in detecting legal violations and imposing sanctions on offenders (Polinsky & Shavell, 2006). When it comes to taxes, the tax authorities have the power to enforce the law and make sure that taxpayers appropriately declare their tax responsibilities on their yearly tax return. Tax audits are a strategic instrument to assess the accuracy of taxpayers' reporting and to prevent potential fraud that could reduce state revenue. This theory emphasizes that auditing and supervision have direct implications for tax compliance and ultimately impact the increase of state revenue (Errard, 1993). However, the effectiveness of this law enforcement largely depends on the quality of tax officials in carrying out their control functions and enforcing sanctions.

Tax revenue is a vital source of state income that supports national development. Under Law Number 28 of 2007, taxes are mandatory public contributions imposed by law for the welfare of society without direct compensation. Within Indonesia's self-assessment system, taxpayers are responsible for calculating, paying, and reporting their own taxes, making the effectiveness of audits, supervision, and taxpayer compliance central to the success of revenue collection (Slemrod, 2019; Abada, 2021; Yamin et al., 2024).

Tax audits are a strategic instrument for testing compliance and preventing tax avoidance and evasion practices (Teri & Rura, 2023). Mardiasmo (2018) states that audits are conducted to ensure the accuracy of taxpayers' reporting and to detect potential irregularities. Furthermore, Elmi et al. (2015) emphasize that audits play a significant role in increasing tax revenue and encouraging voluntary compliance. Research by Harelimana (2018) also shows that effectively conducted tax audits can make a positive contribution to increasing compliance and state revenue. Thus, the more effective the implementation of audits, the greater the potential for improving tax revenue performance.

H1: Tax audits has a significant effect on tax revenue performance.

2.2. Tax Supervision and Tax Revenue Performance

Tax supervision constitutes a fundamental element in ensuring the effectiveness and reliability of the tax administration system. Through comprehensive and well-structured supervisory mechanisms, tax authorities are able to continuously monitor taxpayer activities, evaluate compliance levels, and identify any indications of irregularities or potential violations of tax regulations (Natalia, 2017; Rahmawati, 2014). This proactive monitoring allows authorities to implement corrective actions promptly, thereby preventing minor issues from escalating into significant breaches that could compromise state revenue. The role of supervision becomes even more critical within a self-assessment system, where the accuracy of tax reporting depends largely on the honesty and diligence of taxpayers themselves (Assa et al., 2018; Elipen & Sudrajat, 2021; Nabilah & Angraini, 2021).

In such a system, the government cannot directly verify every transaction; hence, effective oversight is indispensable to ensure that taxpayers correctly calculate, report, and pay their tax obligations. Moreover, strong supervision produces a deterrent effect, signaling to taxpayers that noncompliance may result in penalties or further scrutiny. This effect not only discourages intentional violations but also promotes a culture of voluntary compliance among taxpayers (Al Raffi & Kuntadi, 2023). Ultimately, the quality and intensity of tax supervision directly shape taxpayer behavior and determine the efficiency, credibility, and sustainability of the tax collection process, highlighting the necessity for continuous improvement of supervisory practices and capacity-building of tax officers.

H2: Tax supervision has a significant effect on tax revenue performance.

2.3. Taxpayer Compliance and Tax Revenue Performance

The Resource-Based View offers a conceptual foundation for comprehending how companies improve performance by managing superior internal resources. Wernerfelt (1984) and Barney (1991) explain that competitive advantage depends on resources that are valuable, rare, difficult to imitate, and well-organized. In tax administration, tax officials are a crucial form of human capital that determines the effectiveness of audits and oversight. Thus, the professional capabilities of tax officials become an important foundation in supporting the implementation of tax policies.

Taxpayer compliance is a key determinant of successful state revenue collection (Prayudi, 2009; Gunawan et al., 2018; Nugrahanto & Nasution, 2019; Rachman et al., 2025). Fatmawati and Adi (2022) describe compliance as a condition in which individuals fulfill tax obligations either voluntarily or due to external pressure, while Devos (2013) emphasizes that high compliance is essential for achieving revenue targets. Waluyo (2016) notes that compliance is reflected in understanding tax rules, accurately completing the tax return, and making timely payments. Efforts to increase compliance involve economic deterrence, such as sanctions and audits, as well as behavioral approaches through education and awareness-building. However, the effectiveness of these measures relies heavily on consistent enforcement and the competence of tax officials. Weak or inconsistent implementation can undermine taxpayers' willingness to comply voluntarily.

H3: Taxpayer compliance has a significant effect on tax revenue performance.

2.4. Tax Officer Training as a Moderating Variable

Training is a methodical procedure intended to enhance workers' attitudes, abilities, and knowledge so they can do their jobs and obligations more successfully. According to Rivai (2015), training is a process to enhance employees' abilities in terms of knowledge, skills, and attitudes so that they can work more productively and efficiently. Training not only serves as a means of improving technical competence but also shapes work ethics, discipline, and professionalism in performing tasks.

From the perspective of Resource-Based Theory by Barney (1991), training is a form of internal resource investment (human capital) that can create a competitive advantage. Accordingly, Noe (2010) defines training as an organization's intentional attempt to help its personnel acquire job-related competencies. These competencies encompass the behaviors, abilities, and knowledge required to carry out a task successfully. Hasibuan (2016) also stated that training is a systematic process to improve employees' technical, theoretical, conceptual, and moral skills so that they can perform their tasks better and more professionally. Training not only serves as a means to enhance technical competence but also shapes work ethics, discipline, and

professionalism in task execution (Rahma, 2021; Yamin et al., 2022; Finanda, 2023; Lailly & Rahayu, 2023; Harfadhilah & Firmansyah, 2024).

Research by Nor (2025) shows that training increases individual capacity and the quality of public services; however, its impact is not automatically significant if it is not supported by employee interest, organizational structure, and proper competence implementation mechanisms. Therefore, training is expected to strengthen the relationship between inspection, supervision, and compliance with tax revenue performance, as competent tax officials are better able to detect noncompliance, provide education, and enforce the law effectively.

H4: Tax officer training moderates between audits and tax revenue performance.

H5: Tax officer training moderates between supervision and tax revenue performance.

H6: Tax officer training moderates between compliance and tax revenue performance.

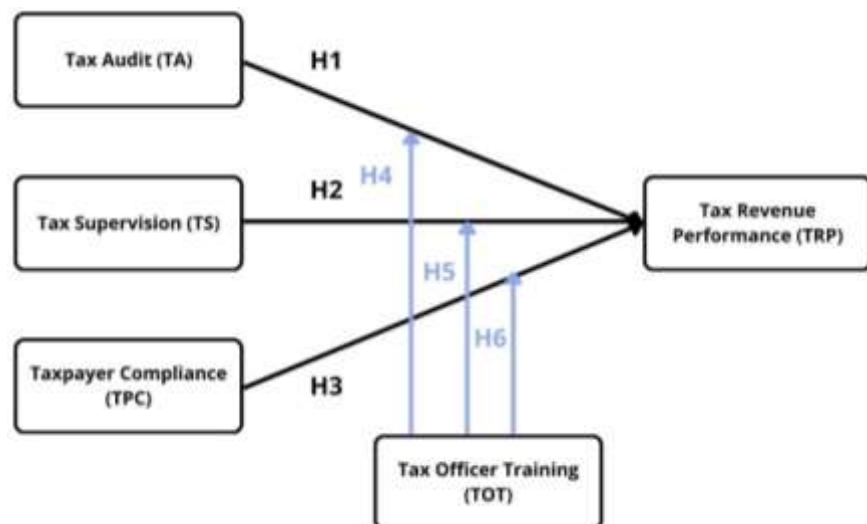


Figure 1. Conceptual Framework

The study model that depicts the potential correlations between variables is shown in Figure 1. In theory, the dependent variable is directly impacted by the independent variables of audit, supervision, and taxpayer compliance. Additionally, tax officer training is listed as a moderating factor. This suggests that the link between the independent variables (audit, supervision, and taxpayer compliance) and revenue performance is thought to be influenced or altered by tax officer training. Through linking arrows, the model graphically depicts these direct and moderating effects.

3. Methods

This study employs a quantitative research design with a causal approach to examine the influence of audits, supervision, and taxpayer compliance on tax revenue performance, with tax officer training functioning as a moderating variable. Causal research is used to test theoretical relationships and determine whether variations in independent variables produce measurable effects on dependent variables. In this context, the study investigates whether examination activities, supervisory actions,

and compliance levels contribute significantly to improving tax revenue outcomes, and whether the competencies gained from tax officer training strengthen these relationships.

The research population consists of all 44 Tax Service Offices (*Kantor Pelayanan Pajak/KPP*) under the three Regional Offices of the Directorate General of Taxes (*Direktorat Jenderal Pajak/DJP*) in East Java Regional Office I, II, and III during the period 2022–2024. A saturated sampling technique is employed, meaning every unit in the population is included as a sample. Based on annual observations across 44 tax service offices for three years, a total of 132 data points were obtained. However, the results of the normality test indicated that the dataset was not normally distributed. The data on which outlier analysis was conducted are data from Tax Service Offices Pratama Surabaya Genteng, Bojonegoro, Bangkalan, Lamongan, Tuban, and Tax Service Offices Pratama Batu for the year 2022. To address this, an outlier test was conducted, resulting in the elimination of six extreme data points originating from several tax service offices in 2022. The final dataset consisted of 126 observations, which subsequently met the assumption of normality.

Data in this study are secondary and sourced directly from official records of the Directorate General of Taxes regional offices in East Java. The instruments used involve quantitative indicators representing each research variable. The audit variable is measured by the number of Examination Orders (*Surat Perintah Pemeriksaan/SP2*) issued by each Tax Service Office. Examination Orders is an official mandate to conduct tax examinations to verify compliance, as regulated under the Minister of Finance Regulation Number 15 of 2025. The supervision variable is operationalized through the number of Letters of Request for Explanation of Data and/or Information (*Surat Permintaan Penjelasan atas Data dan/atau Keterangan/SP2DK*), which indicate follow-up actions taken when discrepancies or non-compliance are detected.

Taxpayer compliance is measured using the annual tax return filing ratio, representing the proportion of submitted returns relative to the total number of required filers. The moderating variable, tax officer training, is measured by the number of technical and non-technical training sessions completed by employees in each tax service office. Meanwhile, tax revenue performance is expressed as the percentage of actual tax revenue realization relative to the target determined in the State Budget (*Anggaran Pendapatan dan Belanja Negara/Anggaran Pendapatan dan Belanja Negara Perubahan/APBN/APBN-P*) or official regulations issued by the Ministry of Finance (2025b). Data analysis is conducted using multiple regression and Moderated Regression Analysis (MRA) to evaluate both direct effects and moderating influences. The statistical processing is performed with SPSS, which facilitates classical assumption testing, model fit evaluation, and hypothesis testing (Sugiyono, 2017; Ghozali, 2018).

4. Results

A summary of the research variables' descriptive statistics is provided in this section. The average value of the tax revenue performance variable is 107.99%, with a standard deviation of 9.74%. Tax Service Offices Madya Surabaya recorded the lowest percentage of tax income realization in 2024 (100.03%), while Tax Service Offices Pratama Ponorogo recorded the greatest percentage in 2022 (138.2%). The tax service office performs better when the percentage of tax revenue realization exceeds the predetermined target. The data for the tax revenue performance variable is homogenous if the standard deviation value is less than the mean.

Table 1. Descriptive Statistics Test

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Tax Audit	126	150	722	396.07	113.8345
Tax Supervision	126	432	3624	1455.33	593.9136
Taxpayer Compliance	126	0.563	1.000	0.8484	0.092719
Tax Officer Training	126	9	37	20.71	5.7297
Tax Revenue Performance	126	1.0003	1.382	1.0799	0.097447
Valid N listwise)	126				

Based on Table 1, the tax audit variable shows an average of 396.07 issued Examination Orders (*Surat Perintah Pemeriksaan/SP2*) with a standard deviation of 113.83. The lowest value was 150 SP2 at Tax Service Offices Pratama Surabaya Pabean Cantikan in 2023, while the highest was 722 SP2 at Tax Service Offices Pratama Gresik in 2024. Since the standard deviation is lower than the mean, the audit data indicate homogeneity.

The tax supervision variable records an average issuance of 1,455.33 Data and/or Information Request Letters, with a standard deviation of 593.91. The lowest issuance was 432 letters at Tax Service Offices Pratama Surabaya Genteng in 2023, whereas the highest, 3,624 letters, occurred at Tax Service Offices Pratama Surabaya Karangpilang in 2022. The standard deviation being smaller than the average shows that the supervision data are homogeneous.

The taxpayer compliance variable has an average compliance rate of 84.84% and a standard deviation of 9.27%. The lowest compliance level, 56.3%, was recorded at Tax Service Offices Pratama Gresik in 2023, while several Tax Service Offices Madya Surabaya, Surabaya Dua, Gresik, Sidoarjo, and Malang achieved full compliance (100%) in 2022 and 2023. With a relatively low deviation, the compliance data are considered homogeneous.

The Tax Officer Training variable shows an average of 20.71 training activities with a standard deviation of 5.72. The lowest number of trainings, 9 activities, occurred at Tax Service Offices Madya Dua Surabaya in 2022, while the highest, 37 activities, was recorded at Tax Service Offices Madya Sidoarjo in the same year. The smaller standard deviation relative to the average indicates that the training data are also homogeneous.

Table 2. Kolmogorov-Smirnov Test

Statistics	Parameter	Unstandardized Residual
N		126
Normal Parameters ^{a,b}	Mean	0.000000
	Std. Deviation	0.03587356
Most Extreme Differences	Absolute	0.112
	Positive	0.112
	Negative	-.078
Kolmogorov-Smirnov Z		1.253
Asymp. Sig. (2-tailed)		0.086
a. Test distribution is Normal		
b. Calculated from data		

Based on Table 2, to make sure the regression model is valid, traditional assumption tests are carried out. It can be inferred that the residuals are normally distributed since the Asymp. Sig. (2-tailed). The result of 0.086 obtained from the Kolmogorov-Smirnov Test for normality is higher than the 5% alpha ($0.086 > 0.05$).

Table 3. Multicollinearity Test

Model	Multicollinearity Test		Heteroscedasticity Test
	Tolerance	VIF	Sig
Constant			0.0000
Tax Audit	0.787	1.271	0.0924
Tax Supervision	0.827	1.209	0.2082
Taxpayer Compliance	0.839	1.192	0.0761
Tax Officer Training	0.818	1.223	0.1057

Based on Table 3, the Variance Inflation Factor (VIF), which is used to quantify multicollinearity, shows that there is no strong association between the independent variables because all VIF values fall significantly below the threshold of 10, ranging from 1.192 to 1.271. The heteroscedasticity test results presented in Table 3 show that all independent variables have significance values above 0.05, indicating the absence of heteroscedasticity in the regression model. The constant has a significance level of 0.0000, while taxpayer compliance has a p-value of 0.0924, tax audits 0.2082, tax officer training 0.0761, and tax supervision 0.1057. Because each variable's Sig. value exceeds the 0.05 threshold, the model satisfies the assumption of homoscedasticity, confirming that residual variance is stable across observations.

Table 4. Autocorrelation Test

Test	Value
R	0.878 ^a
R Square	0.772
Adjusted R Square	0.764
Std Error of the Estimate	0.36462
Durbin-Watson	1.855

Based on Table 4 the Durbin-Watson (DW) statistic was used to evaluate the autocorrelation test, and the result was 1.855. Given that the Durbin-Watson value falls between 2 and -2, autocorrelation is not present in the model. The regression model used in this study includes tax officer training, tax audits, taxpayer compliance, and tax supervision as predictors of tax revenue performance. These four variables function collectively as independent variables, while TRP serves as the dependent variable. The model specification indicates that all predictors are entered simultaneously to assess their combined influence on the dependent variable.

Table 5. Coefficient of Determination and F Test

Coefficient of Determination Test		F-Test	
Test	Value	Test	Value
R	0.960 ^a	F	198.080
R Square	0.922	Sig.	0.000 ^b
Adjusted R Square	0.917		
Std. Error of the Estimate	0.020564		

According to Table 5 above, the coefficient of determination (R^2) is 0.922, indicating that 92.2% of the variation in the dependent variable can be explained by

the independent factors. Meanwhile, factors not included in the research model have an impact on the remaining 7.8%.

It is evident from the table that all factors concurrently have a substantial impact on the dependent variable because the p-value obtained is 0.000 or less than the 5% alpha. The ANOVA results in Table 6 show that the regression model is statistically significant, with an F-value of 198.080 and a significance level of 0.000. This indicates that the independent variables jointly have a significant effect on the dependent variable.

Table 6. Moderated Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	T-statistic	Sig.
	B	Std. Error	Beta		
(Constant)	0.578	0.081		7.096	0.000
Tax Audit (TA)	0.000103	0.000082	0.165	1.263	0.209
Tax Supervision (TS)	0.000044	0.000015	0.369	2.931	0.004
Taxpayer Compliance (TPC)	0.485	0.080	0.630	6.047	0.000
Tax Audit_Tax Officer Training	0.000008	0.000004	0.388	2.000	0.048
Tax Supervision_Tax Officer Training	0.000004	0.000001	0.863	5.400	0.000
Taxpayer Compliance_Tax Officer Training	0.016	0.004	1.371	4.337	0.000

The explanation of the multiple linear regression analysis results is as follows: $TRP = 0.578 + 0.000103TA + 0.000044TS + 0.485TPC + 0.000008TA_TOT + 0.000004TS_TOT + 0.016TPC_TOT + \epsilon$. Based on Table 7, the results of the regression equation above, a constant value of 0.578 is obtained. This means that if the conditions of all independent variables Tax Audit (TA), Tax Supervision (TS), Taxpayer Compliance (TPC), Interaction between Audit and Tax Training (TA_TOT), Interaction between Supervision and Tax Training (TS_TOT), and Interaction between Taxpayer Compliance and Tax Training (TPC_TOT) are considered constant, then Tax Revenue Performance (TRP) will increase by 0.578.

The tax audit coefficient is 0.000103, showing a positive relationship with tax revenue performance. This means that every additional audit increases revenue performance by 0.000103, assuming other variables remain unchanged. The tax supervision coefficient is 0.000044 and also positive, indicating that improved supervision leads to higher tax revenue performance. Each additional unit of supervision increases revenue performance by 0.000044 under ceteris paribus conditions.

Taxpayer compliance has a coefficient of 0.485, which is substantially larger than the other direct effects. This demonstrates that higher compliance strongly contributes to increased tax revenue performance. A one-unit increase in compliance raises revenue performance by 0.485 when other factors are constant. For the moderating effects, the interaction between tax audit and tax officer training has a coefficient of 0.000008. This means that training enhances the influence of audits on revenue performance the more training officers receive, the stronger the audit impact.

The interaction between tax supervision and tax officer training has a coefficient of 0.000004, indicating that training strengthens the positive effect of supervision on revenue performance. Finally, the interaction between taxpayer compliance and tax

officer training has a coefficient of 0.016. This shows that training also reinforces the effect of taxpayer compliance, making its contribution to revenue performance even more substantial.

The results of the t-tests show mixed support for the study's hypotheses. H1, which proposes that tax audits improve tax revenue performance, is rejected because the audit variable shows a t-value of 1.263 with a significance level of 0.209 (> 0.05), indicating no meaningful effect. In contrast, H2 is accepted, as tax supervision demonstrates a t-value of 2.931, a positive coefficient, and a significance level of 0.004 (< 0.05), confirming that tax oversight positively influences tax revenue performance. H3 is also supported, with taxpayer compliance showing a strong effect (t-value 6.047, significance 0.000), meaning that higher compliance significantly enhances tax revenue performance. For H4, the interaction between tax audits and tax officer training yields a positive coefficient, a t-value of 2.000, and significance of 0.048 (< 0.05). This indicates that tax officer training strengthens the influence of audits on tax revenue performance.

Similarly, H5 is accepted, where the interaction between tax supervision and tax officer training shows a significant effect (t-value 5.400; significance 0.000), demonstrating that training improves the effectiveness of tax oversight. Lastly, H6 is supported, as the moderation of taxpayer compliance by tax officer training presents a positive coefficient, a t-value of 4.337, and significance of 0.000, confirming that training enhances the contribution of taxpayer compliance to tax revenue performance.

5. Discussion

The study finds that tax audits have a positive but insignificant effect on tax revenue performance. This result differs from the expectation in H1 and aligns with several earlier studies that report limited audit effectiveness. Wulandari et al. (2014) found that audits contribute less than 10% of national revenue, while Anggraini et al. (2016) and Riyadi et al. (2021) also noted that audits tend to be less effective when risk-based audit strategies are not yet optimal. The insignificant effect in this study may be explained by delays in realizing audit results due to objection and appeal processes, insufficient inspector capacity, and the high proportion of restitution audits, which according to the Directorate General of Taxes (2025) and East Java Regional Office data, often result in Overpaid Tax Assessment Letter (*Surat Ketetapan Pajak Lebih Bayar/SKPLB*). and thereby reduce revenue instead of increasing it. These findings imply that although audits remain an important compliance enforcement tool, their contribution to tax revenue depends heavily on targeting high-risk taxpayers and strengthening compliance risk management.

Tax supervision shows a significant positive effect on tax revenue performance. This supports the findings of Christian and Aribowo (2021), Afe et al. (2022) and Dharmawati et al. (2024), who concluded that effective oversight encourages corrective behavior and increases voluntary or enforced payments, ultimately improving revenue performance. Conversely, the result contradicts Amilin (2016), who found that supervision did not significantly affect revenue. In practice, supervision through letters of request for explanation of data and/or information plays a critical role in encouraging taxpayers to clarify discrepancies or correct underreported obligations. Because letters of request for explanation of data and/or information do not require a full audit process, it efficiently increases revenue and produces a deterrent effect that encourages more accurate reporting. The implication is that strengthening routine oversight, especially through data-driven monitoring, can yield substantial revenue benefits without extensive audit procedures.

Taxpayer compliance is also found to significantly improve tax revenue performance, supporting by Sari and Afriyanti (2012), Kastolani and Ardiyanto (2017), Suryadi and Subardjo (2019), and Riyadi et al. (2021). These studies

consistently show that revenue increases when taxpayers submit and report their obligations accurately. This study's findings do not align with Kristanti (2021), who reported no significant relationship. The result emphasizes that both formal and material compliance are essential for strengthening the self-assessment system. High compliance creates certainty in revenue realization, reduces administrative costs, and supports sustainable voluntary compliance as described by Devos (2013) and Waluyo (2016). The implication is that taxpayer compliance remains a primary pillar for stable tax revenue, reinforcing the need for continuous education and assistance programs.

The findings indicate that tax officer training significantly strengthens the influence of tax audits, tax supervision, and taxpayer compliance on tax revenue performance. Consistent with Dimas (2020) and Yani and Prasajo (2024), training enhances employee performance by improving auditors' technical competence, data analysis skills, regulatory understanding, and professional communication. These improvements enable more accurate audit findings, faster dispute resolution, and higher-quality audits, thereby transforming audits into a more effective revenue-generating instrument. Training also reinforces the moderating role of supervision, as well-trained Account Representatives are better equipped to analyze financial data, identify discrepancies, and communicate supervision results professionally, increasing the deterrent effect of follow-up actions and reducing non-compliance risks (Yani & Prasajo, 2024).

Moreover, tax officer training strengthens the effect of taxpayer compliance on revenue performance by improving service quality, reducing administrative barriers, and fostering trust that encourages voluntary compliance. Training also enhances the effectiveness of digital reporting systems, such as e-filing, e-forms, and e-invoicing, by enabling officers to assist taxpayers in overcoming technical challenges and understanding compliance requirements. This combination of technical and educational competence improves user experience, minimizes errors, and increases formal compliance. These results align with Dimas (2020) and Yani and Prasajo (2024), who emphasize the role of training and development in performance improvement. The study contributes theoretically by demonstrating that audits, supervision, and compliance are most effective when supported by competent officers; empirically by showing that supervision and compliance generate faster revenue effects than audits; and practically by highlighting officer training as a strategic priority to maximize the effectiveness of tax administration instruments.

6. Conclusion

This study examines how tax revenue performance at Tax Service Offices under the East Java Regional Office of the Directorate General of Taxes is influenced by audits, supervision, taxpayer compliance, and tax officer training from 2022 to 2024. The results show that supervision and taxpayer compliance significantly improve revenue performance, while audits have a limited effect due to their administrative nature, partial risk-based approach, and delayed realization of results. These findings suggest the need for more targeted, risk-based audits with faster follow-up mechanisms to enhance effectiveness. Tax officer training was found to strengthen the impact of audits, supervision, and compliance, highlighting the strategic role of personnel competence in tax administration. Well-trained officers are better able to conduct effective supervision, guide taxpayers, and apply audits efficiently, making capacity-building policies a key determinant in optimizing state revenue.

Despite its contributions, the study has limitations. It covers only a three-year period, focuses solely on the East Java Regional Office, and does not account for external factors such as macroeconomic conditions, fiscal policy, developments in tax information technology, or taxpayers' socio-economic characteristics. These factors may limit the generalizability of the findings. Future research is recommended to

expand the geographic scope, lengthen the observation period, and include external and institutional variables. Such studies can provide a more comprehensive understanding of the factors affecting tax revenue performance in Indonesia and generate stronger theoretical insights while offering practical guidance for improving compliance, supervision, audit effectiveness, and overall revenue collection.

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The data that support the findings of this study are available from the corresponding author upon reasonable request.



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