

Determinants of MSME Taxpayer Compliance: Evidence from KPP Pratama Pondok Aren, Indonesia

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Abstract

This study examines the effects of taxation system modernization, tax calculation methods, tax justice, and tax rate changes on MSME taxpayer compliance at KPP Pratama Pondok Aren, South Tangerang. Questionnaire data from 100 MSME taxpayers were collected through purposive sampling, with Slovin's formula determining sample size. Data were analyzed using validity, reliability, classical assumption, multiple linear regression, t-, and F-tests. The results show that taxation system modernization positively and significantly affects compliance ($\beta = 0.172$; $p = 0.038$), as do tax rate changes ($\beta = 0.477$; $p < 0.001$). Tax calculation methods ($\beta = 0.088$; $p = 0.378$) and tax justice ($\beta = 0.165$; $p = 0.090$) have positive but insignificant effects. Model is significant ($F = 28.017$; $p < 0.001$) and explains 54.1% of compliance variation ($R^2 = 0.541$).

Keywords: Tax Compliance; MSMEs; Tax Calculation Methods; Tax Justice; Tax Rate Changes

JEL Classification: G38; H26; H25

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Introduction

Taxes according to Law No. 28 of 2007 are contributions that must be paid by individuals or entities to the state and are mandatory. Taxes play a very important role in the formation of the State Budget (APBN), because it is one of the main sources of state revenue used to finance various development programs and public services. Therefore, the government always strives to increase tax revenue so that the state budget can run optimally and sustainably. This strategic task is entrusted to the Directorate General of Taxes as the agency responsible for managing taxation in Indonesia (Amanda et al., 2023). So, it can be concluded that tax is an obligation to submit part of the wealth of both individuals and entities to the state which is compelling in nature which is used to finance state development which is useful for the common good as a form of independence of a nation.

To optimize tax revenue, the Indonesian government has paid special attention to Micro, Small and Medium Enterprises (MSMEs), considering their significant role in the national economy. However, MSME taxpayers may face difficulties in understanding tax obligations, sanctions, rates, and service procedures. Evidence from MSME studies indicates that tax understanding and taxpayer education are relevant to compliance (Maili, 2022; Ridhotin & Ardini, 2022). This makes the accessibility and clarity of tax information important complements to administrative reform.

Table 1 Number of MSME Taxpayers at KPP Pratama Pondok Aren, 2019–2023

Year	Number of Taxpayers Using PP 23 Rates	Total Revenue of WP Tariff PP 23 (MSME)	Number of on-time MSME taxpayers
2019	8,413	29,098,871,566	18,574
2020	7,169	17,443,012,302	13,062
2021	5,802	16,665,252,521	9,602
2022	8,012	16,957,840,466	9,683
2023	8,716	16,525,488,682	10,432

Table 1 shows that the number of taxpayers using the PP 23 rate declined from 8,413 in 2019 to 5,802 in 2021 before increasing to 8,716 in 2023. The number of taxpayers reporting on time also fluctuated and did not move proportionally with the number of registered taxpayers. This

pattern indicates that taxpayer compliance remains an important issue at KPP Pratama Pondok Aren. Previous studies suggest that administrative complexity, limited tax understanding, and access to clear information can hinder MSME compliance (Lubis & Hidayat, 2019; Maili, 2022; Ridhotin & Ardini, 2022).

Modernization of tax administration is organizational improvement and business process improvement by utilizing information technology, as well as improvement in the field of human resources (Yuliani & Yanti, 2022). In order to improve the image of the directorate general of taxes, the minister of finance gives responsibility to the directorate general of taxes to continue to carry out administrative improvements to provide various services to taxpayers (Nisaak & Khasanah, 2022).

To make tax payments, individual taxpayers and business entities must be able to calculate the amount of tax to be paid and record the tax payable with the provisions set by the government to comply with taxation provisions. Government Regulation Number 23 Year 2018 stipulates that individual and corporate taxpayers whose total circulation is less than IDR 4.8 billion in one fiscal year are not required to organize bookkeeping and are required to make records. Quoted from research (Thahir et al., 2021) according to (Mardiasmo, 2018), what is meant by recording consists of data collected regularly about circulation or gross receipts and / or gross income as a basis for calculating the amount of tax owed, including income that is not a tax object and / or subject to final tax.

Quoted from research (Thahir et al., 2021) according to (Mardiasmo, 2018) Justice is a condition related to attitudes and actions in human relations to get balanced or impartial treatment. In accordance with the objectives of the law, namely achieving justice in terms of tax imposition in general and evenly, and adjusted to their respective abilities. As well as fairness in its implementation, namely by giving taxpayers the right to file objections, delays in payment, and appeal to the Tax Court.

The tax rate is the tax base used to determine the amount of tax payable from a tax object. According to (Chandra, C., & Sandra, 2020), explaining that high tax rates are often considered a burden by taxpayers, especially for Micro, Small and Medium Enterprises (MSMEs). When tax rates are considered disproportionate to the income or economic burden faced, many MSMEs choose not to report their income in full or even do not register as formal taxpayers. This condition leads to a low level of compliance among MSME players, which ultimately affects state tax revenue. Based on Law Number 7 of 2021 or commonly called the Taxation Harmonization Law (HPP Law), Government Regulation Number 23 of 2018 provides a final

tax rate of 0.5% for taxpayers who have a gross turnover (turnover) that does not exceed IDR 4.8 billion in 1 (one) tax year starting from the tax year registered, for taxpayers registered since the enactment of PP No. 23 of 2018 or the tax year this PP comes into force (Thahir et al., 2021).

Taxpayer compliance is a global problem that affects both developed and developing countries. Non-compliance can reduce state revenue and may take forms such as late reporting, inaccurate reporting, avoidance, or evasion (Adzillah et al., 2023). For MSMEs, compliance is closely related to taxpayers' understanding of tax rules, the accessibility of tax administration, and the perceived burden of taxation. Effective socialization and taxpayer education can therefore support compliance (Ridhotin & Ardini, 2022). Recent evidence published in the Indonesian Financial Review also indicates that consistency in tax enforcement can strengthen regulatory credibility and support voluntary taxpayer compliance (Nofryanti & Tatariyanto, 2026).

Previous studies report inconsistent findings regarding the determinants of MSME taxpayer compliance. Thahir et al. (2021) and Wulandari and Dawam (2024) found that changes in tax rates were positively associated with compliance, whereas Yuliani and Yanti (2022) reported no significant effect of tax-rate changes. Other studies have also emphasized the roles of modernization, tax calculation, and taxpayer understanding, but the direction and strength of these relationships vary across contexts. More importantly, Thahir et al. (2021) examined modernization, calculation methods, and tax-rate changes with tax justice as a moderating variable, whereas the present study positions tax justice as a direct explanatory variable and examines the four factors simultaneously among MSME taxpayers registered at KPP Pratama Pondok Aren. Thus, the research gap lies not merely in combining variables, but in testing whether these four dimensions independently explain compliance within a specific local MSME taxpayer context where compliance has fluctuated during 2019–2023.

Previous studies have examined various determinants of MSME taxpayer compliance, including taxation system modernization, tax calculation methods, tax justice, and tax rates. However, differences remain in variable positioning, model specification, research context, and empirical findings. Thahir et al. (2021), for example, examined modernization, calculation methods, and tax-rate changes while positioning tax justice as a moderating variable, whereas the present study positions tax justice as a direct explanatory variable.

The present study therefore extends previous research in three ways. First, it examines taxation system modernization, tax calculation methods, tax justice, and changes in tax rates simultaneously within one empirical model. Second, it treats tax justice as a direct explanatory

variable rather than solely as a moderating variable. Third, it provides localized empirical evidence from MSME taxpayers registered at KPP Pratama Pondok Aren.

Accordingly, the originality of this study lies in the integration of administrative, procedural, fairness-related, and policy-related dimensions of taxpayer compliance within a specific institutional context. This approach enables the study to identify whether these dimensions exhibit similar or different statistical relationships with MSME taxpayer compliance.

Accordingly, the research question is: do taxation system modernization, tax calculation methods, tax justice, and changes in tax rates affect MSME taxpayer compliance at KPP Pratama Pondok Aren?

The objective of this study is to provide empirical evidence on the partial and joint effects of taxation system modernization, tax calculation methods, tax justice, and changes in tax rates on MSME taxpayer compliance. The study contributes by integrating administrative, procedural, fairness-related, and policy-related factors in one empirical model and by providing evidence from MSME taxpayers registered at KPP Pratama Pondok Aren.

Literature Review

The study is grounded in the Theory of Reasoned Action (TRA) and compliance theory. TRA explains behavior through the sequence of beliefs, attitudes, intentions, and actual behavior. In the tax context, taxpayers are expected to evaluate the consequences and practicality of complying with tax obligations before forming an intention to comply (Thahir et al., 2021). Compliance theory complements TRA by emphasizing adherence to rules and obligations. Taxpayer compliance therefore reflects not only an individual intention but also the willingness and ability to follow applicable tax procedures and fulfill tax rights and obligations (Hasanudin et al., 2020). This rule-based perspective is also consistent with recent evidence that regulatory consistency and predictable enforcement are relevant to sustaining voluntary taxpayer compliance (Nofryanti & Tatariyanto, 2026). Together, these perspectives provide a basis for explaining why administrative modernization, calculation procedures, perceived tax justice, and tax-rate changes may shape compliance.

The integration of TRA and compliance theory provides the theoretical mechanism underlying the proposed relationships. TRA explains the behavioral process through which

taxpayers' beliefs and evaluations may influence attitudes and behavioral intentions, while compliance theory emphasizes the fulfillment of formal tax rules and obligations.

In this framework, taxation system modernization represents the administrative dimension, because accessible and convenient tax administration may reduce procedural barriers. Tax calculation methods represent the procedural dimension because clarity and simplicity may reduce uncertainty in fulfilling tax obligations. Tax justice represents the fairness dimension because perceived fairness may influence taxpayers' attitudes toward the tax system. Changes in tax rates represent the policy dimension because changes in the perceived tax burden may influence taxpayers' evaluation of compliance.

Thus, TRA provides the behavioral mechanism, whereas compliance theory provides the rule- and obligation-based perspective. The two perspectives are complementary rather than interchangeable and together provide the conceptual basis for examining MSME taxpayer compliance.

Taxes are compulsory contributions imposed under legal provisions and are used to finance public goods and services (Sudirman et al., 2020). Within this framework, taxpayer compliance represents the fulfillment of tax obligations and the exercise of taxpayer rights in accordance with applicable regulations (Hasanudin et al., 2020). The theoretical framework of this study links each explanatory variable to compliance through administrative convenience, procedural clarity, perceived fairness, and perceived tax burden.

Compliance theory is particularly relevant because MSME taxpayers must follow rules concerning registration, calculation, payment, and reporting. However, compliance is more likely to occur when the rules are understandable, and the administrative process is accessible. This makes the four variables in the study theoretically relevant to taxpayer behavior.

Government Regulation No. 28/2018 which is a revision of Government Regulation No. 46/2013 related to the reduction of the Final Income Tax (PPh) rate from 1% to 0.5% derived from businesses received or obtained by Micro, Small and Medium Enterprises (MSME) taxpayers with gross turnover (turnover) not exceeding IDR 4.8 billion in 1 (one) tax year (Aminah et al., 2020). The time limit for this tax incentive policy is different for various tax subjects. First, for individual tax subjects, the incentive has a period of 7 (seven) years. Second, for business entity tax subjects in the form of a Limited Liability Company, the incentive has a term of 3 (three) years. Finally, for business entity tax subjects in the form of CVs, firms, and cooperatives for 4 (four) years. The time period is calculated from the regulatory tax year for old taxpayers, and from the registered tax year for new taxpayers (Aminah et al., 2020).

The implementation of Government Regulation No. 23 of 2018 has also been examined empirically in relation to MSME taxpayer compliance. Noviana et al. (2020) examined the role of tax socialization, tax rates, the implementation of PP No. 23 of 2018, and tax sanctions in explaining MSME taxpayer compliance. This evidence reinforces the relevance of tax policy and taxpayers' understanding of regulatory changes in the context of MSME compliance.

Taxation system modernization is expected to improve compliance because digital administration can reduce procedural complexity, increase accessibility, and facilitate timely reporting and payment. Lubis and Hidayat (2019) found that modernization of tax administration is associated with taxpayer compliance, while Yuliani and Yanti (2022) also found that modernization contributes to MSME taxpayer compliance. From the TRA perspective, easier procedures can generate more favorable attitudes toward compliance and strengthen the intention to comply. From a compliance perspective, a simpler and more accessible administrative system reduces practical barriers to obeying tax rules. Therefore, modernization should have a positive relationship with taxpayer compliance.

Tax calculation methods concern how taxpayers determine the amount of tax payable and record the information required for tax obligations. For MSMEs, the applicable regulatory framework can simplify calculation by using gross turnover as a basis for final tax under the relevant MSME provisions (Mardiasmo, 2018; Thahir et al., 2021). A clear and manageable calculation method should reduce uncertainty and improve taxpayers' ability to fulfill their obligations. In TRA terms, clarity of the calculation process can support a favorable attitude and intention toward compliance. Accordingly, a positive effect of tax calculation methods on taxpayer compliance is hypothesized.

Tax justice refers to taxpayers' perception that tax burdens and administrative treatment are fair and proportionate. Perceived fairness can shape taxpayers' attitudes toward the tax system and their willingness to comply. Widiasih and Wiagustini (2019) examined tax justice as one of the factors related to MSME taxpayer compliance, while Thahir et al. (2021) incorporated tax justice into the relationship between tax policy variables and compliance. In the present framework, tax justice is treated as a direct explanatory variable. When taxpayers perceive tax rules and their implementation as fair, they are expected to develop stronger intentions to fulfill tax obligations.

Changes in tax rates may alter taxpayers' perceived tax burden and the attractiveness of formal compliance. For MSMEs, changes in the final income tax rate and related provisions can affect how taxpayers evaluate the costs and benefits of compliance. Thahir et al. (2021) and

Wulandari and Dawam (2024) reported positive relationships between tax-rate changes and compliance, whereas Yuliani and Yanti (2022) found no significant effect. These contradictory findings suggest that the effect of tax-rate changes is context dependent and should be tested empirically among MSME taxpayers at KPP Pratama Pondok Aren.

Table 1 Synthesis of Previous Studies and Research Position

Study	Main Variables	Method	Main Findings	Research Position
Thahir et al. (2021)	Modernization, calculation methods, tax-rate changes, tax justice	Quantitative	Examined taxation-related determinants of MSME compliance	Current study treats tax justice as a direct predictor
Yuliani & Yanti (2022)	Taxation-related determinants	Quantitative	Reported different findings concerning tax-rate changes	Current study re-examines the relationship in a different local context
Widiasih & Wiagustini (2020)	Tax justice and other determinants	Quantitative	Tax justice is relevant to MSME compliance	Current study tests tax justice as a direct explanatory variable
Wulandari & Dawam (2024)	Tax-rate changes and taxation factors	Quantitative	Tax-rate changes are associated with compliance	Current study examines the relationship at KPP Pratama Pondok Aren

Study	Main Variables	Method	Main Findings	Research Position
Current Study	Modernization, calculation methods, tax justice, tax-rate changes	Multiple linear regression	Partial and joint relationships with compliance	Integrates four dimensions in one local empirical model

The synthesis indicates that previous studies have produced different findings and have used different model specifications. The present study addresses this gap by examining four taxation-related dimensions simultaneously and by positioning tax justice as a direct explanatory variable within the context of MSME taxpayers registered at KPP Pratama Pondok Aren.

MSMEs are an important group in the Indonesian tax system because their tax obligations are closely related to turnover, simple bookkeeping or recording requirements, and taxpayers' understanding of applicable regulations. The present study therefore focuses specifically on MSME taxpayers registered at KPP Pratama Pondok Aren and examines the four explanatory variables within the same model.

Based on the theoretical arguments and prior empirical evidence, the following hypotheses are formulated:

H1: Taxation system modernization has a positive effect on MSME taxpayer compliance.

H2: Tax calculation methods have a positive effect on MSME taxpayer compliance.

H3: Tax justice has a positive effect on MSME taxpayer compliance.

H4: Changes in tax rates have a significant effect on MSME taxpayer compliance.

H5: Taxation system modernization, tax calculation methods, tax justice, and changes in tax rates jointly have a significant effect on MSME taxpayer compliance.

Research Methods

This study employed a quantitative explanatory design. Quantitative methods are appropriate for testing relationships among variables using structured instruments and statistical analysis (Sugiyono, 2019). The research focused on MSME taxpayers registered at KPP Pratama Pondok Aren, South Tangerang. The dependent variable was taxpayer compliance, while the

independent variables were taxation system modernization (X1), tax calculation methods (X2), tax justice (X3), and changes in tax rates (X4).

The study population comprised MSME taxpayers registered at KPP Pratama Pondok Aren. Purposive sampling was used to identify respondents who met the study's substantive criterion, namely MSME taxpayers registered at KPP Pratama Pondok Aren who had become taxpayers through the business they operated. Slovin's formula was used separately to determine the minimum number of respondents, not to select respondents. With a population of 45,777 taxpayers and a 10% sampling error, the calculation produced $n = 99.78$, which was rounded to 100 respondents. Thus, purposive sampling determines respondent eligibility, whereas Slovin's formula determines the minimum sample size.

This study uses independent variables and dependent variables to test the hypothesis. The independent variables in this study include Modernization of the Taxation System, Tax Calculation Methods, Tax Justice and Changes in Tax Rates. Furthermore, the dependent variable in this study is taxpayer compliance with tax obligations in accordance with applicable tax regulations.

Operational Definition and Measurement

The research variables were operationalized based on their respective conceptual definitions and measured using structured questionnaire items. All variables were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Table 2 Operational Definition and Measurement of Variables

Variable	Operational Definition	Measurement
Taxation System Modernization (X1)	Perception of the accessibility, convenience, and effectiveness of modern tax administration	Digital services, administrative convenience, accessibility of information, electronic reporting/payment
Tax Calculation Methods (X2)	Perception of the clarity and simplicity of calculating tax obligations	Ease of calculation, clarity of procedures, understanding of tax base, recording requirements

Variable	Operational Definition	Measurement
Tax Justice (X3)	Perception of fairness in tax burden and administrative treatment	Fairness, equal treatment, procedural fairness, transparency
Changes in Tax Rates (X4)	Perception and understanding of changes in applicable MSME tax rates and related provisions	Awareness, understanding, perceived burden, clarity of changes, adaptation
Taxpayer Compliance (Y)	Fulfillment of applicable tax obligations	Registration, calculation, payment, reporting, compliance

The operationalization of the research variables was developed from the conceptual definitions and dimensions identified in previous empirical studies. Taxation system modernization refers to taxpayers' perceptions of the accessibility and convenience of modern tax administration, including digital services and electronic tax administration. Previous studies have examined modernization as a relevant dimension of MSME taxpayer compliance (Lubis & Hidayat, 2019; Nisaak & Khasanah, 2022; Yuliani & Yanti, 2022).

Tax calculation methods refer to taxpayers' perceptions concerning the clarity and simplicity of determining tax obligations. This construct is consistent with previous studies examining calculation methods as a factor associated with MSME taxpayer compliance (Thahir et al., 2021; Yuliani & Yanti, 2022).

Tax justice refers to taxpayers' perceptions concerning fairness in tax burdens and administrative treatment. The construct is supported by studies examining tax fairness or tax justice in relation to MSME taxpayer compliance (Widiasih & Wiagustini, 2020; Thahir et al., 2021).

Changes in tax rates are measured as taxpayers' perceptions and understanding of changes in applicable MSME tax rates and related provisions, rather than as an objective statutory rate variable. This operationalization is consistent with previous research examining changes in tax rates as a determinant of MSME taxpayer compliance (Thahir et al., 2021; Yuliani & Yanti, 2022; Wulandari & Dawam, 2024).

Taxpayer compliance refers to the fulfillment of applicable tax obligations, including registration, calculation, payment, and reporting. This operationalization is consistent with previous research examining taxpayer compliance among MSMEs and other taxpayer groups (Hasanudin et al., 2020; Widiasih & Wiagustini, 2020).

The data collection technique used a structured questionnaire administered to the selected respondents. The instrument contained statements representing each research variable. Data were processed using IBM SPSS Statistics 27. The analysis included descriptive statistics, validity and reliability tests, classical assumption tests, multiple linear regression, partial significance tests (t-test), and simultaneous significance testing (F-test).

$$n = \frac{N}{1 + (N(e^2))} \quad (1)$$

$$n = \frac{45.777}{1 + (45.777 \times 0,10^2)} \quad (2)$$

$$n = \frac{45.777}{458,77} \quad (3)$$

$$n = 99,78 \text{ rounded up to } 100$$

The minimum sample size was therefore 100 respondents.

The questionnaire was administered to the selected respondents, and responses were coded and entered IBM SPSS Statistics 27 for analysis.

Results and Discussions

Results

The data were analyzed using IBM SPSS Statistics 27. Instrument quality was assessed through item validity and Cronbach's alpha reliability. Classical assumptions were evaluated through the Kolmogorov–Smirnov normality test, multicollinearity statistics, scatterplot and Glejser tests for heteroscedasticity, and the Durbin–Watson statistic for residual autocorrelation. Hypotheses were tested using multiple linear regression, t-tests, and the F-test at a 5% significance level.

Data quality testing is an important step in research that aims to ensure that the data obtained from questionnaires or other measurement instruments are valid and reliable.

Table 3 Validity Test Results for Taxation System Modernization (X1)

No Item	<i>Corrected Item Total Correlation</i>	r-table	Description
X1.1	0.715	0.197	Valid
X1.2	0.777	0.197	Valid
X1.3	0.890	0.197	Valid
X1.4	0.843	0.197	Valid
X1.5	0.724	0.197	Valid

Source : IBM SPSS Statistic 27

Table 4 Validity Test Results for Tax Calculation Methods (X2)

No Item	<i>Corrected Item Total Correlation</i>	r-table	Description
X2.1	0.897	0.197	Valid
X2.2	0.856	0.197	Valid
X2.3	0.847	0.197	Valid
X2.4	0.861	0.197	Valid
X2.5	0.849	0.197	Valid

Source : IBM SPSS Statistic 27

Table 5 Tax Justice Validity Test Results (X3)

No Item	<i>Corrected Item Total Correlation</i>	r-table	Description
X3.1	0.766	0.197	Valid
X3.2	0.624	0.197	Valid
X3.3	0.893	0.197	Valid
X3.4	0.864	0.197	Valid
X3.5	0.747	0.197	Valid

Source : IBM SPSS Statistic 27

Table 6 Validity Test Results for Changes in Tax Rates (X4)

No Item	<i>Corrected Item Total Correlation</i>	r-table	Description
X4.1	0.698	0.197	Valid
X4.2	0.891	0.197	Valid
X4.3	0.788	0.197	Valid
X4.4	0.829	0.197	Valid
X4.5	0.832	0.197	Valid

Source : IBM SPSS Statistic 27

Table 7 Validity Test Results for Taxpayer Compliance (Y)

No Item	<i>Corrected Item Total Correlation</i>	r-table	Description
Y.1	0.866	0.197	Valid
Y.2	0.878	0.197	Valid
Y.3	0.809	0.197	Valid
Y.4	0.794	0.197	Valid
Y.5	0.785	0.197	Valid

Source : IBM SPSS Statistic 27

All questionnaire items were declared valid because each Corrected Item-Total Correlation exceeded the critical r value of 0.197. The results indicate that the measurement items adequately represented their respective constructs. The critical value of 0.197 is based on $df = n - 2 = 98$ with a 5% significance level for a two-tailed Pearson correlation test. Therefore, questionnaire items with Corrected Item-Total Correlation values above 0.197 were considered valid.

Table 8 Reliability Test Results

Variable	Cronbach's Alpha	Description
Modernization of the Taxation System (X1)	0.800	Reliable
Method of Calculation (X2)	0.818	Reliable
Tax Justice (X3)	0.799	Reliable
Change in Tax Rate (X4)	0.808	Reliable
Taxpayer Compliance (y)	0.812	Reliable

Source : IBM SPSS Statistic 27

The reliability results show Cronbach's alpha values of 0.800 for taxation system modernization, 0.818 for tax calculation methods, 0.799 for tax justice, 0.808 for changes in tax rates, and 0.812 for taxpayer compliance. All values exceed 0.70, indicating acceptable internal consistency for the research instruments.

In linear regression analysis, there are several important assumptions that must be met, including normality, absence of autocorrelation, Heteroscedasticity and absence of multicollinearity.

Table 9 Normality Test Results

Indicators	Value
N	100
Test Statistic	0.082
Asymp. Sig. (2-tailed)	0.091
Monte Carlo Sig. (2-tailed)	0.095
α	0.05

Source : IBM SPSS Statistic 27

The Kolmogorov–Smirnov test produced an Asymp. Sig. value of 0.091 and a Monte Carlo Sig. value of 0.095. Both values exceed 0.05, so the residuals do not show a statistically significant departure from normality.

Table 10 Durbin–Watson Autocorrelation Test Result

Model R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	0.736	0.541	0.522	2.51047	1.799

Source : IBM SPSS Statistic 27

The model summary reports $R = 0.736$, indicating a strong positive association between the set of independent variables and taxpayer compliance. More importantly, $R^2 = 0.541$ means that 54.1% of the variation in taxpayer compliance is explained jointly by taxation system modernization, tax calculation methods, tax justice, and changes in tax rates, while the remaining 45.9% is attributable to factors outside the model. The adjusted R^2 is 0.522. The Durbin-Watson statistic is 1.799. With $n = 100$ and four predictors, the 5% critical values are approximately $dU = 1.736$ and $4 - dU = 2.264$; because 1.799 lies between these values, the model does not indicate positive or negative residual autocorrelation under the standard decision rule.

Table 11 Multicollinearity Test Results

Variable	B	Std. Error	Beta (β)	t	Sig.	Tolerance	VIF
Constant	4.105	1.788	—	2.296	0.024	—	—
Taxation System Modernization (X1)	0.196	0.093	0.172	2.101	0.038	0.724	1.382
Tax Calculation Methods (X2)	0.085	0.095	0.088	0.886	0.378	0.485	2.063
Tax Justice (X3)	0.157	0.091	0.165	1.714	0.090	0.524	1.909
Tax Rate Changes (X4)	0.434	0.080	0.477	5.448	<0.001	0.629	1.589

Source: IBM SPSS Statistics 27

The multicollinearity diagnostics show that all tolerance values are above 0.10 and all VIF values are below 10. The model therefore does not exhibit a problematic level of multicollinearity among the four independent variables.

Based on the results of data processing of the SPSS program, the results of the heteroscedasticity test are as follows:

Scatterplot Test

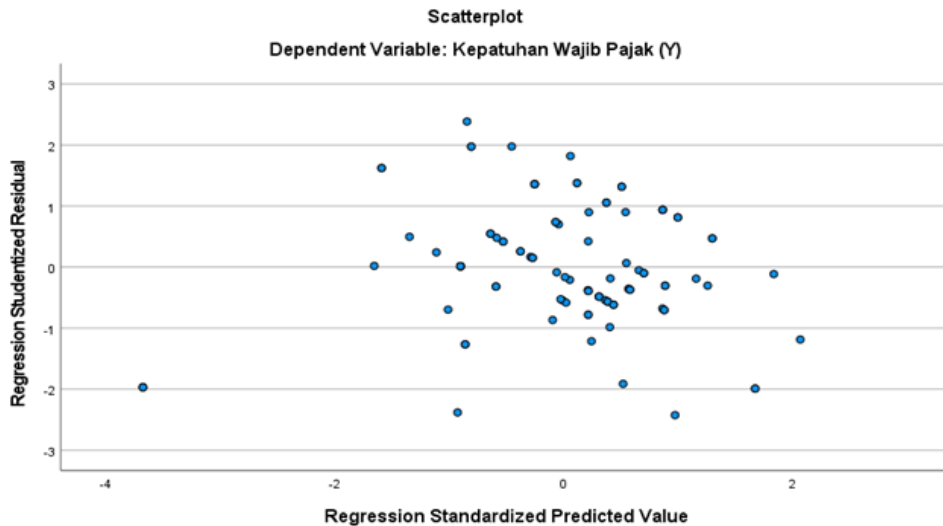


Figure 1 Scatterplot Test Results

The scatterplot shows residual points distributed around the zero line without a systematic funnel or curved pattern. This visual evidence does not indicate a clear heteroscedastic pattern.

Glejser Test

Table 12 Glejser Test Results

Variable	B	Beta	t	Sig.	Conclusion
Modernization of the Taxation System	-0.037	-0.085	-0.732	0.466	Not significant
Method of Calculation	-0.026	-0.075	-0.549	0.584	Not significant
Tax justice	0.079	0.218	1.620	0.108	Not significant
Changes in Tax Rates	-0.084	-0.242	-1.943	0.055	Not significant at the 5% level
Constant	3.154	—	3.255	0.002	Significant

Source : IBM SPSS Statistic 27

The Glejser test shows significance values of 0.466 for taxation system modernization, 0.584 for tax calculation methods, 0.108 for tax justice, and 0.055 for changes in tax rates. Because all values are greater than 0.05, there is no statistical evidence of heteroscedasticity in the regression model.

Hypothesis testing is very important in scientific research because it helps researchers make data-based decisions and reduces the possibility of errors in the interpretation of research results. The hypothesis testing used is as follows.

Table 13 Partial t-Test Results

Variable	B	Std. Error Beta	t	Sig.	Conclusion
Constant	4.105	1.788	—	2.296 0.024	Significant
Modernization of the Taxation System	0.196	0.093	0.172	2.101 0.038	Significant
Method of Calculation	0.085	0.095	0.088	0.886 0.378	Not significant
Tax justice	0.157	0.091	0.165	1.714 0.090	Not significant at the 5% level
Changes in Tax Rates	0.434	0.080	0.477	5.448 0.000	Significant

Source : IBM SPSS Statistic 27

The partial tests show that taxation system modernization has a positive and significant effect on taxpayer compliance ($B = 0.196$; $\beta = 0.172$; $t = 2.101$; $p = 0.038$). Tax calculation methods have a positive but insignificant effect ($B = 0.085$; $\beta = 0.088$; $t = 0.886$; $p = 0.378$). Tax justice also has a positive but insignificant effect ($B = 0.157$; $\beta = 0.165$; $t = 1.714$; $p = 0.090$). Changes in tax rates have a positive and significant effect ($B = 0.434$; $\beta = 0.477$; $t = 5.448$; $p < 0.001$). Thus, H1 and H4 are supported, whereas H2 and H3 are not supported.

Table 14 Simultaneous F-Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	706.308	4	176.577	28.017	0.000

Model	Sum of Squares	df	Mean Square	F	Sig.
Residual	598.732	95	6.302	—	—
Total	1,305.040	99	—	—	—

Source: IBM SPSS Statistic 27

The F-test produces $F = 28.017$ with $p < 0.001$. The regression model is therefore statistically significant, indicating that the four independent variables jointly contribute to explaining variation in taxpayer compliance. This joint result should be distinguished from the partial t-tests: the significant F-test does not mean that every individual predictor is significant.

Multiple linear regression was used to estimate the effect of the four independent variables on taxpayer compliance. The regression model is specified as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4$$

Table 15 Multiple Linear Regression Results

Variable	B	Std. Error	Beta	t	Sig.	Conclusion
Constant	4.105	1.788	—	2.296	0.024	Significant
Modernization of the Taxation System	0.196	0.093	0.172	2.101	0.038	Significant
Method of Calculation	0.085	0.095	0.088	0.886	0.378	Not significant
Tax Justice	0.157	0.091	0.165	1.714	0.090	Not significant at the 5% level
Changes in Tax Rates	0.434	0.080	0.477	5.448	0.000	Significant

Source : IBM SPSS Statistic 27

$$Y = 4.105 + 0.196X_1 + 0.085X_2 + 0.157X_3 + 0.434X_4$$

The positive coefficients indicate that increases in each predictor are associated with higher predicted taxpayer compliance, although the statistical evidence is significant only for taxation system modernization and changes in tax rates.

Discussion

Joint Effect of Taxation Factors on Taxpayer Compliance

The ANOVA results indicate that taxation system modernization, tax calculation methods, tax justice, and changes in tax rates jointly have a statistically significant effect on taxpayer compliance. The regression model produces an F-value of 28.017 with a significance level of 0.000 ($p < 0.001$), indicating that the model is statistically significant and suitable for explaining variations in taxpayer compliance. The finding confirms that taxpayer compliance is influenced by a combination of administrative, procedural, policy, and perceptual factors rather than by a single determinant.

The coefficient of determination (R^2) of 0.541 indicates that 54.1% of the variance in taxpayer compliance can be explained by the four independent variables included in the model, while the remaining 45.9% is associated with other factors outside the model. This finding is consistent with previous research showing that MSME taxpayer compliance is multidimensional and may be influenced by tax knowledge, taxpayer awareness, income, sanctions, subjective norms, self-assessment, and the quality of tax services (Amanda et al., 2023; Adzillah et al., 2023; Sudirman et al., 2020). Therefore, although the current model provides substantial explanatory power, taxpayer compliance cannot be fully explained by taxation system modernization, calculation methods, tax justice, and tax-rate changes alone.

The partial results demonstrate that the contribution of each predictor differs. Taxation system modernization and changes in tax rates have positive and statistically significant effects on taxpayer compliance, whereas tax calculation methods and tax justice do not reach statistical significance at the 5% level. This pattern is broadly consistent with the literature, which suggests that administrative modernization and tax policy characteristics can influence compliance, while the effects of calculation mechanisms and perceptions of fairness may depend on taxpayer

characteristics and contextual conditions (Nisaak & Khasanah, 2022; Thahir et al., 2021; Yuliani & Yanti, 2022).

Effect of Taxation System Modernization on Taxpayer Compliance

The results show that taxation system modernization has a positive and statistically significant effect on taxpayer compliance, with a standardized coefficient of $\beta = 0.172$, a t-value of 2.101, and a significance level of 0.038. Because the significance value is below 0.05, H1 is supported. This result indicates that improvements in the tax administration system are associated with higher levels of taxpayer compliance among MSMEs at KPP Pratama Pondok Aren.

The positive relationship suggests that modernization, particularly through digitalization, electronic reporting, electronic payment facilities, and easier access to tax information and services, can reduce administrative barriers faced by MSME taxpayers. This interpretation is consistent with Lubis and Hidayat (2019), who found that modernization of tax administration is relevant to taxpayer compliance. Yuliani and Yanti (2022) also demonstrated the importance of modernization in improving MSME taxpayer compliance. In addition, Nisaak and Khasanah (2022) identified modernization of the tax administration system as one of the important factors associated with MSME taxpayer compliance.

The finding can also be understood from the perspective of the Theory of Reasoned Action (TRA). When taxpayers perceive the tax administration system as convenient, accessible, and easy to use, their attitudes toward fulfilling tax obligations may become more favorable. Administrative convenience can subsequently strengthen taxpayers' intention to comply. From a practical compliance perspective, modernization reduces procedural barriers and uncertainty, making compliance more manageable for taxpayers.

This issue is particularly relevant to MSMEs because many MSME taxpayers have limited administrative resources and may not employ specialized tax personnel. A modernized tax administration system can reduce the time, effort, and cost required to fulfill tax obligations. Therefore, electronic filing, electronic payment, accessible tax information, and user-friendly digital services can contribute to creating a more supportive compliance environment.

The finding also complements the evidence presented by Hasanudin et al. (2020), who highlighted the growing importance of online taxation and electronic transactions in the context of taxpayer compliance. As economic activities increasingly shift toward digital platforms, the tax administration system must also adapt to taxpayers' changing patterns of economic activity. Consequently, modernization should not be viewed merely as technological transformation but as an institutional mechanism for reducing compliance costs and improving taxpayer accessibility.

For KPP Pratama Pondok Aren, the result implies that improving the quality, reliability, and accessibility of digital tax services should remain a priority. The provision of simple digital interfaces, responsive technical assistance, clear online guidance, and reliable electronic reporting and payment facilities may further strengthen taxpayer compliance.

Effect of Tax Calculation Methods on Taxpayer Compliance

Tax calculation methods have a positive but statistically insignificant effect on taxpayer compliance. The regression results show a standardized coefficient of $\beta = 0.088$, a t-value of 0.886, and a significance level of 0.378. Since the significance value exceeds 0.05, H2 is not supported. Although the positive coefficient indicates that better perceptions of tax calculation methods tend to be associated with higher taxpayer compliance, the evidence is insufficient to establish a statistically significant relationship in this sample.

The insignificant finding should not be interpreted as evidence that tax calculation methods are irrelevant to taxpayer compliance. Rather, the statistical evidence is insufficient to establish a significant direct relationship at the 5% significance level. The possible explanation that MSME tax calculation is relatively standardized should therefore be interpreted cautiously because this mechanism was not directly tested through qualitative evidence in the present study.

This result differs from the expectation that a simpler and more understandable tax calculation mechanism would directly increase taxpayer compliance. Thahir et al. (2021) specifically examined the effect of tax calculation methods on MSME taxpayer compliance and incorporated this variable into a broader model of tax compliance. Similarly, Yuliani and Yanti (2022) examined calculation methods as one of the factors associated with MSME taxpayer

compliance. However, the insignificant result in the present study suggests that the effect of calculation methods may depend on the extent to which taxpayers perceive the mechanism as difficult, confusing, or administratively burdensome.

One possible explanation is that MSME tax calculation under the applicable final-tax framework may be relatively standardized, particularly when turnover is used as the basis for determining tax payable. Consequently, differences in taxpayers' perceptions of the calculation method may not be sufficiently large to generate significant differences in compliance behavior. In other words, when the calculation mechanism is already relatively straightforward, the mechanism itself may no longer be the primary determinant of whether taxpayers comply.

This interpretation is also supported by studies emphasizing the importance of taxpayer understanding and knowledge. Amanda et al. (2023) found that tax knowledge is among the factors associated with taxpayer compliance, while Ridhotin and Ardini (2022) examined tax understanding and the ease of taxation as important aspects of MSME taxpayer compliance. Akbar and Hardiansyah (2024) likewise highlighted the relevance of tax understanding, tax rates, and tax sanctions in explaining MSME taxpayer compliance.

Therefore, simply providing a calculation mechanism may not be sufficient to improve compliance if taxpayers lack adequate understanding of how the mechanism should be applied. Tax authorities may need to provide practical examples, digital calculation tools, consultation services, and easily understandable educational materials. Such interventions can help taxpayers translate the formal calculation mechanism into actual compliance behavior.

Effect of Tax Justice on Taxpayer Compliance

Tax justice has a positive but statistically insignificant effect on taxpayer compliance. The regression coefficient is positive ($\beta = 0.165$), with a t-value of 1.714 and a significance level of 0.090. Because the significance value exceeds 0.05, H3 is not supported at the 5% significance level. Nevertheless, the p-value of 0.090 indicates that the relationship approaches conventional statistical significance and would be significant if the study adopted a 10% significance level.

The positive coefficient indicates that stronger perceptions of tax justice tend to be associated with higher taxpayer compliance. However, the lack of statistical significance at the 5% level suggests that tax justice does not appear to be a sufficiently strong direct determinant of compliance among the MSME taxpayers examined in this study. This result is particularly interesting because previous studies have identified tax justice as an important factor in taxpayer compliance.

Widiasih and Wiagustini (2020), for example, examined tax justice, tax knowledge, tax sanctions, and tax consultants in relation to MSME taxpayer compliance and identified tax justice as an important consideration in understanding compliance behavior. Thahir et al. (2021) also incorporated tax justice into their model as a moderating variable rather than simply treating it as a direct predictor. This difference in model specification may help explain why the direct effect of tax justice is not statistically significant in the present study.

The finding suggests that tax justice may operate indirectly through other psychological and behavioral mechanisms, such as taxpayer trust, perceived government legitimacy, attitudes toward taxation, or moral obligation. Sudirman et al. (2020), for example, demonstrate the importance of subjective norms, moral obligation, and understanding of tax regulations in explaining taxpayer compliance. Thus, perceptions of fairness may contribute to compliance when they strengthen taxpayers' trust and willingness to cooperate, rather than producing an immediate direct effect.

In the context of KPP Pratama Pondok Aren, taxpayers may respond more immediately to tangible administrative improvements and concrete policy changes than to general perceptions of tax justice. Nevertheless, tax justice remains important for maintaining long-term taxpayer trust. Transparent procedures, consistent treatment, clear explanations of tax obligations, and equitable enforcement should therefore remain part of tax administration strategies.

These interpretations should be regarded as possible explanations rather than direct empirical evidence because the present study does not explicitly test mediation through trust, legitimacy, moral obligation, or taxpayer attitudes. Future studies may examine these mechanisms using mediation models or longitudinal research designs.

Effect of Changes in Tax Rates on Taxpayer Compliance

Changes in tax rates have a positive and statistically significant effect on taxpayer compliance. The results show a standardized coefficient of $\beta = 0.477$, a t-value of 5.448, and a significance level of 0.000 ($p < 0.001$). Therefore, H4 is supported. Among the four predictors, changes in tax rates have the largest standardized regression coefficient ($\beta = 0.477$). This indicates that, within the estimated model and sample, tax-rate changes have the largest standardized statistical association with taxpayer compliance among the predictors examined. This result should not be interpreted as evidence of causal superiority because the study uses a cross-sectional questionnaire design.

This finding is consistent with Thahir et al. (2021), who examined changes in tax rates, calculation methods, and tax system modernization in relation to MSME taxpayer compliance. It is also consistent with Wulandari and Dawam (2024), who investigated changes in tax rates together with calculation methods, payment mechanisms, and tax sanctions in the context of MSME taxpayer compliance. Nisaak and Khasanah (2022) further identified changes in tax rates as one of the factors relevant to MSME taxpayer compliance during the pandemic period.

However, previous findings are not entirely consistent. Yuliani and Yanti (2022), for example, reported different results regarding the effect of changes in tax rates on MSME taxpayer compliance. Such differences indicate that the relationship between tax rates and compliance may be context-sensitive and influenced by taxpayer characteristics, the magnitude and direction of policy changes, the perceived tax burden, and taxpayers' understanding of the applicable regulations.

For MSME taxpayers, changes in tax rates can directly influence the perceived tax burden and the attractiveness of maintaining formal compliance. When a tax-rate change is perceived as manageable and accompanied by clear information, taxpayers may be more willing and able to fulfill their obligations. Conversely, uncertainty regarding the applicable rate, calculation mechanism, payment procedure, or reporting requirements may create confusion and increase compliance costs.

The present finding is also relevant when compared with studies emphasizing the importance of taxpayer knowledge and understanding. Maili (2022) found that tax understanding, tax sanctions, tax rates, and service quality are relevant factors in explaining MSME taxpayer compliance. Akbar and Hardiansyah (2024) similarly examined tax understanding, tax rates, and tax sanctions as determinants of MSME taxpayer compliance. These findings suggest that the effect of tax-rate changes cannot be separated completely from taxpayers' ability to understand and apply the relevant tax rules.

The strong standardized coefficient found in the present study therefore emphasizes the importance of effective policy communication. Tax authorities should communicate changes in tax rates using simple and accessible language and provide practical examples based on different levels of MSME turnover. Information should clearly explain how taxpayers should calculate, pay, and report their tax obligations after a policy change. Such measures can reduce uncertainty and help taxpayers translate policy knowledge into actual compliance behavior.

Practical Implications

The findings provide several practical implications for KPP Pratama Pondok Aren. First, the significant effect of taxation system modernization highlights the importance of continuously improving digital tax administration and electronic services. Tax services should be accessible, reliable, simple, and responsive to the practical needs of MSME taxpayers. The findings of Lubis and Hidayat (2019) and Yuliani and Yanti (2022) support the importance of modernization as an administrative strategy for improving taxpayer compliance. The emphasis on accessible administration and clear communication is also relevant to the broader compliance perspective discussed by Nofryanti and Tatariyanto (2026), who highlight the importance of predictable regulatory enforcement for voluntary compliance.

Second, continuous taxpayer education is necessary. The insignificant effect of tax calculation methods suggests that the availability of calculation procedures alone may not be sufficient. Taxpayers need to understand how the procedures operate in practice. Tax education should therefore include simple calculation examples, digital guidance, consultation facilities, and explanations of payment and reporting procedures. This recommendation is supported by

studies emphasizing tax knowledge and understanding as important factors in taxpayer compliance (Amanda et al., 2023; Adzillah et al., 2023; Ridhotin & Ardini, 2022).

Third, changes in tax rates should be communicated proactively through clear explanations, simulations, and practical examples. Since changes in tax rates have the largest standardized coefficient in the present model, clear policy communication should become an important component of compliance strategies. The objective is not merely to inform taxpayers about the new rate but also to demonstrate how the change affects their actual tax obligations.

Finally, tax justice should continue to be maintained even though its direct effect is statistically insignificant at the 5% level. Transparent procedures, consistent treatment, fair enforcement, and clear explanations can strengthen taxpayer trust and create a more supportive compliance environment. This is important because tax justice may influence compliance indirectly through attitudes, trust, and perceived legitimacy.

Research Limitations

This study has several limitations that should be considered when interpreting the findings. First, the sample consists of 100 MSME taxpayers registered at a single tax office, KPP Pratama Pondok Aren. Therefore, the findings should not automatically be generalized to all MSMEs in Indonesia. Differences in regional economic conditions, taxpayer characteristics, business scale, administrative practices, and access to tax services may produce different results. Future research should therefore expand the geographic coverage and employ larger samples to improve the generalizability of the findings.

Second, this study uses a cross-sectional questionnaire design, which captures taxpayers' perceptions at a single point in time. Consequently, the study cannot determine how taxpayer perceptions and compliance behavior may change following future regulatory, technological, or administrative reforms. Longitudinal research could provide stronger evidence regarding changes in taxpayer behavior over time.

Third, although the model explains 54.1% of the variance in taxpayer compliance, the remaining 45.9% indicates that other relevant determinants are not included in the present

analysis. Previous studies have identified several additional factors that may contribute to taxpayer compliance, including tax knowledge, taxpayer awareness, tax sanctions, income, subjective norms, moral obligation, self-assessment, service quality, and taxpayer trust (Amanda et al., 2023; Adzillah et al., 2023; Sudirman et al., 2020; Maili, 2022). Future studies should therefore consider incorporating these variables to obtain a more comprehensive model of MSME taxpayer compliance.

Fourth, the study relies on self-reported questionnaire measures. Although the instrument demonstrates acceptable validity and reliability, self-reported responses may be influenced by respondents' perceptions and reporting tendencies. Future research may combine questionnaire responses with administrative or behavioral indicators of taxpayer compliance where access to such data is available.

Overall, the findings demonstrate that taxpayer compliance among MSMEs at KPP Pratama Pondok Aren is particularly associated with taxation system modernization and changes in tax rates, while tax calculation methods and tax justice do not show statistically significant direct effects at the 5% significance level. These results reinforce the importance of combining administrative modernization with effective taxpayer education, accessible digital services, transparent tax administration, and clear communication of tax policies. Such an integrated approach can help MSME taxpayers understand their obligations, reduce administrative uncertainty, and ultimately strengthen voluntary tax compliance.

Research Contribution

This study contributes to the literature in three respects. First, it integrates administrative, procedural, fairness-related, and policy-related dimensions into a single empirical model of MSME taxpayer compliance. Second, it integrates the Theory of Reasoned Action and compliance theory to provide complementary explanations of taxpayer compliance behavior. Third, it provides localized empirical evidence from MSME taxpayers registered at KPP Pratama Pondok Aren.

The findings further demonstrate that the four predictors do not exhibit identical statistical relationships with taxpayer compliance. Taxation system modernization and changes in tax rates

show statistically significant positive associations, whereas tax calculation methods and tax justice do not reach the 5% significance level. This differentiation provides a more nuanced understanding of MSME taxpayer compliance.

Conclusion

This study examined the relationships between taxation system modernization, tax calculation methods, tax justice, changes in tax rates, and MSME taxpayer compliance at KPP Pratama Pondok Aren. Based on the results of the multiple linear regression analysis, taxation system modernization is positively and significantly associated with taxpayer compliance, while tax calculation methods and tax justice show positive but statistically insignificant associations at the 5% significance level. Changes in tax rates are positively and significantly associated with taxpayer compliance.

The simultaneous test indicates that the four predictors jointly contribute to explaining variation in taxpayer compliance. The model produces an R^2 of 0.541, indicating that 54.1% of the observed variation in taxpayer compliance is explained jointly by the variables included in the model, while the remaining 45.9% is associated with factors outside the model.

The findings should be interpreted within the scope of the research design. Because the study uses a cross-sectional questionnaire and self-reported measures, the results indicate statistical associations rather than definitive causal relationships. Furthermore, the sample is limited to MSME taxpayers registered at KPP Pratama Pondok Aren, so the findings should not automatically be generalized to all MSMEs in Indonesia.

The contribution of the study lies in integrating administrative, procedural, fairness-related, and policy-related dimensions into one empirical model and in providing localized evidence concerning MSME taxpayer compliance. The findings suggest that taxpayer compliance is a multidimensional phenomenon and that the statistical relevance of individual determinants may differ across institutional contexts.

Future studies may extend the model by incorporating tax knowledge, taxpayer awareness, tax sanctions, service quality, trust, subjective norms, and moral obligation, as well as using larger samples and broader geographical coverage. Longitudinal research may also provide

stronger evidence concerning changes in taxpayer perceptions and compliance behavior following administrative and regulatory reforms.

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