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BEHAVIORAL DETERMINANTS OF MSME TAX COMPLIANCE IN THE DIGITAL ERA: THE MODERATION MODEL TESTING

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Abstract

MSMEs are an important component of Indonesia's economy; however, achieving adequate tax compliance among these businesses remains challenging. This study investigates whether tax literacy, tax morale, and trust in tax authorities influence MSME tax compliance. It examines the moderating role of tax system digitalization via the Coretax Administration System. Using a quantitative research design, data were obtained from 559 MSME operators across Java through an online questionnaire and analyzed using Partial Least Squares Structural Equation Modeling with SmartPLS 4. The results indicate that tax literacy, tax morale, trust in tax authorities, and tax system digitalization have significant positive effects on tax compliance. In addition, digitalization enhances the effects of tax literacy and trust on compliance, while reducing the influence of tax morale. These findings enrich the existing literature by highlighting how digital tax infrastructure can shape the relative influence of cognitive, institutional, and intrinsic factors on MSME tax compliance.

INTRODUCTION

According to the Ministry of Cooperatives and SMEs (2024), micro, small, and medium-sized enterprises (MSMEs) make up over 60% of Indonesia's GDP. They might be a source of tax revenue

due to their substantial impact on the economy. However, their participation in the tax system is still challenging. The responsibility of determining, reporting, and paying one's own tax obligations lies with individuals under Indonesia's self-assessment tax system. Accurately reporting company income or turnover is particularly important for MSMEs, as it forms the basis for determining the tax due under relevant laws. Therefore, tax compliance for MSMEs entails more than just making monetary payments; it also necessitates accurate reporting of business activities and financial gains. In addition, it is possible to incorrectly determine a company's tax obligation if its income or turnover is not accurately reported. Paying taxes and accurately reporting business activities and income are thus essential components of tax compliance for MSMEs. Inaccurate reporting of business income or turnover may result in an incorrect determination of tax liabilities and potentially create a gap between actual economic activity and the tax contribution reported by MSMEs.

However, the challenge is not merely whether MSMEs are registered as taxpayers, but also whether they are willing and able to report their business income accurately. Accurate income reporting is essential because it provides the basis for determining the tax obligations that MSMEs are required to fulfill. When business income or turnover is underreported or not reported, the resulting tax liability may not reflect the taxpayer's actual economic activity. This highlights a fundamental issue in MSME tax compliance: the extent to which MSMEs understand their tax obligations, are willing to comply internally, trust the institutions responsible for taxation, and can navigate the increasingly digital tax system. This compliance challenge is reflected in the considerable gap between the number of MSMEs and their participation in the tax system. Of approximately 67.8 million MSMEs operating across Indonesia, only around 2.9 million have been registered as taxpayers (Mufida et al., 2025; Ozturk et al., 2026). This gap indicates that the large economic contribution of MSMEs has not yet been matched by proportional participation in the tax system. Consequently, improving MSME tax compliance is important not only for increasing tax revenue but also for ensuring that business activities and related tax obligations are properly reported. To address challenges in tax administration, the Indonesian government introduced the Coretax Administration System in early 2025. CTAS integrates various tax administration processes and is intended to make tax services more efficient, accessible, and transparent. By simplifying the process of reporting and fulfilling tax obligations, digitalization is expected to reduce administrative barriers for taxpayers, including MSMEs. However, digitalization alone may not be sufficient to ensure compliance.

Previous research has highlighted tax literacy, tax morale, trust in tax authorities, and tax system digitalization as relevant factors associated with MSME tax compliance. Tax literacy enables taxpayers to comprehend tax regulations, rights, obligations, and administrative procedures, thereby reducing the likelihood of unintentional non-compliance. Tax morale represents taxpayers' internal motivation to voluntarily fulfill their tax obligations, independent of external enforcement mechanisms. Trust in tax authorities may encourage compliance, as they are more inclined to meet their obligations when tax institutions are perceived as fair, transparent, competent, and accountable. Meanwhile, tax system digitalization can enhance administrative efficiency, simplify compliance processes, and support interactions between taxpayers and tax authorities (Anugrah et al., 2025; Fitria et al., 2022; Wulandari et al., 2023). However, prior studies have not fully explained whether digitalization affects compliance only directly or also changes the strength of the relationships between these behavioral determinants and compliance.

There are substantial knowledge gaps about MSME tax compliance, despite the growing body of literature on the topic. To begin, there is a lack of consistency in the empirical evidence about the effect of tax literacy, tax morale, and trust in tax authorities on compliance. Research across various institutional and economic contexts has shown mixed results, with some studies finding strong correlations and others finding weaker or nonexistent benefits. Such differences highlight that the compliance decision-making context determines the relative importance of behavioral factors. Second, digitization and behavioral determinants have often been considered as separate or complementary factors in earlier studies. If digitization changes the strength of the association between behavioral characteristics and tax compliance, this technique does not tell us much. Thus, to better understand why

similar behavioral factors yield different compliance outcomes in digital tax contexts, it may be helpful to view digitalization as a contextual factor (Anugrah et al., 2025; Wulandari et al., 2023; Zebua, 2025).

Furthermore, most prior studies have focused specifically on tax digitalization and on particular electronic services, such as e-filing and e-billing, as direct predictors of compliance. The integration of digital tax systems encompassing registration, payment, reporting, and data management into a single platform, however, has received less attention (Febrian et al., 2019; Fitria et al., 2022; Ristanto et al., 2024). Few studies have examined how a fully integrated digital ecosystem, such as CTAS, which automates registration, reporting, payment, audit, and data management, simultaneously moderates the behavioral mechanisms through which cognitive, moral, and institutional factors are translated into compliance behavior. This distinction is theoretically critical: prior digital tax research models digitalization as additive, whereas the present study reconceptualizes it as a contextual mechanism that differentially reshapes pre-existing behavioral pathways.

Third, existing studies generally employ a single theoretical perspective, either the Theory of Planned Behavior (TPB) or an increasingly digital tax environment. No prior study in the Indonesian MSME context has integrated these three frameworks into a unified model that captures interactions among cognitive, moral, institutional, and technological compliance dimensions. Although each theory contributes valuable insights, their separate application provides only a partial explanation of taxpayer behavior within an increasingly digital tax environment. A more integrated framework is therefore required to explain how cognitive, institutional, moral, and technological factors jointly shape MSME tax compliance. Collectively, these empirical, conceptual, and theoretical limitations indicate that the existing literature has not yet provided a comprehensive explanation of MSME tax compliance within Indonesia's evolving digital tax administration. In particular, little is known about how digital tax infrastructure influences the relationships between behavioral determinants and tax compliance following the implementation of the Coretax Administration System.

Further examination of the Coretax Administration System is therefore necessary to develop a more integrated framework for understanding taxpayer behavior amid Indonesia’s ongoing digital transformation. Recent research has highlighted the contribution of digital technology to improving tax compliance. Paramadina et al. (2024), for example, reported that technology adoption, information system quality, and institutional trust can jointly improve MSME tax compliance by lowering compliance costs and increasing access to tax-related information. Similarly, Kristiana et al. (2025) found that implementing the Coretax Administration System (CTAS), supported by digital transactions and tax policies, significantly increases MSME tax compliance. Taken together, these findings indicate that digital tax administration can be understood not only as an administrative innovation but also as a behavioral mechanism that facilitates compliance, reduces barriers to fulfilling tax obligations, and encourages voluntary compliance.

There are three contributions by which the shortcomings are addressed in this study. The first step is to examine CTAS digitization from several angles, including its role as a direct driver and its potential impact on the relationships among tax literacy, tax morale, trust in tax authorities, and tax compliance. Second, to understand tax compliance among MSMEs, the study employs both behavioral and technological perspectives. Third, it provides empirical evidence on taxpayer behavior following the implementation of CTAS in Indonesia. Evidence on MSME taxpayer behavior following the implementation of CTAS in Indonesia. Unlike most previous studies, which primarily examined the direct effects of tax literacy, tax morale, trust in tax authorities, or tax system digitalization in isolation, this study demonstrates that digitalization also serves as a behavioral contingency that alters the strength of these relationships. By positioning tax system digitalization as a moderating variable, this study extends prior tax compliance research by moving from identifying determinants of compliance to explaining how digital transformation reshapes the behavioral mechanisms underlying voluntary tax compliance.

This study presents data from MSMEs operating under Indonesia's new integrated digital tax administration. It contributes to the growing body of literature on digital tax compliance. The study offers new insights into taxpayer adaptation during institutional digital reforms. It expands our understanding of behavioral responses to digital tax administration by highlighting the negative

moderating effect of tax system digitalization on the relationship between tax morale and tax compliance. It suggests that digital transformation may partially substitute for intrinsic motivation. In particular, the Directorate General of Taxes should take note of these findings, given their strategic importance. The results suggest that improving voluntary tax compliance requires policies that extend beyond technological modernization. While continued investment in CTAS is essential, equal attention should be devoted to strengthening taxpayers' tax literacy through ongoing education, reinforcing institutional trust through transparent, accountable public services, and maintaining taxpayers' intrinsic tax morale despite the increasing reliance on digital systems. Consequently, digital transformation should be implemented as part of a comprehensive behavioral compliance strategy rather than merely as an administrative reform.

Based on gaps identified in prior empirical and theoretical studies, this research investigates the factors associated with MSME tax compliance in Indonesia, including tax literacy, tax morale, trust in tax authorities, and tax system digitalization. The study pays particular attention to the Coretax Administration System, examining whether its digitalization serves two functions: contributing directly to tax compliance and influencing the strength of the relationship between behavioral factors and compliance.

Accordingly, this study formulates six hypotheses to be tested:

H1: Tax Literacy (TL) has a positive effect on Tax Compliance (C).
H2: Tax Morale (TM) has a positive effect on Tax Compliance (C).
H3: Trust in Tax Authorities (T) has a positive effect on Tax Compliance (C).
H4: Tax System Digitalization (D) positively moderates the relationship between Tax Literacy (TL) and Tax Compliance (C).
H5: Tax System Digitalization (D) positively moderates the relationship between Tax Morale (TM) and Tax Compliance (C).
H6: Tax System Digitalization (D) positively moderates the relationship between Trust in Tax Authorities (T) and Tax Compliance (C).

METHOD

This study employed a quantitative survey approach to investigate the relationships proposed in the research model. Primary data were collected from MSME operators located in Java, Indonesia, using a structured questionnaire. Java was selected as the research setting because it represents a major concentration of MSME activities and has experienced relatively high adoption of digital technology, providing a relevant context for examining factors associated with tax compliance in the digital tax administration environment. The target population comprised MSME operators operating in Java. The sample included business operators who either possessed a Taxpayer Identification Number or were not registered but were actively operating their businesses. After all submitted responses were screened against the predetermined inclusion criteria, 559 respondents were retained for the analysis. The resulting sample was considered adequate to support the subsequent statistical analysis.

Respondents were recruited using purposive sampling based on predetermined eligibility requirements. Respondents were required to reside in Java, be actively involved in operating an MSME, and voluntarily participate in the survey. To prevent duplicate submissions, the Google Form was configured to restrict responses to one per Google account. An initial screening question was embedded at the beginning of the questionnaire to confirm that respondents were actively operating an MSME and were domiciled in Java; respondents failing this screening were automatically redirected to an ineligible page and excluded. MSME status was additionally verified through respondents' self-reported business category and annual revenue, cross-referenced against the criteria established under Government Regulation No. 7 of 2021 on MSMEs. All incoming responses were manually reviewed for consistency in response patterns, including detection of straight-lining behavior and implausibly short completion times (under three minutes), which were treated as invalid and excluded. While purposive sampling enables targeted data collection from the relevant population, it carries inherent limitations related to external validity. The findings are therefore most appropriately generalized to MSME operators in Java

who possess a basic familiarity with digital tax administration. Caution should be exercised in extending these results to MSME populations in less digitally mature regions such as Eastern Indonesia, rural areas, or contexts with substantially lower educational attainment.

The operationalization of the constructs in this study is based on the relevant theoretical literature. Tax literacy is defined as taxpayers' understanding and knowledge of tax regulations, rights, obligations, and administrative procedures. Tax morale represents the internal motivation or moral conviction that encourages taxpayers to voluntarily fulfill their tax obligations without relying primarily on external enforcement. Trust in the tax authority means taxpayers' faith in the honesty, knowledge, equity, and openness of the tax system. Taxpayers' desire to accurately evaluate, report, and pay their tax obligations in accordance with applicable laws determines tax compliance. Taxpayers' opinions on the Coretax Administration System's accessibility, ease of use, overall quality, and usefulness are used to assess the success of tax system digitization.

Using SmartPLS version 4, the data were examined with the Partial Least Squares Structural Equation Modeling approach. Studies that seek to examine causal links among latent variables while tolerating complicated models that incorporate moderating effects are particularly well-suited to PLS-SEM, a variance-based multivariate analytical technique (Hair et al., 2022). Starting with the Common Method Variance (CMV) test, the analytical technique included evaluating the model fit, the measurement model, the structural model, hypothesis testing, and moderation. Several phases were included in the process. According to Podsakoff et al. (2024), to ensure that the CMV test was free of bias due to a single instrument and respondent source, Harman's Single Factor Test was utilized. Substantial common method bias is not present in the data when one factor does not explain more than half of the variance. To assess the quality of the measurement tools, the measurement model was tested for construct reliability, discriminant validity, and convergent validity. Values of 0.70 or above were considered ideal for convergent validity, while values greater than 0.60 were considered acceptable for exploratory investigations. The outer loadings of the indicators were used for this assessment. Additionally, the Average Variance Extracted was checked; a value of at least 0.50 showed strong convergent validity. The three methods used to evaluate discriminant validity were cross-loadings, the Fornell-Larcker criterion, and an independent evaluation.

Several methods were also used to assess the structural model and determine how well it explained and predicted the data. With values of 0.75, 0.50, and 0.25 indicating considerable, moderate, and low predictive ability, respectively, the coefficient of determination was utilized to determine the proportion of variance in the endogenous constructs that can be described by the exogenous constructs. Based on Cohen's (1988) criteria, effect sizes of 0.02, 0.15, and 0.35 indicate minor, medium, and large effects on the endogenous variables, respectively. This allowed us to assess the relative contribution of each exogenous construct. Values greater than zero indicate that the model has sufficient predictive relevance to the observed data, as determined by the blindfolding evaluation method.

Using the PLSpredict method outlined by Shmueli et al. (2019), the suggested model's predictive capabilities were further evaluated. By comparing the PLS-SEM model's Root Mean Square Error and Mean Absolute Error with those from a linear regression benchmark, this method assesses the model's predictive performance. To obtain p-values, t-statistics, and path coefficients, 5,000 subsamples were drawn via bootstrapping. When the majority of indicators outperform the linear regression benchmark in prediction accuracy, the model is predictively relevant. At the 5% significance level, a connection was considered statistically significant when the t-statistic exceeded 1.96, and the p-value was less than 0.05. The moderating effect of tax system digitalization was examined using the product-indicator method. Interaction terms were generated by multiplying the standardized indicators of the moderator by those of each independent variable, following Chin et al. (2003) and the procedure described by Hair et al. (2022). This method was selected instead of the two-stage approach because the constructs in the proposed model, including tax system digitalization, were specified as reflective constructs with a moderate number of indicators. The resulting interaction terms were subsequently used to assess whether the digitalization of the tax system strengthens or weakens the relationships among tax literacy, tax morale, trust in tax authorities, and MSME tax compliance.

RESULTS

The respondents of this study are operators of MSMEs located across the island of Java. The selection is grounded in the strategic role this sector plays in supporting the Indonesian economy, while also reflecting the persistently low tax compliance rate observed within the group. Given that the foundation of Indonesia's tax system is the self-assessment concept, which requires taxpayers to be cognizant of and actively compute, pay, and report their fiscal obligations, this is of the utmost importance. Coretax Administration System is a tech-based administrative platform developed as part of the tax reform initiative by the Directorate General of Taxes. Its purpose is to improve taxpayer comfort, transparency, and efficiency. However, the implementation of this digital transformation continues to face structural challenges, since not all MSME operators possess equivalent levels of fiscal understanding or digital capability. Tax compliance is therefore shaped not only by regulatory awareness but also by behavioral and psychological factors such as tax morale and trust in fiscal authorities, all of which may be reinforced or weakened by the presence of digital tax infrastructure.

The demographics of the 559 MSME respondents are summarized in Table 1. The profile covers gender, age, educational attainment, business sector, length of business operation, annual revenue, business location, and assistance with tax reporting. The gender distribution was relatively even, with male respondents accounting for 50.09% and female respondents representing 49.91% of the sample. Respondents aged 35–44 years constituted the largest age group, while those holding a bachelor's degree accounted for the highest proportion of the sample by education (42.40%). Culinary and food-and-beverage businesses comprised the largest business sector, 32.02%, and 43.29% of respondents had operated their businesses for 1–3 years. In terms of annual revenue, 52.42% of respondents reported earnings between IDR 100 million and IDR 500 million, while 51.34% indicated that they prepared and submitted their tax returns independently.

Table 1. Respondent Demographic Profile (N = 559)

No	Characteristics of Respondents	Frequency	Percentage
Gender			
1	Male	280	50.09
2	Female	279	49.91
Total		**559**	**100.00**
Age			
1	< 25 years	25	4.47
2	25–34 years	178	31.84
3	35–44 years	257	45.97
4	45–54 years	87	15.56
5	≥ 55 years	12	2.15
Total		**559**	**100.00**
Education			
1	Elementary School	2	0.36
2	Junior High School	18	3.22
3	Senior High School/Vocational	220	39.36
4	Diploma	44	7.87
5	Bachelor's Degree (S1)	237	42.40
6	Postgraduate (S2/S3)	38	6.80
Total		**559**	**100.00**
Business Sector			
1	Culinary/Food & Beverage	179	32.02
2	Trade and Commerce	174	31.13
3	Production/Manufacturing	132	23.61
4	Services	65	11.63
5	Others	9	1.61
Total		**559**	**100.00**

Business Tenure			
1	< 1 year	25	4.47
2	1–3 years	242	43.29
3	4–5 years	202	36.14
4	> 5 years	87	15.56
Total		**559**	**100.00**
Annual Revenue			
1	≤ IDR 100 million	233	41.68
2	> IDR 100 million – IDR 500 million	293	52.42
3	> IDR 500 million – IDR 2 billion	31	5.55
4	Other / Not valid	2	0.36
Total		**559**	**100.00**
Business Location			
1	Urban (City Center)	230	41.14
2	Suburban	239	42.75
3	Rural	88	15.74
4	Others	2	0.36
Total		**559**	**100.00**
Tax Reporting Assistance			
1	Self-filed (Independent)	287	51.34
2	Assisted by Tax Volunteers	153	27.37
3	Assisted by Tax Consultants	113	20.21
4	Others	6	1.07
Total		**559**	**100.00**

Google Forms was used to administer a structured online questionnaire that gathered data. The questionnaire link was distributed through several social media channels, including WhatsApp, Instagram, and Facebook. The researchers' professional networks involved colleagues, clients, suppliers, and other business owners. To expand the survey's reach, targeted Meta Ads were also used to reach MSME operators across Java. Before accessing the main questionnaire, prospective respondents were required to complete screening questions to determine their eligibility. The study included only MSME operators in Java who possessed a Taxpayer Identification Number. All submitted responses were subsequently reviewed for completeness and consistency with the established eligibility criteria. Responses that failed to meet the screening requirements or contained incomplete information were removed from the dataset. After the screening process was completed, 559 valid responses remained and were used for the subsequent analysis. The distribution of the questionnaire responses is presented in Table 2.

Table 2. Distribution of Questionnaires

Description	Number
Incoming questionnaires	602
Respondents outside Java (excluded)	33
Data meeting criteria for processing	569
Other unmet criteria	10
Final data analyzed	559

Of the 602 responses collected, 43 were excluded for failing to meet research requirements, such as not being MSME operators or lacking valid identification, resulting in a final usability rate of 92.86%. For PLS-SEM analysis, this sample size is adequate and represents the population under study well.

A common technique was used: variance analysis, as all respondents were from the same source, and only one questionnaire was used to collect their responses. To start, Harman's Single-Factor Test

was used to assess whether common method bias was present. When the first extracted factor explained over 50% of the total variance, common method bias became an issue during the test run in SmartPLS 4. While 50% is a commonly used criterion, the study found that the first extracted factor explained only 42.7% of the overall variation (see Table 3). The lack of a single explanation for the majority of the data variability is suggested by this finding.

Table 3. Common Method Variance (CMV) Test

Total	**Cumulative%**
18.771	0.427

The proposed research model's fit to the data was assessed by running a series of simulations. Various fit indices were examined, including the Normed Fit Index, Geodesic Distance, Squared Euclidean Distance, Standardized Root Mean Square Residual, and Chi-Squared, as seen in Table 4.

Table 4. Model Fit Indices

Index	Saturated Model	Estimated Model
SRMR	0.033	0.033
d_ULS	1.081	1.079
d_G	0.362	0.362
Chi-Square	1111.550	1108.704

NFI 0.922 0.922

The model fit the data well, as the SRMR value of 0.033 was significantly lower than the threshold value of 0.08. In addition, the research model outperformed the baseline null model, with an NFI of 0.922, exceeding the minimum requirement of 0.90. All these metrics demonstrate that the proposed study approach was sufficiently appropriate to proceed to the next phase of analysis.

To ensure the research tool was sufficient and of good quality, the measurement model was examined before the structural connections and hypotheses were assessed. All indicators exhibited outer loadings greater than the required minimum of 0.70, as indicated by the convergent validity test results. Specifically, the Tax Literacy construct produced loading values ranging from 0.711 to 0.767 with an AVE of 0.537, Tax Morale ranged from 0.739 to 0.796 with an AVE of 0.572, Trust in Tax Authorities ranged from 0.796 to 0.821 with an AVE of 0.656, MSME Tax Compliance ranged from 0.806 to 0.836 with an AVE of 0.674, and Tax System Digitalization ranged from 0.702 to 0.753 with an AVE of 0.530. All AVE values exceeded the 0.50 threshold, confirming convergent validity.

Table 5. Discriminant Validity (Fornell-Larcker criterion)

	Tax System Digitalization	**MSME Tax Compliance**	**Trust in Tax Authorities**	**Tax Literacy**	**Tax Morale**
Tax System Digitalization	**0.728**				
MSME Tax Compliance	0.708	**0.821**			
Trust in Tax Authorities	0.677	0.655	**0.810**		
Tax Literacy	0.689	0.633	0.633	**0.733**	
Tax Morale	0.706	0.679	0.662	0.672	**0.756**

To examine discriminant validity, the Fornell-Larcker criterion was used. The results in Table 5 indicate that, for each model construct, the square root of the AVE outperformed its relationships with other constructs; for example, Tax System Digitalization had a value of 0.728, while MSME Tax

Compliance had a value of 0.821. Each indicator loaded more heavily on its target construct than any other latent variable, according to the cross-loading study.

Next, to gauge reliability, Cronbach's Alpha and Composite dependability scores were combined. Table 6 summarizes the findings.

Table 6. Construct Reliability Test Results

Variable	Cronbach's Alpha	Composite Reliability
Tax System Digitalization	0.902	0.919
MSME Tax Compliance	0.879	0.912
Trust in Tax Authorities	0.869	0.905
Tax Literacy	0.938	0.946
Tax Morale	0.906	0.923

Collinearity was assessed using the Variance Inflation Factor to determine whether excessive correlation existed among the measurement indicators. Following Hair et al. (2022), VIF values below 5.0 indicate that multicollinearity is unlikely to represent a substantial concern. The analysis yielded VIF values ranging from 1.000 to 2.151, all below the specified threshold. These results indicate that the measurement indicators did not exhibit problematic collinearity, thereby supporting the adequacy of the measurement model.

To test the hypothesis and estimate the explanatory power of the linkages among the latent constructs, the structural model was tested (see Table 7). The adjusted R^2 for MSME tax compliance was 0.603. This finding indicates that the model's exogenous components account for 60.8% of the variation in MSME tax compliance when taken together. Factors unrelated to the suggested model account for the remaining 39.2%.

Table 7. Results of the Determination Test and Predictive Relevance (Q2)

Variable	R^2	Adjusted R^2
MSME Tax Compliance	0.608	0.603

With respect to effect size, the f^2 values for the main constructs were relatively modest, with Tax System Digitalization recording the highest contribution at 0.098, followed by Tax Morale, Trust in Tax Authorities, and Tax Literacy. The interaction terms representing the moderating role of digitalization yielded small effect sizes ranging from 0.008 to 0.019, suggesting that the moderation contributions, while statistically detectable, are individually modest in magnitude (see Table 8).

Table 8. Effect Size (f^2)

Variable Relationship	f^2
TL → C	0.020
TM → C	0.061
T→ C	0.043
TL × D → C	0.008
TM × D → C	0.019
T × D → C	0.008

Indicator collinearity was assessed using the Variance Inflation Factor. Following Hair et al. (2022), VIF values below 5.0 indicate that collinearity is not a concern. The results in Table 9 show that all indicator VIF values ranged from 1.000 to 2.151, which are well below the recommended threshold. Therefore, no collinearity issues were identified among the measurement indicators, supporting the adequacy of the measurement model.

Table 9. Variance Inflation Factor (VIF)

Variable	Indicator VIF Range
Tax Literacy	1.825–2.114
Tax Morale	1.814–2.151
Trust in Tax Authorities	1.857–2.064
Tax Compliance	1.936–2.151
Tax System Digitalization	1.645–1.916

Table 10 presents the results of hypothesis testing using the bootstrapping approach in SmartPLS.The results indicate a substantial relationship between MSME tax compliance, tax literacy, tax morale, trust in tax authorities, and tax system digitalization, as shown by the hypothesis testing. Since tax literacy has a positive and substantial effect on tax compliance, Hypothesis 1 is supported. Support for Hypothesis 2 was also found, which posits that higher tax compliance rates result from higher taxpayer morale. Similarly, support for Hypothesis 3 was also found, which posits a strong positive correlation between taxpayer trust in the tax system and actual tax payments. In addition to the predicted correlations, the structural model demonstrates that digitization of the tax system significantly improves tax compliance among MSMEs. By streamlining tax administration and reducing administrative hurdles, taxpayers may find it easier to comply with their obligations, according to this research.

Table 10. Hypothesis Testing Results

Hypothesis	Variable Relationship	Original Sample	t-Statistic	p-Value	Conclusion
H1	TL → C	0.134	3.556	0.000	Supported (+)
H2	TM → C	0.224	6.030	0.000	Supported (+)
H3	T→ C	0.193	4.749	0.000	Supported (+)
H4	TL × D → C	0.082	2.289	0.022	Supported (+)
H5	TM × D → C	- 0.133	3.392	0.001	Not Supported (-)
H6	T × D → C	0.079	2.155	0.031	Supported (+)

Note: TL = Tax Literacy; TM = Tax Morale; T = Trust in Tax Authorities; D = Tax System Digitalization; C = Tax Compliance. β represents the path coefficient (original sample). A hypothesis is supported if the relationship is statistically significant and the direction of the sign is consistent with the hypothesized relationship. A p-value of 0.000 indicates $p < 0.001$.

Digitalization of the tax system significantly affects the associations between behavioral traits and tax compliance, according to the moderation research. The evidence supports H5, indicating that the positive correlation between tax literacy and compliance is strengthened by digitization. There is evidence supporting H7 as well, showing that the link between trust in tax authorities and compliance is strengthened by digitization. The combination of tax morale and digitization yields a large negative coefficient; therefore, H6 does not support the hypothesized positive direction. Therefore, the positive correlation between tax morale and compliance is being eroded by digitization.

Out of all the characteristics that were considered, digitization had the most direct impact on MSME tax compliance. In contrast, tax literacy, tax morale, faith in tax authorities, and tax system digitization all had substantial positive effects. The moderation results provide additional evidence that the role of digitalization differs across behavioral determinants. Specifically, digitalization strengthens the contribution of tax literacy and trust in tax authorities to compliance, whereas it weakens the contribution of tax morale. This unexpected negative interaction suggests that as digital tax administration becomes more prominent, the relative contribution of taxpayers' intrinsic moral motivation may diminish, potentially reflecting a trade-off between procedural efficiency and intrinsic motivation in shaping MSME tax compliance.

DISCUSSION

The findings indicate that greater tax literacy is associated with higher MSME tax compliance. MSME operators who have a stronger understanding of tax regulations, rights, obligations, and reporting procedures are more capable of fulfilling their tax responsibilities accurately and on time, indicating that the more thoroughly small business operators comprehend tax regulations, rights, obligations, and procedural requirements, the more likely they are to fulfill their fiscal duties accurately and punctually. This finding affirms that knowledge serves as the cognitive foundation on which compliance behavior is built. Within the TPB framework, knowledge shapes beliefs, which in turn form attitudes that guide behavioral intentions. MSME operators with a robust understanding of finance are better able to calculate, pay, and report taxes correctly, which in turn reduces the likelihood of inadvertent non-compliance. The results align with prior studies, all of which confirmed that improvements in tax literacy and digital tax understanding contribute to higher levels of compliance among MSME taxpayers.

The results indicate that tax morale is positively and significantly associated with MSME tax compliance, underscoring the enduring importance of taxpayers' intrinsic moral convictions in encouraging voluntary fiscal behavior. Compliance appears to be influenced not only by formal regulations or the possibility of sanctions but also by internalized values and taxpayers' sense of civic responsibility toward broader national development. This interpretation is consistent with the Slippery Slope Framework proposed by Kirchler et al. (2008), which views sustainable compliance as arising from the interaction between tax authorities' power and taxpayers' intrinsic willingness to comply. Accordingly, efforts to improve MSME tax compliance should extend beyond educational and supervisory interventions to include the development of taxpayers' awareness of taxation's broader social contribution. Tax revenue can be viewed as a collective contribution to public welfare. This interpretation is also consistent with Shiahann et al. (2018), who identified tax morale as a strong behavioral factor associated with MSME tax compliance. The findings, therefore, indicate that taxpayers' ethical motivation remains relevant in encouraging voluntary compliance, even as the tax system continues to undergo digital transformation.

There is a favorable correlation between MSME tax compliance and trust in tax authorities. Taxpayers are more inclined to willingly fulfill their tax obligations when they view tax administration as equitable, open, accountable, and competent. This finding is consistent with Kirchler et al. (2008), who, in their Slippery Slope Framework, posit that trust is a crucial link between the institutional features of taxes and taxpayers' behavioral responses. For MSME operators who frequently encounter informational and administrative constraints, trust in tax authorities may be particularly important because it can reduce uncertainty and strengthen their willingness to engage with the tax system. Marcelina et al. (2023) similarly reported that perceptions of fairness and responsiveness among tax officials can strengthen compliance. These findings highlight the importance of institutional credibility, particularly through transparent and accountable services, in supporting sustainable voluntary compliance among MSMEs. Trust in government is also relevant as an institutional dimension of tax compliance within the extended TPB framework proposed by Tang and Chang (2021).

Tax system digitalization emerges as the strongest direct predictor of MSME tax compliance. This finding highlights the modernization of tax administration through the Coretax Administration System and its potential contribution to compliance behavior. By simplifying administrative procedures and reducing compliance-related costs, digital tax services can provide greater accessibility, efficiency, and integration. Taxpayers' perception of the usefulness and ease of use of digital tax services may lead to their adoption, as predicted by Davis' Technology Adoption Model, which in turn might promote accurate and timely tax compliance. This result aligns with Masdar's (2024) prediction that tax digitization will lead to higher compliance among MSME taxpayers by improving administrative efficiency, increasing access to tax information, and streamlining compliance procedures.

The moderation analysis indicates that digitalization significantly strengthens the relationship between tax literacy and compliance, suggesting that digital infrastructure functions as a facilitating channel through which fiscal knowledge is translated into behavioral compliance. Individuals with a

strong fiscal understanding can leverage CTAS features more effectively, allowing that knowledge to translate into actionable behavior. However, the interaction between digitalization and tax morale has a significant negative effect, indicating that as digital systems become more pervasive, the dominance of moral motivation as a driver of compliance gradually diminishes. This pattern implies that compliance is increasingly shaped by procedural ease and systemic integration rather than by intrinsic ethical commitment alone. Nevertheless, this does not eliminate the importance of moral foundations, as tax morale retains its direct positive influence. Finally, digitalization significantly strengthens the effect of trust in tax authorities on compliance, suggesting that the transparency, integration, and accessibility offered by CTAS reinforce taxpayers' confidence in the fairness and professionalism of fiscal administration, thereby enhancing voluntary compliance behavior.

A theoretically significant finding of this study is that the digitalization of the tax system negatively moderates the relationship between tax morale and tax compliance. This finding suggests that digitalization may shift compliance from intrinsic moral motivation toward greater reliance on administrative efficiency and digital systems. This extends previous research by showing that digitalization does not necessarily strengthen all behavioral drivers of tax compliance. This pattern can be interpreted through the Crowding Out Theory, which suggests that externally imposed mechanisms may influence the role of intrinsic motivation. In the context of CTAS, increasing automation and standardization of tax procedures may make compliance more dependent on system-based processes, thereby reducing the relative role of taxpayers' internal moral motivation and implicitly signaling institutional distrust in individuals' prosocial inclinations. When CTAS automates and systematizes compliance procedures, generating pre-filled returns, issuing digital reminders, integrating real-time monitoring, and automating penalty assessments, taxpayers may progressively perceive compliance as a system-managed activity rather than a personally meaningful civic act. As the procedural burden of compliance is absorbed by digital infrastructure, the role of personal moral conviction in motivating compliance behavior is correspondingly attenuated.

Self-Determination Theory provides a complementary explanation: as external structures increasingly govern behavior, the locus of motivation shifts from autonomous regulation toward controlled regulation. CTAS's progressive automation of compliance tasks may gradually reduce the degree to which compliance requires active moral deliberation, weakening the behavioral footprint of tax morale in a digitally comprehensive environment. The concept of institutional substitution further illuminates this dynamic. As CTAS assumes procedural responsibility for compliance management, it simultaneously assumes the motivational regulatory role that intrinsic moral conviction previously fulfilled. Digital automation does not merely facilitate compliance within a sufficiently comprehensive system; it partially displaces the motivational process by which moral values were formerly translated into fiscal action, reflecting an automation-induced behavioral reorganization rather than a simple efficiency enhancement.

This finding partially diverges from Santioso and Daryatno, who found that digital modernization positively reinforced moral compliance in their study context. This divergence may reflect a critical boundary condition: the crowding-out effect may be more pronounced and empirically detectable only when digital infrastructure reaches a sufficient level of systemic integration. CTAS represents a substantially more complete digital ecosystem than the e-filing and e-billing systems examined in prior research, suggesting that the relationship between digital comprehensiveness and intrinsic motivation may be nonlinear. Moderate digitalization may complement moral motivation, while comprehensive digitalization may substitute for it. Crucially, this finding does not render tax morale irrelevant. Its direct positive effect on compliance remains statistically and practically significant, indicating that intrinsic motivation continues to drive compliance in situations where CTAS guidance is absent, ambiguous, or insufficient, for instance, in novel or complex tax situations not yet fully covered by automated systems. Rather, the negative moderation implies that the marginal contribution of moral motivation is attenuated in the presence of comprehensive digital infrastructure. This distinction has important policy implications that digital modernization should be complemented by strategies that actively sustain taxpayers' civic moral engagement, such as transparent public expenditure communication,

participatory tax policy processes, and social norm campaigns, rather than treating technological sophistication as a substitute for institutional moral cultivation.

These findings also support the literature review by Ginting (2025), which emphasized that MSME tax compliance is increasingly influenced by interactions among behavioral factors, institutional trust, and tax digitalization, rather than by individual determinants alone. The present study extends this literature by empirically demonstrating that tax system digitalization not only directly enhances compliance but also changes the relative influence of behavioral determinants through its moderating role.

CONCLUSION

This study shows that MSME tax compliance is positively affected by tax literacy, tax morale, faith in tax authorities, and digitalization of the tax system. The digitization of the tax system serves an important moderating role by amplifying the effects of tax literacy and confidence and mitigating those of tax morale. These results indicate that the factors influencing MSME tax compliance may be changed by digitalization. They stress the need for digital tax systems in tandem with programs that increase taxpayer education, confidence, and personal drive. This also indicates that compliance is a cumulative outcome of cognitive, institutional, moral, and technological factors, in which digital infrastructure selectively reshapes rather than uniformly reinforces behavioral pathways.

Theoretically, the study contributes by integrating the Theory of Planned Behavior, the Slippery Slope Framework, and the Technology Acceptance Model, and by treating digitalization as a moderator that reveals a substitution effect between procedural efficiency and intrinsic moral motivation, an interaction largely unexplored in prior MSME research. In practice, tax authorities should not rely solely on CTAS expansion but should pair digital modernization with strategies that independently sustain tax morale, such as transparent fiscal communication. Several limitations of this study warrant acknowledgment. First, the cross-sectional design precludes causal inference and cannot capture changes in taxpayer behavior as familiarity with CTAS evolves. Second, the sample is confined to Java, a region with relatively high digital maturity and educational attainment, which limits its generalizability to MSME populations in less digitally developed regions, such as Eastern Indonesia or rural areas. Third, purposive sampling via social media introduces self-selection bias, potentially overrepresenting MSME operators who are already engaged with digital platforms.

Future research should employ longitudinal designs to track behavioral adaptation following CTAS implementation; extend sampling to less digitally mature regions; and incorporate additional constructs such as tax enforcement salience, peer compliance norms, perceived tax fairness, or digital self-efficacy to expand the model's explanatory scope. Cross-national comparative studies examining the boundary conditions of the crowding-out effect across different levels of digital fiscal maturity would also contribute valuable insights. Practically, the Directorate General of Taxes should complement continued investment in CTAS with targeted tax literacy education programs, transparent fiscal communication strategies that sustain taxpayers' civic moral engagement, and responsive digital service delivery that reinforces institutional trust.

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