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The Influence of Socioeconomic Factors in Improving VAT Compliance and Moderated by Tax Knowledge (A Study on MSMEs in Southwest Sumba Regency, East Nusa Tenggara)

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Abstract: This study aims to analyze the influence of socio-economic factors on Value Added Tax (VAT) compliance among MSMEs in Southwest Sumba Regency, East Nusa Tenggara Province, Indonesia, with tax knowledge as a moderating variable. The study employs an associative quantitative approach using the Structural Equation Modeling–Partial Least Square (SEM-PLS) method. The sample consists of 307 MSMEs selected through a simple random sampling technique. The results indicate that tax rule complexity, tax sanctions, detection probability, tax ethics, tax fairness, and perceptions of government spending have a positive effect on VAT compliance, while tax service quality does not have a significant effect. The tax knowledge variable only moderates the relationship between tax ethics and VAT compliance in a weakening direction and does not moderate the relationships between the other variables. Overall, VAT compliance is more influenced by structural factors, moral considerations, and perceptions of tax benefits rather than the level of taxpayer knowledge. These findings highlight the importance of strengthening government spending transparency, enforcing tax regulations, and enhancing tax education to improve sustainable MSME compliance.

Keywords: tax compliance, VAT, MSMEs, socio-economic factors, tax knowledge.

INTRODUCTION

Tax is the primary source of state revenue and plays a strategic role in supporting development in developing countries, including Indonesia. Through tax revenues, the government can finance various essential sectors such as infrastructure, education, and healthcare to improve public welfare (Faruq et al., 2024). Tax compliance refers to an ideal condition in which taxpayers adhere to tax regulations and report their income accurately and honestly (Yuniarta & Purnamawati, 2020). Among the various types of taxes, Value Added Tax (VAT) makes a significant contribution due to its broad and relatively stable tax base. Data indicate that VAT and Luxury Goods Sales Tax revenues have continued to increase, reaching

IDR 811.4 trillion in 2024, making them one of the largest contributors to state revenue after Income Tax (Kharisma & Furqon, 2023).

Despite its substantial contribution, the level of taxpayer compliance in Indonesia remains relatively low. Compliance rates ranging from 60–70%, along with the low efficiency ratio of VAT collection, indicate a gap between potential and actual tax revenues (World Bank, 2024). This condition is influenced by various factors, including the complexity of tax administration, low taxpayer understanding, limited utilization of technology, and weak enforcement (Wahyuni, 2023).

These issues are even more evident in the Micro, Small, and Medium Enterprises (MSME) sector, which often faces challenges in fulfilling tax obligations. MSMEs represent a crucial sector with a significant contribution to achieving national economic development goals, such as economic growth, employment opportunities, foreign exchange earnings, and regional economic development (Sinarwati et al., 2019). MSMEs also play an important role in promoting economic equity by reaching all regions (Purnamawati & Yuniarta, 2021). Furthermore, MSMEs serve as a key driver of the economy by absorbing labor while also representing a potential source of tax revenue (Firdausya & Ompusunggu, 2023).

However, the level of tax compliance among MSMEs remains low and is influenced by socio-economic factors such as education, income, and occupation (Florientina & Nugroho, 2021; Putri, 2022). In addition, other factors including system complexity, tax sanctions, detection probability, perceived fairness, tax ethics, tax service quality, and perceptions of government spending also influence taxpayer compliance (Kirchler & Wahl, 2010; Lutfi et al., 2023). The complexity of tax regulations is often considered an important factor influencing taxpayer compliance, as more complicated rules increase administrative burdens, confusion, and compliance costs, which may reduce the willingness to fulfill tax obligations (Adzillah et al., 2023). However, contrasting findings are presented by Wiyarni et al. (2018), who argue that regulatory complexity is positively associated with tax compliance, as it encourages taxpayers to seek clarity and legal certainty. Thus, the complexity of tax regulations can be viewed not only as a barrier but also as a potential driver in enhancing Value Added Tax (VAT) compliance

H_1: The complexity of tax regulations has a positive effect on VAT compliance

Tax sanctions are a law enforcement instrument aimed at creating a deterrent effect and improving taxpayer compliance. Research shows that the stricter and more severe the sanctions imposed, the higher the level of compliance, as they can suppress tax avoidance practices (Andyastuti et al., 2013). Furthermore, Mannan et al. (2021) find that the implementation of optimal and proportional tax penalties can encourage voluntary compliance, as taxpayers are more motivated to fulfill their obligations when sanctions are clearly understood and consistently enforced.

H_2: Tax sanctions have a positive effect on VAT compliance

Detection probability refers to the likelihood that taxpayer violations are identified by authorities through audit mechanisms. Based on deterrence theory, the higher the probability of detection, the greater the level of taxpayer compliance. In the context of taxation, this obligation reflects taxpayers' attitudes and behaviors in fulfilling their responsibilities (Sulistyawati et al., 2025). This is supported by Slemrod et al. (2001), who show that audit intensity significantly affects tax compliance, and by Kirchler & Wahl (2010), who emphasize that a high probability of detection reduces incentives for tax avoidance.

H_3: Detection probability has a positive effect on VAT compliance.

Ethics relates to taxpayers' moral values in perceiving tax obligations as a contribution to the state. Ethics serves as a guideline for individuals in determining appropriate behavior (Yasa & Prayudi, 2019). The Theory of Planned Behavior (Ajzen, 1991) states that subjective norms and ethical attitudes influence individual behavior, including tax compliance. In general,

the stronger an individual's intention to behave in a certain way, the more likely that behavior will be realized (Wahyuni et al., 2019). Research by Torgler (2013) shows that higher tax morale is positively correlated with compliance. It also indicates that taxpayers with strong moral awareness are more likely to comply. These findings are consistent with Al-Rahamneh and Bidin (2022), who demonstrate that moral obligations and ethical values significantly reduce tax avoidance behavior, thereby strengthening compliance.

H_4: Ethics has a positive effect on VAT compliance.

Fairness in the tax system refers to the alignment of tax burdens with taxpayers' ability to pay, both vertically and horizontally, where individuals with greater economic capacity bear higher burdens, while those in similar conditions are treated equally (Arieyani, 2011). This principle emphasizes that taxes are imposed based on the ability to pay rather than direct benefits received (Salsabila, 2024). Policies such as the non-taxable income threshold and progressive tax rates reflect efforts to achieve such fairness (Priyono, 2024). When the tax system is perceived as unfair, it can reduce taxpayer compliance (Herman et al., 2023). Conversely, a positive perception of fairness increases responsibility and willingness to comply, as supported by Berutu & Harto (2012), who find that tax fairness is positively associated with compliance.

H_5: Tax fairness has a positive effect on tax compliance

Government spending reflects how taxes paid by the public are utilized in the provision of public goods and services, such as infrastructure, education, and healthcare. Through such spending, taxpayers can assess the tangible benefits of their tax contributions. This aligns with social contract theory, which suggests that taxpayer compliance increases when there is a clear reciprocal relationship between taxes paid and benefits received (Iraman, 2022). Alm and Torgler (2006) also show that tax compliance improves when the public perceives government spending as high-quality, reflected in transparency, efficiency, and tangible outcomes (Hassan et al., 2021).

H_6: Government spending has a positive effect on tax compliance

Service quality reflects the ability of tax authorities to provide convenience, speed, and clarity in serving taxpayers. Based on customer satisfaction theory, better service quality encourages compliant behavior. Enhancing tax education and optimizing digital-based tax services are essential to ensure taxpayers remain aware of their obligations (Dharmawan et al., 2024). This is supported by Simanjuntak et al. (2023), who find that service quality is positively associated with taxpayer compliance.

H_7: Tax service quality has a positive effect on VAT compliance

In this context, tax knowledge becomes an important factor influencing the level of compliance. Tax knowledge not only acts as a direct determinant but also as a moderating variable that can strengthen or weaken the relationship between socio-economic factors and taxpayer compliance (Lutfi et al., 2023). With adequate understanding, taxpayers become more aware of their rights and obligations, enabling them to make appropriate decisions in fulfilling tax responsibilities (Suta & Prayudi, 2025). Taxpayers with better knowledge tend to have higher awareness and are more likely to comply (Antameng et al., 2024).

H_8: Tax knowledge moderates the relationship between complexity and VAT compliance

H_9: Tax knowledge moderates the relationship between detection probability and VAT compliance

H_{10}: Tax knowledge moderates the relationship between tax sanctions and VAT compliance

H_{11}: Tax knowledge moderates the relationship between ethics and VAT compliance

H_{12}: Tax knowledge moderates the relationship between fairness and VAT compliance

H_{13}: Tax knowledge moderates the relationship between government spending and VAT compliance

H_{14}: Tax knowledge moderates the relationship between tax service quality and VAT compliance

This study focuses on MSMEs in Southwest Sumba Regency, East Nusa Tenggara Province, Indonesia, which is characterized by relatively lower levels of socio-economic development. The large number of MSMEs, combined with existing economic constraints, makes this region relevant for examining VAT compliance in a contextual manner (Regional Government of Southwest Sumba Regency, 2025). Therefore, this study aims to analyze the influence of socio-economic factors on VAT compliance, with tax knowledge as a moderating variable. The findings are expected to contribute empirically to the development of taxation literature and to serve as a reference for policymakers in formulating more effective strategies to improve tax compliance, particularly within the MSME sector.

METHODS

This study employs a quantitative approach with an associative research design. This approach aims to analyze causal relationships among variables, specifically the influence of socio-economic factors on tax compliance, with tax knowledge as a moderating variable. Through this approach, the study not only describes phenomena but also tests the relationships and effects among variables formulated in the research model.

The population of this study consists of all Micro, Small, and Medium Enterprises (MSMEs) operating in Southwest Sumba Regency, East Nusa Tenggara Province, Indonesia, in 2025, totaling 1,311 MSMEs. The sample was determined using a probability sampling technique with a simple random sampling approach, ensuring that each member of the population had an equal chance of being selected. The sample size was calculated using the Slovin formula with a 5% margin of error, resulting in 307 respondents. This sample is considered representative of the MSME population in the research area.

Data were collected through the direct distribution of questionnaires to respondents. The research instrument employed a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), to measure respondents' perceptions of the research variables, including socio-economic factors, tax compliance, and tax knowledge. Before further analysis, the data were tested for validity and reliability to ensure the quality of the research instrument.

The data analysis technique used in this study is Structural Equation Modeling (SEM) based on Partial Least Squares (PLS), supported by SmartPLS software. The SEM-PLS method was chosen because it is capable of analyzing complex relationships among latent variables, including moderating effects, and does not require normally distributed data. The analysis includes testing the measurement model (outer model), covering convergent validity, discriminant validity, and construct reliability, as well as testing the structural model (inner model), which includes the coefficient of determination (R-square), effect size (f-square), and hypothesis testing through path coefficients and bootstrapping.

RESULTS AND DISCUSSION

The outer model assessment in PLS-SEM aims to evaluate the relationship between indicators and latent constructs. According to Hair et al. (2019), the evaluation of reflective constructs includes convergent validity, discriminant validity, and construct reliability to ensure that the research instrument is valid and reliable before proceeding to the inner model analysis. The results of the outer model assessment are presented in Figure 1 below.

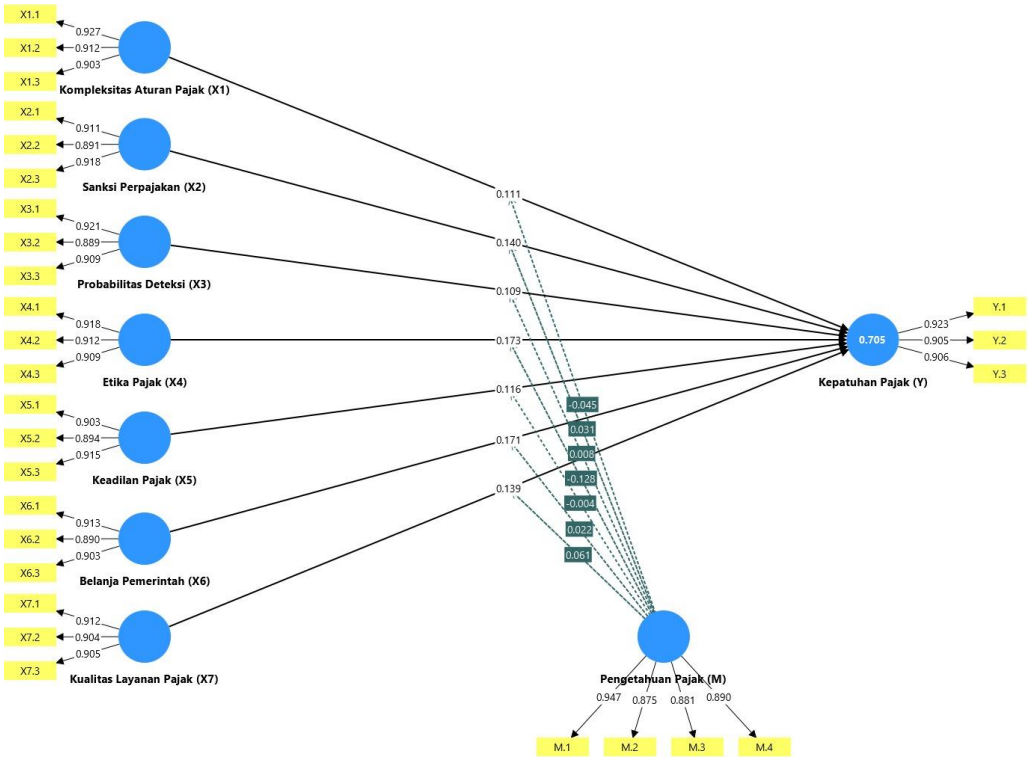


Figure 1. Outer model test results
(Source: Output SEM-PLS, 2026)

The evaluation of the outer model in PLS-SEM aims to assess the relationship between indicators and latent constructs. According to Hair et al. (2019), the assessment of reflective constructs includes convergent validity, discriminant validity, and construct reliability to ensure that the research instrument is valid and reliable before proceeding to the inner model analysis. The results of the outer model evaluation are presented in Figure 1.

Convergent validity is measured using outer loading values and Average Variance Extracted (AVE). According to Hair et al. (2017), an indicator is considered valid if it has an outer loading value of ≥ 0.70. The results show that all indicators have outer loading values above 0.70, indicating a strong relationship with their respective latent constructs. In addition, all constructs meet the AVE criterion of > 0.50, suggesting that each construct explains more than 50% of the variance of its indicators. Therefore, all constructs satisfy the requirements for convergent validity.

Discriminant validity was assessed using the Fornell–Larcker criterion by comparing the square root of AVE for each construct with the correlations among constructs. According to Hair et al. (2019), discriminant validity is established when the square root of AVE is greater than the inter-construct correlations. Based on the Fornell–Larcker matrix, the diagonal values (square roots of AVE) for each construct are higher than the correlations with other constructs. The square root of AVE values are as follows: Government Spending (X6) = 0.902, Tax Ethics (X4) = 0.913, Tax Fairness (X5) = 0.904, Tax Compliance (Y) = 0.911, Tax Rule Complexity (X1) = 0.914, Tax Service Quality (X7) = 0.907, Tax Knowledge (Z) = 0.899, Detection Probability (X3) = 0.907, and Tax Sanctions (X2) = 0.907. Since all these values exceed the corresponding inter-construct correlations, it can be concluded that all constructs meet the discriminant validity criterion.

Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability. According to Hair et al. (2019), a construct is considered reliable if both Cronbach's Alpha and CR values are ≥ 0.70, indicating internal consistency among indicators in measuring the latent

construct. The results show that all constructs have Cronbach's Alpha values above 0.70, ranging from 0.886 to 0.922. Furthermore, the Composite Reliability values exceed 0.90, ranging from 0.929 to 0.944. These results confirm that all constructs meet the reliability criteria.

After conducting the prerequisite tests, where the outer model evaluation indicates that all indicators meet the criteria of validity and reliability, the analysis proceeds to hypothesis testing using the inner model (structural model). The structural model assessment in this study includes the Coefficient of Determination (R^2), Path Significance Testing, and Moderation Testing using Moderated Regression Analysis (MRA). The coefficient of determination (R^2) is used to measure the ability of independent variables to explain the variance of the dependent variable. According to Hair et al. (2017), an R^2 value of 0.75 is categorized as substantial, 0.50 as moderate, and 0.25 as weak.

Table 1. Coefficient of determination test results

Variable	R-square	R-square adjusted
Tax compliance (Y)	0.705	0.690

Source: Output SEM-PLS (2026)

The R-square value of 0.705 indicates that 70.5% of the variance in Tax Compliance can be explained by the independent variables, while the remaining 29.5% is influenced by other factors outside the model. The adjusted R-square value of 0.690 suggests that the model's predictive ability remains stable after adjustment. Based on the criteria proposed by Hair et al. (2017), this value is categorized as moderate to substantial, indicating that the model has good explanatory power.

The significance testing of relationships among constructs in this study was conducted using the bootstrapping method. This technique is used to assess the stability and significance of path coefficients in the structural model. A relationship between variables is considered significant if the t-statistic value is ≥ 1.96 and the p-value is ≤ 0.05 at a 5% significance level (Hair et al., 2017).

Table 2. Path significance test results

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
X_1 -> Y	0.111	0.110	0.048	2.328	0.020
X_2 -> Y	0.140	0.138	0.053	2.624	0.009
X_3 -> Y	0.109	0.106	0.048	2.248	0.025
X_4 -> Y	0.173	0.175	0.060	2.895	0.004
X_5 -> Y	0.116	0.115	0.048	2.414	0.016
X_6 -> Y	0.171	0.175	0.051	3.345	0.001
X_7 -> Y	0.139	0.129	0.081	1.705	0.088

Source: Output SEM-PLS (2026)

Note:
X_1 : Complexity of tax rules
X_2 : Tax sanctions
X_3 : Detection probability
X_4 : Tax ethics
X_5 : Tax fairness
X_6 : Government spending
X_7 : Tax services quality
Y : Tax compliance

The results indicate that most independent variables have a positive and significant effect on VAT compliance, except for tax service quality, which is found to be insignificant. Tax rule complexity, tax sanctions, and detection probability each have a positive and significant effect on compliance, suggesting that regulatory and enforcement factors play an important role in enhancing taxpayer compliance. Furthermore, tax ethics, tax fairness, and government spending also show positive and significant effects, with government spending emerging as the most dominant variable. This finding implies that tax compliance is influenced not only by enforcement mechanisms but also by moral awareness, perceptions of fairness, and the perceived benefits of taxes paid. In contrast, tax service quality does not have a significant effect in this study.

Moderation testing in this study is part of the inner model evaluation, conducted using the Moderated Regression Analysis (MRA) approach within the Structural Equation Modeling–Partial Least Squares (SEM-PLS) framework. The significance of the moderating effect was assessed using the bootstrapping method based on t-statistic and p-value criteria. Tax knowledge is considered to act as a moderating variable if the t-statistic is ≥ 1.96 and the p-value is ≤ 0.05.

Table 3. Moderation test results

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
X_1.Z => Y	-0.045	-0.045	0.054	0.831	0.406
X_2.Z => Y	0.031	0.033	0.049	0.638	0.523
X_3.Z => Y	0.008	0.007	0.058	0.132	0.895
X_4.Z => Y	-0.128	-0.126	0.059	2.152	0.031
X_5.Z => Y	-0.004	0.003	0.051	0.082	0.935
X_6.Z => Y	0.022	0.025	0.052	0.413	0.680
X_7.Z => Y	0.061	0.050	0.065	0.936	0.349

Source: Output SEM-PLS (2026)

Note:
X_1 : Complexity of tax rules
X_2 : Tax sanctions
X_3 : Detection probability
X_4 : Tax ethics
X_5 : Tax fairness
X_6 : Government spending
X_7 : Tax services quality
Z : Tax knowledge
Y : Tax compliance

Overall, the results indicate that Tax Knowledge does not function as a moderating variable in most relationships between the independent variables and Tax Compliance. Only the interaction between Tax Ethics and Tax Compliance is found to be significant, with a negative moderating effect. This finding suggests that as taxpayers' level of tax knowledge increases, the influence of tax ethics on tax compliance tends to weaken. In other words, for taxpayers with a better understanding of taxation, compliance behavior is no longer primarily driven by ethical considerations, but rather by rational factors and the prevailing regulatory framework.

Discussion

The results of this study indicate that, among the seven independent variables examined, all have a significant effect on Value Added Tax (VAT) compliance, except for tax service quality, which does not show a significant influence. Tax rule complexity has a positive effect on VAT compliance, suggesting that clearer procedures actually assist taxpayers in understanding their tax obligations. In this context, tax complexity accompanied by clear administrative guidelines can help MSMEs align their business activities with prevailing tax regulations. Such clarity enhances administrative certainty and strengthens taxpayers' perceived control in fulfilling their obligations. A comprehensive tax system encourages taxpayers to better understand and carefully manage their reporting to avoid errors (Viliona & Kristanto, 2021).

Tax sanctions also have a positive effect, as they create a deterrent effect that promotes compliance. In the context of MSMEs in Southwest Sumba Regency, the role of tax sanctions becomes particularly important due to the predominance of small-scale businesses with varying levels of tax literacy. Many business actors still operate in a relatively simple manner, resulting in suboptimal understanding of tax administrative obligations. Under such conditions, tax sanctions function as both a reminder and a control mechanism that encourages compliance in tax reporting and payment (Istutik et al., 2024). Similarly, detection probability has a positive effect, indicating that higher perceived monitoring leads to greater taxpayer compliance. This finding aligns with the view that the effectiveness of tax enforcement is strongly influenced by taxpayers' perceptions of the authority's ability to detect violations. When taxpayers believe that their activities are monitored through administrative systems, audits, and information technology, their tendency to engage in non-compliance decreases (Situmorang et al., 2026).

Furthermore, tax ethics positively influences compliance, indicating that moral awareness is an important internal factor in promoting compliant behavior. This highlights the importance of fostering ethical values and tax awareness within society to build an effective tax system. For MSMEs in Southwest Sumba Regency, strengthening understanding of the importance of taxation and cultivating a tax-aware culture can support sustainable improvements in VAT compliance. Tax fairness also has a positive effect, meaning that perceptions of fairness in the tax system enhance taxpayer acceptance and compliance. Perceived fairness plays a crucial role in building a positive relationship between taxpayers and tax authorities. When taxpayers feel they are treated fairly, a stronger sense of responsibility emerges to fulfill their tax obligations, including consistent reporting and payment of VAT.

In addition, government spending has a positive effect, as perceptions of the benefits of taxes for development increase trust and compliance among taxpayers. Transparency and accountability in government spending not only improve development effectiveness but also serve as key factors in building public trust, which in turn encourages sustainable VAT compliance. In contrast, tax service quality does not significantly affect VAT compliance, suggesting that in the context of MSMEs in the study area, service factors are not the primary determinants compared to regulatory and enforcement factors. For taxpayers in regions with relatively limited economic development, compliance is more strongly driven by formal obligations and regulatory pressure rather than administrative service experiences. This condition indicates that tax compliance is more likely to be shaped by institutional control mechanisms and compliance norms within the business environment, rather than solely by the quality of tax services (Cahyani et al., 2025).

Regarding the moderating effect, tax knowledge does not moderate most relationships between the independent variables and VAT compliance, except for the relationship between tax ethics and compliance, where it shows a significant negative moderating effect. This finding indicates that for taxpayers with higher levels of tax knowledge, the influence of ethics on compliance becomes weaker, as compliance behavior is more driven by rational and regulatory

considerations. Meanwhile, for other relationships (tax rule complexity, tax sanctions, detection probability, tax fairness, government spending, and tax service quality), tax knowledge does not act as a moderating variable.

Overall, the findings suggest that VAT compliance among MSMEs in Southwest Sumba Regency is more strongly influenced by structural factors such as regulations, sanctions, monitoring, as well as perceptions of fairness and tax benefits, rather than by variations in tax knowledge. Within the framework of the Theory of Planned Behavior (TPB) proposed by Ajzen (1991), compliance behavior is influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. Tax ethics represents the moral attitude toward tax obligations, while tax knowledge can strengthen perceived behavioral control. However, the findings indicate that as tax knowledge increases, taxpayers tend to rely more on regulatory and control aspects in decision-making, thereby weakening the influence of moral attitudes (tax ethics) on compliance intentions and behavior. Furthermore, the absence of moderating effects of tax knowledge on the relationships involving tax complexity, sanctions, detection probability, fairness, government spending, and service quality suggests that these variables function more as external factors that directly shape attitudes and perceived behavioral control within the TPB framework. In other words, their influence on compliance does not depend on the level of tax knowledge possessed by taxpayers.

CONCLUSION

The findings indicate that most variables namely tax rule complexity, tax sanctions, detection probability, tax ethics, tax fairness, and perceptions of government spending have a positive effect on VAT compliance among MSMEs in Southwest Sumba Regency, East Nusa Tenggara Province, Indonesia. This confirms that compliance is influenced not only by enforcement mechanisms but also by perceptual, moral, and benefit-related factors. Tax ethics and government spending emerge as the most dominant drivers of compliance, while tax service quality does not have a significant effect. Tax knowledge only moderates the relationship between tax ethics and compliance in a weakening direction and does not moderate the relationships among the other variables. Overall, improving VAT compliance is more effectively achieved through a combination of strengthening regulatory aspects, enhancing taxpayer morality, ensuring fairness in the tax system, and increasing transparency in the use of tax revenues.

From a practical perspective, tax authorities are advised to enhance transparency in government spending, improve tax education and literacy among MSMEs, and optimize monitoring and the consistent enforcement of sanctions. Although tax service quality does not show a significant effect, improvements in service delivery remain important to facilitate administrative processes and build taxpayer trust. An integrated approach combining education, transparency, and enforcement is expected to promote sustainable improvements in VAT compliance.

Future research is recommended to expand the study area to enable comparisons of MSME compliance characteristics across regions, particularly between areas with differing levels of information access. In addition, future studies may incorporate other variables such as business income, tax digitalization, trust in government, and local cultural factors, as well as consider the use of mixed methods to gain deeper insights into taxpayer compliance behavior.

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