

Enhancing property tax compliance through tax digitalization information accessibility and institutional transparency in Medan

Yuliana Sesilia Ndruru¹, Bobby Indra Prayoga², Barham Siregar³

^{1,2,3}Public Administration, Universitas Pembinaan Masyarakat Indonesia, Medan, Indonesia

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ABSTRACT

This study examines the influence of tax digitalization and information accessibility on property taxpayer compliance with transparency as a mediating variable in Medan City. The implementation of digital tax services is expected to improve administrative efficiency and encourage taxpayer compliance through more accessible and transparent public services. However, taxpayer compliance remains inconsistent, indicating the importance of institutional transparency and effective information delivery. This research employed a quantitative approach using survey data collected from 100 property taxpayers in Medan City selected through simple random sampling. Data were analyzed using multiple regression and path analysis to evaluate both direct and indirect relationships among variables. The findings reveal that tax digitalization significantly improves taxpayer compliance by simplifying administrative procedures and enhancing service efficiency. Information accessibility also positively affects compliance by improving taxpayer understanding of taxation procedures and obligations. Furthermore, transparency strengthens the relationship between tax digitalization, information accessibility, and taxpayer compliance by increasing public trust and institutional accountability. The coefficient of determination indicates that 68.7% of taxpayer compliance variation can be explained by the variables included in the model. The study concludes that improving taxpayer compliance requires not only digital transformation but also transparent governance and accessible information systems. These findings provide practical implications for local governments in developing accountable and efficient tax administration policies.

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Corresponding Author:

Yuliana Sesilia Ndruru

Faculty of Administrative Sciences, Public Administration Study Program, Universitas Pembinaan

Masyarakat Indonesia, Medan, Indonesia

Jl. Teladan, No. 15, North Sumatra

Email: yulianasesilia34@gmail.com

1. INTRODUCTION

Taxpayer compliance remains an important issue in public financial administration, particularly in developing countries where institutional capacity and governance systems continue to evolve. In Indonesia, regional taxes, including property taxes, constitute a significant source of local government revenue used to support public services and regional development programs. However, despite various administrative reforms introduced by the government, the level of taxpayer compliance remains

relatively inconsistent. This condition suggests that compliance behavior is influenced not only by legal enforcement mechanisms but also by administrative efficiency, transparency, and public trust in government institutions (OECD, 2021; Siengthai & Pila-Ngarm, 2021).

The rapid advancement of information technology has encouraged governments to modernize public administration through digital transformation, including taxation services. Tax digitalization refers to the utilization of digital systems and electronic platforms to improve tax administration processes, service efficiency, and taxpayer interaction with tax authorities. The implementation of digital tax services is expected to simplify administrative procedures, reduce bureaucratic complexity, and improve service accessibility for taxpayers. Previous studies have shown that digital taxation systems contribute positively to taxpayer compliance because they facilitate easier and faster tax administration processes (Eliyana et al., 2022; Saputra & Mahaputra, 2023). Nevertheless, the effectiveness of tax digitalization depends greatly on system usability, technological readiness, and taxpayers' ability to access and utilize digital services effectively.

In addition to digitalization, information accessibility also plays a significant role in influencing taxpayer compliance behavior. Taxpayers require accurate, clear, and timely information regarding tax regulations, procedures, and obligations in order to fulfill their responsibilities properly. Limited access to information may create uncertainty and misunderstanding, which can reduce voluntary compliance. Conversely, accessible information enables taxpayers to better understand taxation procedures and increases their awareness of tax obligations (Putra et al., 2021; Hasanuddin et al., 2024). Therefore, governments are required to provide information systems that are transparent, understandable, and easily accessible to the public.

Transparency is another important factor affecting taxpayer compliance within public administration. Transparency refers to the openness and accountability of government institutions in managing taxation policies, procedures, and public revenues. Transparent governance strengthens public trust because taxpayers are more likely to comply when they perceive tax administration as accountable and fair. Previous research indicates that transparency not only directly affects taxpayer compliance but also strengthens the effectiveness of digitalization and information accessibility in encouraging compliance behavior (Dipoatmodjo et al., 2021; Eliyana et al., 2022). This indicates that transparency may function as a mediating variable linking administrative modernization and taxpayer behavior.

Although previous studies have examined tax digitalization, information accessibility, and transparency separately, limited research has analyzed the integrated relationship among these variables in influencing taxpayer compliance, particularly in the context of regional property taxation. Most prior studies focus primarily on direct relationships without considering the mediating role of transparency within digital tax administration systems. Therefore, this study seeks to address this research gap by examining the influence of tax digitalization and information accessibility on property taxpayer compliance with transparency serving as a mediating variable in Medan City.

The novelty of this research lies in its integrated analytical framework that combines technological, informational, and governance perspectives in explaining taxpayer compliance behavior. This study is expected to contribute both theoretically and practically to the development of public administration and taxation studies, particularly in supporting digital transformation and transparent governance within regional tax administration systems.

2. METHOD

This study employed a quantitative research approach to examine the influence of tax digitalization and information accessibility on property taxpayer compliance with transparency as a mediating variable in Medan City. A quantitative method was selected because it enables objective measurement of causal relationships among variables through statistical analysis.

The research was conducted in Medan City, Indonesia, focusing on registered property taxpayers who had utilized digital taxation services provided by the Regional Revenue Agency (BAPENDA). The population of this study consisted of property taxpayers registered within the local tax administration system. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in 100 respondents. Respondents were selected using a simple random sampling technique to ensure equal participation opportunities among members of the population.

Primary data were collected through a structured questionnaire distributed directly to respondents. The questionnaire used a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The research instrument consisted of four variables: tax digitalization, information accessibility, transparency, and taxpayer compliance.

Tax digitalization was measured using indicators of system usability, service efficiency, ease of access, and transaction convenience adapted from Eliyana et al. (2022). Information accessibility was measured through indicators of clarity, availability, timeliness, and accessibility of tax-related information based on Putra et al. (2021). Transparency indicators included accountability, openness of public information, and clarity of tax administration procedures adapted from Dipomatmodjo et al. (2021). Meanwhile, taxpayer compliance was measured using indicators of payment punctuality, reporting accuracy, and fulfillment of tax obligations adapted from Saputra and Mahaputra (2023).

The questionnaire consisted of 20 statement items distributed proportionally across all variables. Prior to the main analysis, validity and reliability tests were conducted to ensure the quality of the research instrument. Validity testing employed Pearson Product Moment correlation analysis, where all questionnaire items obtained correlation coefficients greater than 0.30, indicating that the instrument items were valid. Reliability testing used Cronbach's Alpha coefficient, and all variables achieved values above 0.70, confirming acceptable reliability and internal consistency (Hair et al., 2019).

Data analysis was performed using descriptive statistics, multiple linear regression, and path analysis. Multiple regression analysis was used to examine the direct influence among variables, while path analysis was applied to evaluate indirect relationships and investigate the mediating role of transparency in the proposed research model. In addition, several classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were conducted to ensure that the regression model fulfilled statistical assumptions and produced reliable estimation results. All statistical analyses were processed using SPSS software. The variables and measurement indicators used in this study are presented in Table 1

Table 1. Research Variables and Indicators

Variable	Indicators	Source
Tax Digitalization	System usability, service efficiency, ease of access, transaction convenience	Eliyana et al. (2022)
Information Accessibility	Clarity, availability, timeliness, accessibility of information	Putra et al. (2021)
Transparency	Accountability, openness of information, procedural clarity	Dipomatmodjo et al. (2021)
Taxpayer Compliance	Payment punctuality, reporting accuracy, fulfillment of tax obligations	Saputra & Mahaputra (2023)

Table 1 shows that each research variable was measured using indicators adapted from previous empirical studies to ensure construct validity and measurement relevance.

The results of the validity and reliability tests are presented in Table 2.

Table 2. Validity and Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Result
Tax Digitalization	5	0.812	Reliable
Information Accessibility	5	0.798	Reliable
Transparency	5	0.821	Reliable
Taxpayer Compliance	5	0.845	Reliable

Table 2 indicates that all variables achieved Cronbach's Alpha values above 0.70, confirming acceptable reliability and internal consistency of the research instrument. In addition, all questionnaire items obtained corrected item-total correlation values greater than 0.30, indicating valid measurements.

3. RESULTS AND DISCUSSION

3.1 Empirical Results and Model Estimation

This research analyzes the effect of tax digitalization and accessibility of information on property taxpayer compliance with transparency acting as an intervening variable in Medan City. The empirical testing was performed using path analysis to evaluate the causal relationships among the research variables, including both direct and indirect effects. The findings demonstrate that each

variable incorporated into the model provides a meaningful contribution to increasing taxpayer compliance levels.

The analysis further reveals that digital tax systems and accessible information services are capable of encouraging taxpayer obedience more effectively when supported by transparent governance practices. Transparency strengthens public trust in tax administration and improves the effectiveness of digital services and information dissemination. As a result, the interaction among these variables creates a stronger impact on compliance behavior.

The structural equation model used in this study can be formulated mathematically as follows:

$$P = \frac{p_1 \times p_2 \times p_3}{y} \tag{1}$$

Where P represents taxpayer compliance, p_1 denotes tax digitalization, p_2 refers to information accessibility, p_3 indicates transparency, and y represents external variables outside the proposed model. The findings of the path analysis are presented in Table 3.

Table 3. Path Analysis Results

Variable Relationship	Direct Effect	Indirect Effect	Total Effect	Significance
Digitalization → Compliance	0.416	0.125	0.541	Significant
Information Accessibility → Compliance	0.392	0.111	0.503	Significant
Transparency → Compliance	0.311	-	0.311	Significant

The findings indicate that tax digitalization provides the highest overall influence on property taxpayer compliance compared to the other independent variables. Information accessibility also contributes substantially to improving compliance behavior by helping taxpayers understand taxation procedures and obligations more effectively. In addition, transparency functions as an important mediating factor that reinforces the relationship between digitalization, accessibility of information, and taxpayer compliance. These results suggest that the success of digital tax administration is highly dependent on transparent governance practices and the availability of clear and accessible public information systems.

The coefficient of determination (R^2) generated from the analysis is 0.687. This value shows that 68.7% of the variation in taxpayer compliance can be explained by the variables of tax digitalization, information accessibility, and transparency included in the research model. Meanwhile, the remaining 31.3% may be affected by other external factors not examined in this study, including taxpayer awareness, quality of public services, institutional trust, and the effectiveness of law enforcement mechanisms.

To illustrate the relationships among variables more clearly, the structural framework and empirical results of the study are presented in Figures 1–3.

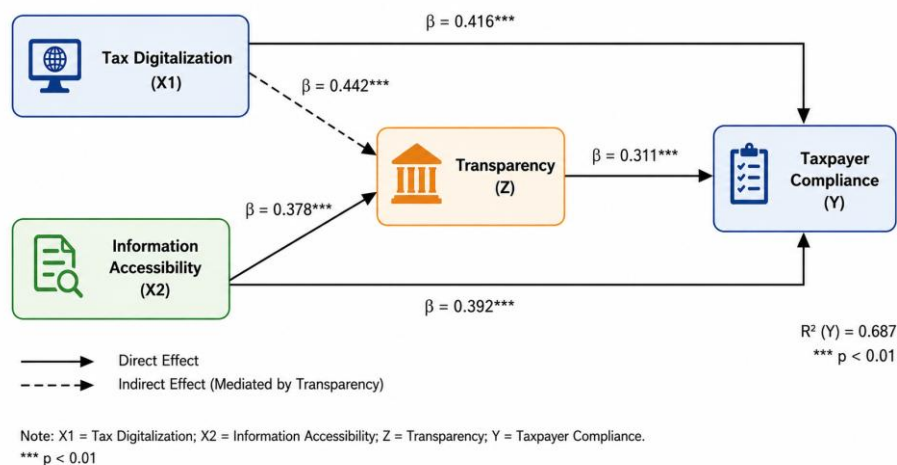


Figure 1. Structural Model and Path Coefficients

Figure 1 presents the structural relationship between tax digitalization, accessibility of information, transparency, and property taxpayer compliance in Medan City. The diagram demonstrates that tax digitalization and information accessibility influence taxpayer compliance both directly and indirectly through transparency as an intervening variable. The path coefficient results reveal that digitalization contributes the greatest effect toward improving taxpayer compliance, while information accessibility and transparency also provide meaningful contributions in strengthening compliance behavior.

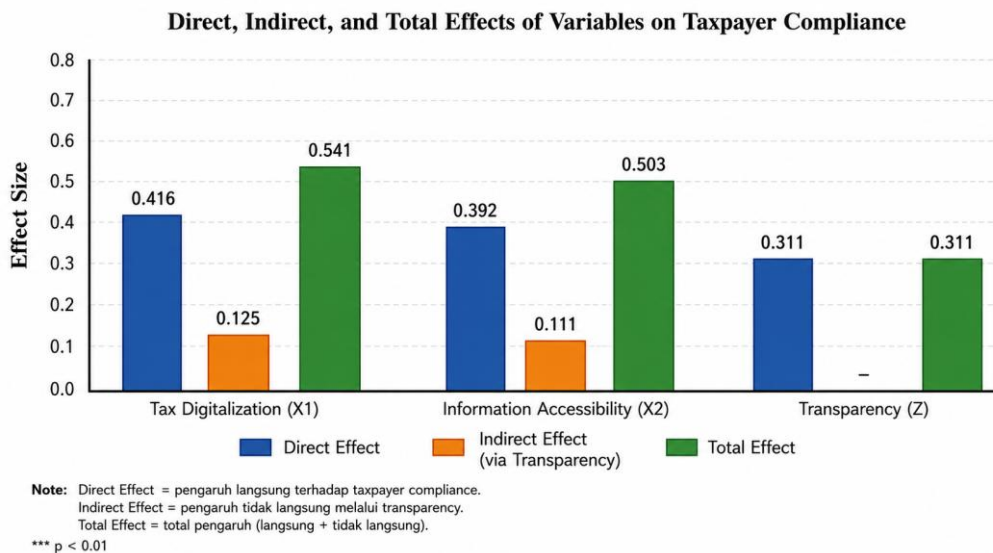


Figure 2. Direct, Indirect, and Total Effects of Variables on Taxpayer Compliance

Figure 2 illustrates the comparison between the direct, indirect, and total effects of tax digitalization, information accessibility, and transparency on property taxpayer compliance. The findings indicate that tax digitalization produces the greatest total influence on compliance behavior, emphasizing the important role of digital transformation in improving the efficiency and effectiveness of tax administration services. Information accessibility also contributes significantly to taxpayer compliance because it enhances taxpayer understanding of taxation procedures, reduces administrative uncertainty, and facilitates easier fulfillment of tax obligations.

These findings are consistent with previous studies which state that digital taxation systems and accessible public information positively affect taxpayer compliance and public participation in tax administration (Eliyana et al., 2022; Putra et al., 2021). Furthermore, transparency strengthens the influence of both variables by promoting public trust, institutional accountability, and confidence in government administration. This finding supports the argument that taxpayer compliance is influenced not only by technological innovation but also by the quality of governance and transparency within public institutions.

Overall, the integration of digital tax services, accessible information systems, and transparent governance creates a more supportive administrative environment for improving taxpayer compliance in regional taxation systems.

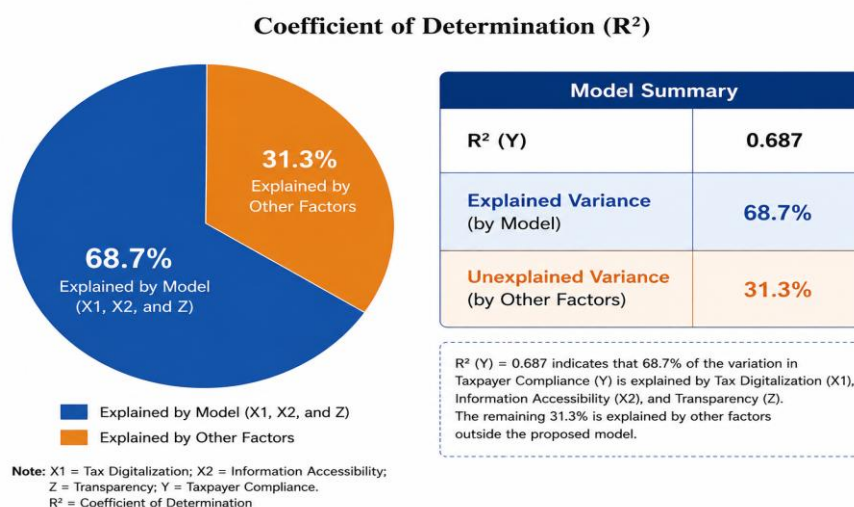


Figure 3. Coefficient of Determination (R^2) of the Research Model

Figure 3 displays the coefficient of determination (R^2) generated from the research model proposed in this study. The analysis indicates that 68.7% of the changes in property taxpayer compliance are explained by the variables of tax digitalization, information accessibility, and transparency. On the other hand, 31.3% of the variation is associated with other determinants beyond the scope of this research, suggesting that taxpayer compliance is also influenced by additional behavioral, organizational, and institutional factors that were not included in the current model.

3.2 Discussion

The results of this research demonstrate that tax digitalization, information accessibility, and transparency have important contributions to improving property taxpayer compliance in Medan City. The findings indicate that taxpayer compliance is influenced not only by regulatory obligations but also by the effectiveness of administrative systems, the availability of information, and the quality of institutional governance. The integration of digital services with transparent public administration creates a more supportive environment for encouraging voluntary compliance among taxpayers.

3.2.1 Effect of Tax Digitalization on Compliance

The analysis confirms that tax digitalization has a positive and significant effect on taxpayer compliance. The implementation of digital tax systems simplifies administrative procedures, shortens service processing time, and increases operational efficiency. As a result, taxpayers can fulfill their obligations more easily and conveniently, which encourages higher levels of compliance.

Digital-based services also reduce bureaucratic barriers that commonly discourage taxpayers from completing administrative procedures. Through online systems, taxpayers are able to access taxation services more quickly, accurately, and flexibly without being limited by time and location. These findings support previous studies explaining that digital transformation contributes to improving tax administration performance and strengthening public participation in taxation activities (Eliyana et al., 2022; Saputra & Mahaputra, 2023).

In addition, digital systems improve transparency in tax transactions and reduce the possibility of procedural errors caused by manual administration. However, the effectiveness of digitalization is strongly influenced by the quality of technological infrastructure and taxpayer readiness in using digital services. Complicated systems or inadequate technical assistance may reduce the effectiveness of digital transformation. Therefore, continuous improvement in digital infrastructure, system usability, and taxpayer education remains necessary to maximize the benefits of tax digitalization.

3.2.2 Effect of Information Accessibility on Compliance

The findings also reveal that information accessibility significantly affects taxpayer compliance. Accessible and accurate information helps taxpayers understand taxation procedures, regulations, and obligations more effectively. Taxpayers who receive sufficient information are more capable of

completing tax procedures correctly and avoiding administrative mistakes that may lead to non-compliance.

The availability of reliable information contributes positively to increasing taxpayer awareness and reducing uncertainty related to taxation processes. These findings are consistent with previous studies emphasizing that information accessibility plays an important role in supporting voluntary taxpayer compliance (Putra et al., 2021; Hasanuddin et al., 2024). Information services that are easy to access allow taxpayers to obtain guidance and clarification regarding tax-related procedures more efficiently.

Nevertheless, the effectiveness of information dissemination depends not only on information availability but also on communication quality. Information that is overly technical or difficult to interpret may still create misunderstanding among taxpayers. Consequently, tax authorities should ensure that information delivery is clear, transparent, and understandable for the public to improve taxpayer participation and compliance behavior.

3.2.3 Mediating Role of Transparency

Transparency was found to play a significant mediating role in the relationship between tax digitalization, information accessibility, and taxpayer compliance. The indirect effects identified in the analysis indicate that transparency strengthens taxpayer trust toward tax administration institutions. When taxpayers perceive tax management as transparent and accountable, their willingness to comply with taxation obligations tends to increase.

This finding supports earlier studies stating that transparency is a fundamental factor influencing public trust and taxpayer compliance behavior (Dipoatmodjo et al., 2021; Eliyana et al., 2022). Transparency enhances the effectiveness of digital systems and information services because taxpayers feel more confident that tax revenues are managed responsibly and fairly.

However, transparency cannot be achieved solely through the implementation of digital technology. Effective transparency also requires open communication, accountability mechanisms, and consistent dissemination of public information. Without these supporting elements, digitalization may not produce optimal improvements in taxpayer compliance. Therefore, governments need to integrate technological innovation with transparent governance practices to strengthen institutional credibility and public trust.

3.2.4 Coefficient of Determination

The coefficient of determination (R^2) obtained from the statistical analysis is 0.687, which means that 68.7% of the variation in taxpayer compliance can be explained by the variables of tax digitalization, information accessibility, and transparency. This result indicates that the proposed research model has strong explanatory capability in describing taxpayer compliance behavior within the context of digital transformation in public sector administration.

Meanwhile, the remaining 31.3% of the variation is influenced by other variables that were not included in this study, such as the quality of public services, effectiveness of tax enforcement, taxpayer awareness, and institutional trust. These findings suggest that taxpayer compliance is a complex and multidimensional issue that cannot be explained by a single factor alone. Therefore, a comprehensive policy strategy is necessary to improve compliance levels effectively.

The study also implies that future research should incorporate additional organizational, social, and behavioral variables in order to obtain a more comprehensive understanding of the factors influencing taxpayer compliance dynamics.

4. CONCLUSION

This study concludes that tax digitalization and information accessibility significantly improve property taxpayer compliance in Medan City. Digital tax services simplify administrative procedures, improve service efficiency, and help taxpayers better understand their tax obligations. In addition, accessible information reduces administrative uncertainty and encourages voluntary compliance behavior. The findings also demonstrate that transparency plays an important mediating role in strengthening the relationship between tax digitalization, information accessibility, and taxpayer compliance. Transparent governance increases public trust and supports the effectiveness of digital public services. The research model explains 68.7% of the variation in taxpayer compliance, indicating that digitalization, information accessibility, and transparency are important determinants of taxpayer compliance behavior.

Practically, this study suggests that local governments should continue improving digital tax systems, expand public access to tax-related information, and strengthen transparency in tax administration to enhance taxpayer compliance more effectively.

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