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Inside Digital Tax Effectiveness: Service Dimensions and Tax Compliance in Bandung, Indonesia

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Abstract

Digital tax services are increasingly expected to simplify tax administration, yet their availability does not automatically translate into stronger taxpayer compliance. This study examines the association between perceived E-Samsat effectiveness and motor vehicle taxpayer compliance among users of Samsat Bandung III Soekarno-Hatta. The study applies a multidimensional effectiveness framework comprising program understanding, target accuracy, timeliness, goal achievement, and tangible change. A quantitative cross-sectional design was used with 100 purposively selected E-Samsat users, and data were analyzed using descriptive statistics, validity and reliability tests, regression diagnostics, and simple linear regression. The findings show that E-Samsat effectiveness is positively and significantly associated with taxpayer compliance. Timeliness and program understanding emerged as the strongest dimensions, indicating that speed, procedural clarity, and service accessibility are central to users' evaluations. The findings suggest that digital tax services support compliance most effectively when technology is accompanied by understandable, timely, and user-oriented administrative processes for existing users.

Keywords: : E-Samsat; Taxpayer Compliance; Digital Tax Services.

INTRODUCTION

Digital transformation has become a defining feature of contemporary tax administration, yet the expansion of digital access does not necessarily translate into stronger taxpayer compliance. In 2024, 90.4% of tax administrations covered by the OECD inventory provided online payment facilities for personal income tax, indicating the extensive institutionalization of digital channels in tax services (OECD, 2025b). Nevertheless, comparative OECD evidence shows that the growth of electronic filing between 2014 and 2023 was not accompanied by a corresponding improvement in the average timeliness of tax return submission (OECD, 2025a). Indonesia reflects a similar tension between digital capacity and administrative outcomes, recording an E-Government Development Index score of 0.7991 and ranking 64th among 193 countries in 2024 (United Nations Department of Economic and Social Affairs [UNDESA], 2024). These developments suggest that the availability of digital infrastructure should be analytically distinguished from citizens' successful fulfillment of administrative obligations. In the context of motor vehicle taxation, this distinction directs attention toward whether taxpayers' perceived effectiveness of E-Samsat is meaningfully associated with their compliance in fulfilling tax obligations.

This issue is particularly relevant in West Java, where 1,701,288 vehicles had participated in the motor vehicle tax relief program by mid-May 2025, illustrating the substantial scale of taxpayer interaction with provincial tax facilitation policies (Badan Pendapatan Daerah Provinsi Jawa Barat, 2025). The official E-Samsat Jabar mechanism involves several interconnected stages, including obtaining a payment code, completing the tax transaction through designated banking or digital payment channels, and completing the administrative requirements associated with annual motor vehicle taxation and STNK validation

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(Badan Pendapatan Daerah Provinsi Jawa Barat, 2017, 2021). More broadly, digital tax instruments can reduce compliance and administrative costs when technological arrangements effectively simplify taxpayers' interactions with public institutions (Hesami et al., 2024). However, organizational effectiveness is inherently multidimensional because different criteria may represent distinct and sometimes competing interpretations of successful performance (Cameron, 1986). Evaluating E-Samsat therefore requires attention not only to whether the system exists or processes transactions but also to how users understand the program, perceive its targeting and timeliness, recognize its intended objectives, and experience tangible changes resulting from its implementation.

Empirical evidence from Bandung indicates that the implementation of e-filing and e-billing did not individually demonstrate a significant association with taxpayer compliance, whereas taxpayers' understanding of taxation showed a more meaningful relationship, suggesting that technological provision alone may be insufficient to explain compliance outcomes (Panjaitan & Handayani, 2023). In Ciamis, e-filing was positively associated with individual taxpayer compliance, although digital tax socialization did not significantly strengthen that relationship, illustrating that different components of digital administration may operate through distinct mechanisms (Malik et al., 2023). Evidence from motor vehicle taxpayers at the Gianyar Samsat Office further shows that service quality, alongside taxpayer income and understanding of tax regulations, was positively related to compliance (Lestari & Kresnandra, 2023). In contrast, research conducted at the Pidie Samsat Office found that E-Samsat policy, compliance costs, and service quality were not significant predictors of taxpayer compliance, whereas tax sanctions were significant, demonstrating substantial contextual variation in the determinants of compliance (Febriansyah & Wahyuni, 2023). A further survey-based investigation found that e-filing implementation and tax service quality were positively related to both taxpayer compliance and satisfaction, although taxpayer satisfaction did not mediate their relationships with compliance (Rahmi et al., 2024).

The administrative evidence underlying the present study provides a more specific context for examining this problem at Samsat Bandung III Soekarno-Hatta. The contribution of E-Samsat to motor vehicle tax revenue increased from 9.17% in 2020 to 10.44% in 2023, indicating a growing share of revenue processed through the electronic channel. These percentages, however, represent the distribution of revenue across payment channels rather than the proportion of taxpayers adopting E-Samsat or the prevalence of non-compliance and should therefore not be interpreted as direct measures of behavioral adoption. Recent evidence from the same administrative setting indicates that E-Samsat services are positively and significantly associated with motor vehicle taxpayer compliance, with E-Samsat exhibiting a stronger standardized relationship than Samsat Drive-Thru and Mobile Samsat services (Hasibuan & Purnamasari, 2026). A comparable study in Garut also reported a positive and significant relationship between the implementation of the E-Samsat information system and motor vehicle taxpayer compliance, with the model accounting for 29.5% of the variation in compliance (Alghaviqi & Ishak, 2023). Evidence from Gianyar further demonstrates that service quality, together with taxpayers' income and understanding of tax regulations, is positively associated with motor vehicle taxpayer compliance, reinforcing the importance of the service dimension in explaining compliance behavior (Lestari & Kresnandra, 2023). Nevertheless, the present dataset operationalizes E-Samsat effectiveness through five dimensions: program understanding, target accuracy, timeliness, goal achievement, and tangible change, while some effectiveness indicators concern perceived reductions in tax arrears and the compliance construct also incorporates service-related assessments, requiring careful interpretation to distinguish evaluations of service processes from perceptions of taxation outcomes.

This interpretive issue differentiates the present study from research that primarily examines technology acceptance, institutional readiness, or general determinants of compliance. Al-Okaily (2024), for example, showed among taxpayers in Jordan that performance expectancy, social influence,

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knowledge, and trust were positively associated with continued use of electronic tax declaration platforms, whereas effort expectancy was not significant. From an institutional perspective, Acquah (2025) found that progress in Ghanaian digital tax services continued to face limitations associated with infrastructure maturity, system integration, analytical capacity, and digital culture. Belahouaoui and Attak (2025) similarly demonstrated in Morocco that communication, procedural simplification, regulatory clarity, and digitalization contribute to the relationship between taxpayers and tax authorities and may support compliance. These studies collectively demonstrate that the benefits of digital taxation remain conditional on how technologies are implemented and experienced, but their dependent outcomes and institutional settings differ from an examination of perceived E-Samsat effectiveness among actual service users. The present study also extends the earlier analysis of the same Bandung survey dataset by moving beyond the interpretation of a single aggregate effectiveness score and examining what the five dimensions constituting that score imply for understanding the measured effectiveness–compliance association.

A practical-knowledge gap consequently remains between identifying a positive aggregate relationship and translating that relationship into defensible knowledge for service improvement. An overall effectiveness score combines assessments of procedural understanding, targeting appropriateness, service timeliness, achievement of program objectives, and perceived tangible changes, even though each dimension represents a different managerial problem and potentially requires a different intervention. Without examining the substantive content of these dimensions, a statistically significant aggregate association may encourage recommendations that extend beyond what the measurement actually demonstrates. This limitation is especially important because the cross-sectional and purposively sampled survey identifies associations between perceived constructs rather than causal effects of E-Samsat on objectively observed payment behavior. The analytical position of this study is therefore to use the five effectiveness dimensions as an interpretive framework for reconsidering the aggregate relationship between E-Samsat effectiveness and questionnaire-based taxpayer compliance while explicitly preserving the boundaries imposed by the underlying measurement and research design.

Recent public-service research reinforces the importance of this more differentiated interpretation, as evidence from electronic tax filing services shows that inadequate socialization, taxpayer training, technological facilities, and technical support can constrain perceived e-government effectiveness even when citizen interest in digital services is relatively high (Rizki et al., 2024). Evidence from West Java further indicates that different components of electronic tax administration do not necessarily exhibit equivalent relationships with taxpayer compliance, with e-registration and self-efficacy demonstrating significant effects while e-filing and digital literacy showed weaker statistical relationships in the examined model (Purnamasari & Tahir, 2025). At the information-system level, system, information, and service quality have also been linked to taxpayers' usage and satisfaction, which subsequently contribute to tax compliance, emphasizing the relevance of user experience when interpreting digital taxation outcomes (Ariyanto et al., 2024). Research on compliance costs similarly cautions against assuming that administrative digitalization automatically reduces taxpayers' burdens, as evidence from Indonesian MSMEs indicates that digital tax administration may not by itself eliminate compliance costs (Murnidayanti & Putranti, 2023). At the same time, survey evidence from Bandung shows that digital taxation mechanisms can be associated with taxpayer compliance, reinforcing the need to identify more precisely which aspects of digital service effectiveness are represented by such statistical relationships (Eddy et al., 2023).

Against this background, this study aims to examine the association between perceived E-Samsat effectiveness and motor vehicle taxpayer compliance among users of Samsat Bandung III Soekarno-Hatta through the interpretation of the five dimensions constituting the effectiveness measure.

RESEARCH METHOD

This study employed a quantitative cross-sectional design using secondary analysis of survey data collected in 2024 from E-Samsat users at Samsat Bandung III Soekarno-Hatta. A quantitative approach was appropriate because the study examined the statistical association between perceived E-Samsat effectiveness and motor vehicle taxpayer compliance. A cross-sectional design is suitable for examining relationships among variables measured within a defined period without manipulating the study conditions (Saunders et al., 2024). Secondary data analysis was selected because the existing dataset contained variables directly aligned with the present research objective and allowed the original evidence to be re-examined from a more focused analytical perspective (Johnston, 2014). Accordingly, the design supports an associational rather than causal interpretation of the relationship between E-Samsat effectiveness and taxpayer compliance.

The data originated from a structured questionnaire administered to 100 taxpayers who had used E-Samsat services at Samsat Bandung III Soekarno-Hatta during the 2024 survey (Yusup, 2024). E-Samsat effectiveness was measured through five dimensions comprising program understanding, target accuracy, timeliness, goal achievement, and tangible change, while taxpayer compliance was measured using the compliance indicators contained in the original instrument. Respondents were selected using purposive sampling, a non-probability technique in which participants are chosen because they meet characteristics relevant to the research objective (Saunders et al., 2024). The principal inclusion criterion was prior experience using E-Samsat, ensuring that respondents were able to evaluate the service based on direct interaction with the system. Because the sample was purposively selected, the findings are interpreted within the surveyed user group and are not generalized statistically to the entire population of motor vehicle taxpayers.

Data analysis combined descriptive and inferential statistical techniques to distinguish the profile of perceived service effectiveness from the relationship between the study variables. Descriptive statistics were used to examine the five effectiveness dimensions and taxpayer compliance, thereby providing an empirical basis for interpreting the substantive content of the aggregate scores. Simple linear regression was then applied to estimate the association between the total E-Samsat effectiveness score as the predictor and taxpayer compliance as the outcome variable, as regression analysis is appropriate for estimating the statistical relationship between a continuous predictor and outcome (Field, 2018). The analysis considered the regression coefficient, coefficient of determination, test statistic, and statistical significance, with the significance threshold set at $p < .05$. The five effectiveness dimensions were subsequently used to contextualize the aggregate regression result rather than to infer separate causal effects, consistent with the measurement structure and cross-sectional nature of the dataset

RESULT AND DISCUSSION

General Overview

Samsat Bandung III Soekarno-Hatta serves as the empirical setting for examining the implementation of E-Samsat in motor vehicle tax services. The study focuses on taxpayers who had direct experience using E-Samsat, allowing the analysis to capture service evaluations from actual users rather than from taxpayers who had never interacted with the digital channel. The 2024 survey involved 100 respondents selected purposively based on their experience with E-Samsat services. This respondent profile provides a relevant empirical basis for assessing perceived service effectiveness and taxpayer compliance within the observed service environment. The characteristics of the sampled users therefore

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establish the analytical context for examining how E-Samsat functions within routine motor vehicle tax administration.

Administrative records show that E-Samsat contributed 9.17% of motor vehicle tax revenue in 2020 and 10.44% in 2023 at Samsat Bandung III Soekarno-Hatta. The increase indicates a growing proportion of tax revenue processed through the electronic payment channel during the observed period. The percentage represents the contribution of E-Samsat to total motor vehicle tax revenue rather than the proportion of taxpayers adopting the service. The data therefore describe the relative role of the digital payment channel without directly indicating the level of taxpayer participation or compliance. This distinction provides an important basis for interpreting E-Samsat performance through user-based measures rather than relying exclusively on revenue contribution.

The use of E-Samsat enables taxpayers to complete part of the motor vehicle tax payment process through digital procedures, reducing dependence on fully conventional service channels. The service requires users to understand payment procedures, complete transactions within the required period, and follow the administrative stages associated with motor vehicle taxation. The study captures these service experiences through five dimensions of effectiveness consisting of program understanding, target accuracy, timeliness, goal achievement, and tangible change. Taxpayer compliance is assessed as a separate outcome construct to identify its statistical relationship with perceived E-Samsat effectiveness. The measurement structure forms the basis for the descriptive analysis of both variables and their underlying dimensions in the subsequent section.

Descriptive Statistics by Dimension

The descriptive analysis focuses on the dimensions underlying E-Samsat effectiveness and motor vehicle taxpayer compliance. The overall E-Samsat effectiveness score averaged 62.03 across 15 items, while taxpayer compliance averaged 47.11 across 12 items. Dimension-level analysis provides a more substantive interpretation because the aggregate scores combine several distinct aspects of service effectiveness and compliance. Mean scores were interpreted using five categories: very low, low, moderate, high, and very high. The dimensional profile therefore identifies variation in respondents' evaluations across the components of each construct.

Table 1. Descriptive Statistics of E-Samsat Effectiveness Dimensions

Dimension	Number of Items	Mean	Classification
Timeliness	3	4.24	Very High
Program Understanding	3	4.22	Very High
Target Accuracy	3	4.15	High
Goal Achievement	3	4.08	High
Tangible Change	3	3.99	High
Overall Dimension Mean	15	4.14	High

Note. Mean classification: 1.00–1.80 = Very Low; 1.81–2.60 = Low; 2.61–3.40 = Moderate; 3.41–4.20 = High; 4.21–5.00 = Very High.

The dimensional profile shows that respondents evaluated E-Samsat most strongly in terms of timeliness, which recorded a mean of 4.24 and fell within the very high category. Program understanding also reached the very high category with a mean of 4.22, indicating strong perceptions of program comprehension and procedural clarity. Target accuracy and goal achievement recorded means of 4.15 and 4.08, respectively, placing both dimensions in the high category. Tangible change produced a mean of 3.99 and remained within the high category despite being lower than the other dimensions. The pattern indicates that respondents assessed immediately experienced service processes more positively than broader changes attributed to E-Samsat implementation.

The difference between timeliness and tangible change provides an important descriptive distinction within the effectiveness construct. High scores for timeliness reflect strong perceptions of transaction speed, payment flexibility, and service efficiency. The comparatively lower score for tangible change indicates more restrained evaluations of broader behavioral and institutional outcomes associated with E-Samsat. Goal achievement shows a similar tendency because the dimension includes perceptions concerning payment facilitation and reductions in tax arrears. The dimensional variation confirms that the aggregate effectiveness score represents multiple aspects of program performance rather than a uniform service evaluation.

Table 2. Descriptive Statistics of Motor Vehicle Taxpayer Compliance Dimensions

Dimension	Number of Items	Mean	Classification
Understanding of Self-Assessment and Tax Payment	3	4.08	High
Service Quality	3	4.02	High
Perception of Tax Sanctions	3	3.85	High
Education Level	3	3.75	High
Overall Dimension Mean	12	3.93	High

Note. Mean classification: 1.00–1.80 = Very Low; 1.81–2.60 = Low; 2.61–3.40 = Moderate; 3.41–4.20 = High; 4.21–5.00 = Very High.

Motor vehicle taxpayer compliance displays a relatively consistent dimensional pattern, with all four dimensions falling within the high category. Understanding of self-assessment and tax payment recorded the highest mean of 4.08, indicating relatively strong knowledge of payment procedures, taxpayer obligations, and applicable tax provisions. Service quality followed with a mean of 4.02, showing that service-related assessments form an important component of the compliance construct. Perceptions of tax sanctions recorded a mean of 3.85, while education level produced a mean of 3.75. The results indicate stronger evaluations of procedural understanding and service experience than of education-related and sanction-related considerations.

The dimensional configuration also clarifies the substantive composition of the compliance variable. The relatively high score for service quality indicates that the compliance measure includes respondents' evaluations of service experience in addition to obligation-related assessments. The lower scores for education and tax sanctions show comparatively weaker agreement with factors outside the immediate payment process. Variation across these dimensions should therefore be considered when interpreting the aggregate compliance score. The dimensional evidence provides the measurement context for the subsequent validity, reliability, and regression analyses.

Instrument Validity and Reliability

Validity Test

Table 3. Item–Total Correlation Results for the Study Instrument

Effectiveness Item	r	Decision	Compliance Item	r	Decision
X1	.500	Valid	Y1	.645	Valid
X2	.472	Valid	Y2	.666	Valid
X3	.801	Valid	Y3	.697	Valid
X4	.796	Valid	Y4	.811	Valid
X5	.613	Valid	Y5	.745	Valid
X6	.829	Valid	Y6	.740	Valid
X7	.737	Valid	Y7	.746	Valid
X8	.870	Valid	Y8	.715	Valid
X9	.756	Valid	Y9	.694	Valid

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Effectiveness Item	r	Decision	Compliance Item	r	Decision
X10	.834	Valid	Y10	.732	Valid
X11	.775	Valid	Y11	.774	Valid
X12	.772	Valid	Y12	.753	Valid
X13	.795	Valid			
X14	.734	Valid			
X15	.676	Valid			

Note. Critical value: r = .1966 (N = 100, df = 98, α = .05).
Source: IBM SPSS Statistics 25 output processed by the authors (2026).

Table 3 summarizes the Pearson product–moment item–total correlations for the 27 questionnaire items completed by 100 respondents. Each coefficient was compared with the critical value of .1966 at α = .05 and 98 degrees of freedom. The 15 E-Samsat effectiveness items produced coefficients ranging from .472 to .870, while the 12 taxpayer compliance items ranged from .645 to .811. All coefficients exceeded the critical value, confirming that every item satisfied the specified item-validity criterion and could be retained in the measurement instrument. The complete set of 27 items was therefore preserved for reliability testing, while the item–total correlations were treated as item-level evidence rather than as a complete test of construct validity.

Reliability Test

Table 4. Internal Consistency Reliability of the Study Variables

Variable	Number of Items	Cronbach's α	Criterion	Decision
E-Samsat Effectiveness	15	.933	≥ .600	Reliable
Motor Vehicle Taxpayer Compliance	12	.914	≥ .600	Reliable

Source: IBM SPSS Statistics 25 output processed by the authors (2026).

Table 4 reports the internal consistency of the two composite variables used in the analysis. E-Samsat effectiveness achieved a Cronbach's alpha coefficient of .933 across 15 items, while motor vehicle taxpayer compliance achieved a coefficient of .914 across 12 items. Both coefficients exceeded the predetermined .600 threshold and also remained above the commonly applied .700 benchmark, indicating high internal consistency across the retained items. The reliability results show that the items within each variable generated sufficiently consistent responses for composite-score construction, although Cronbach's alpha does not independently demonstrate dimensionality. The combined validity and reliability evidence supports the use of both composite variables in the subsequent regression assumption tests.

Classical Assumption Tests

Table 5. Regression Diagnostic Results

Diagnostic	Statistic	df / N	p	Interpretation
Normality of unstandardized residuals	D = .089	N = 100	.048	Normality assumption not satisfied
Linear component	F = 82.446	1, 73	< .001	Significant linear trend
Deviation from linearity	F = 1.608	25, 73	.061	No significant deviation from linearity

Note. D represents the Kolmogorov-Smirnov test statistic. The normality test applied the Lilliefors significance correction.
Source: IBM SPSS Statistics 25 output processed by the authors (2026).

Table 5 presents the regression diagnostics for the relationship between E-Samsat effectiveness and motor vehicle taxpayer compliance. The Kolmogorov-Smirnov test of the unstandardized residuals yielded

D = .089 with *p* = .048. The probability value fell slightly below the .05 threshold, indicating that the residual distribution did not satisfy the conventional normality criterion. The small difference from the threshold indicates a marginal departure rather than evidence of severe non-normality. The normality result therefore requires cautious interpretation of the inferential statistics reported in the subsequent regression analysis.

The linearity assessment produced a statistically significant linear component, $F(1, 73) = 82.446$, $p < .001$. The deviation from linearity was not statistically significant, $F(25, 73) = 1.608$, $p = .061$. These results indicate that the observed relationship between E-Samsat effectiveness and taxpayer compliance can be represented adequately by a linear functional form. The available output also reported Levene's test, $F(1, 198) = 2.554$, $p = .112$, but this test compared the variance of the two variable scores rather than the variance of regression residuals. The Levene statistic was therefore excluded from the assessment of regression homoscedasticity.

The available diagnostic output did not include a residual-versus-fitted assessment, a formal heteroskedasticity test, or influence statistics. Homoscedasticity and the presence of influential observations therefore remain unverified within the available analysis. Multicollinearity does not apply because the regression model contains only one predictor, while independence primarily depends on the sampling and response process. The diagnostic evidence supports the linear specification of the model but does not establish that every regression assumption was fully satisfied. This diagnostic profile provides the appropriate statistical context for reporting the simple linear regression coefficients and hypothesis test in the following section.

Hypothesis Testing

The hypothesis test examined whether perceived E-Samsat effectiveness was significantly associated with motor vehicle taxpayer compliance. Simple linear regression produced a positive unstandardized coefficient of 0.572 for E-Samsat effectiveness and an intercept of 11.626. The resulting regression equation was Y=11.626+0.572XY = 11.626 + 0.572X, indicating that higher perceived E-Samsat effectiveness scores were associated with higher predicted compliance scores. The positive coefficient establishes the direction of the relationship without implying causality from the cross-sectional design. The statistical significance and explanatory power of this relationship were subsequently evaluated through the *t* statistic and coefficient of determination.

Table 5. Simple Linear Regression and Hypothesis Test

Predictor	B	Standardized β	t	df	p	R	R^2	Hypothesis Decision
E-Samsat Effectiveness	.572	.649	8.449	98	< .001	.649	.421	H_0 rejected

Dependent variable: Motor Vehicle Taxpayer Compliance.
Source: IBM SPSS Statistics 25 output processed by the authors (2026).

The regression coefficient for E-Samsat effectiveness was positive and statistically significant, $t(98) = 8.449$, $p < .001$. The observed *t* value exceeded the critical value of 1.984 at $\alpha = .05$, providing sufficient statistical evidence to reject the null hypothesis. The result indicates a positive association between perceived E-Samsat effectiveness and taxpayer compliance among the surveyed users. Taxpayers reporting stronger perceptions of E-Samsat effectiveness also tended to report higher levels of motor vehicle tax compliance. The hypothesis concerning a significant positive relationship between the two constructs was therefore supported by the available sample evidence.

The model produced a correlation coefficient of $R = .649$ and a coefficient of determination of $R^2 = .421$. The R^2 value indicates that 42.1% of the observed variation in taxpayer compliance within the sample was statistically accounted for by differences in perceived E-Samsat effectiveness. The remaining 57.9%

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represents variation not explained by the single-predictor model and should not be attributed to specific external factors without additional measurement. The magnitude of the explained variance shows that perceived service effectiveness constitutes a substantively relevant correlate of taxpayer compliance among existing E-Samsat users. This model-level finding provides the basis for interpreting how the dimensional profile of E-Samsat effectiveness may help explain the observed association in the discussion section.

Discussion

The findings show that E-Samsat functions most effectively when taxpayers experience the digital service as understandable, accessible, timely, and capable of simplifying the fulfillment of motor vehicle tax obligations, which is consistent with evidence that electronic vehicle-tax services can strengthen taxpayer compliance by reducing procedural barriers (Wijayanti & Merkusiwati, 2024). The positive relationship between perceived E-Samsat effectiveness and taxpayer compliance indicates that digitalization becomes relevant to compliance when technological access is accompanied by a service process that taxpayers can actually navigate and use effectively (Susanty & Hidayat, 2023). This pattern supports broader evidence that digital tax administration contributes to compliance through easier procedures, reduced administrative burden, and better interaction between taxpayers and tax authorities rather than through the mere existence of an electronic platform (Kusumawardhani et al., 2024). The findings therefore position E-Samsat as a service mechanism that facilitates compliance by making tax obligations easier to understand and complete within taxpayers' everyday activities (Saptono et al., 2023).

Timeliness and program understanding emerged as the most prominent aspects of E-Samsat effectiveness, showing that taxpayers place particular value on faster transactions, flexible access, procedural clarity, and reduced dependence on conventional service encounters (Ye et al., 2023). Strong evaluations of target accuracy further suggest that taxpayers perceive digital vehicle-tax services as appropriate to contemporary urban routines in which time efficiency and remote access increasingly shape expectations of public services (Dewi et al., 2024). Goal achievement remains closely connected to the practical ability of the service to facilitate tax payment, indicating that users judge digital public services primarily through the extent to which they help complete administrative tasks with less effort and uncertainty (Sutrisno et al., 2024). Tangible change appears comparatively less pronounced because broader outcomes such as behavioral transformation, sustained taxpayer awareness, and fiscal improvement require processes extending beyond individual digital transactions and cannot be generated by technological convenience alone (Audia et al., 2026).

Taxpayer compliance in this study is more strongly reflected in procedural understanding and service experience than in education-related or sanction-oriented considerations, suggesting that taxpayers are more responsive when obligations are clearly understood and supported by an accessible administrative environment (Subekti & Yuliana, 2024). The prominence of service quality reinforces the view that compliance is partly shaped by taxpayers' encounters with tax administration because understandable information, responsive services, and easier payment procedures reduce the practical costs associated with fulfilling obligations (Maesyarah et al., 2025). The comparatively weaker position of education indicates that formal educational background does not automatically translate into stronger compliance when taxpayers still face difficulties understanding specific procedures or navigating the taxation system (Komala et al., 2025). The role of sanctions should likewise be interpreted alongside service and knowledge because enforcement may encourage compliance, but its effectiveness depends on whether taxpayers understand the rules and perceive the administrative system as credible and workable (Puspita & Jati, 2024).

Several limitations require caution when interpreting these findings because the simultaneous observation of perceived effectiveness and compliance does not establish whether favorable service

evaluations precede stronger compliance or develop alongside it (Savitz & Wellenius, 2023). The purposive inclusion of existing E-Samsat users provides direct evidence from experienced users but limits the extent to which the findings can represent taxpayers who avoid, cannot access, or have never used digital vehicle-tax services (Kohler et al., 2019). Measuring effectiveness and compliance through the same self-reported questionnaire may also strengthen observed relationships through shared response tendencies, social desirability, or other common-method processes unrelated to the underlying behavioral relationship (Podsakoff et al., 2024). The available regression diagnostics also justify cautious inference because uncertainty regarding error variance is better addressed through robust standard errors or resampling procedures when conventional assumptions cannot be fully demonstrated (Rajh-Weber et al., 2026).

Future research can strengthen this line of inquiry by combining taxpayer surveys with administrative transaction records and repeated observations so that perceived service effectiveness can be distinguished from actual use, payment regularity, and subsequent compliance behavior (Safitri et al., 2026). First, tax authorities should strengthen assisted-digital services, practical guidance, and accessible support channels because unequal digital skills and access continue to shape citizens' capacity to benefit from electronic public services in Indonesia (Fransiska et al., 2026). Second, E-Samsat development should prioritize procedural simplicity, clear information, transaction reliability, and responsive assistance because ease of use and service quality remain central conditions for transforming digital tax systems into compliance-supporting services (Rizkina & Susilawaty, 2026). Third, future evaluation should separate service-process performance, digital adoption, taxpayer behavior, and fiscal outcomes while also including nonusers, because digital public-service adoption can differ substantially across population groups and technological capabilities even within the same urban setting (Susila et al., 2025).

CONCLUSION

The findings confirm that perceived E-Samsat effectiveness is positively associated with motor vehicle taxpayer compliance, with timeliness and program understanding emerging as the most prominent dimensions of service effectiveness. This pattern indicates that digital tax services are more likely to support compliance when taxpayers experience clear procedures, faster transactions, convenient access, and services that facilitate the fulfillment of tax obligations. The study achieves its objective by demonstrating that E-Samsat effectiveness is multidimensional and that its relationship with compliance is better understood through distinct service dimensions rather than through an aggregate assessment alone. Tax authorities should therefore strengthen procedural simplicity, taxpayer guidance, assisted-digital support, service reliability, and continuous evaluation of dimensions that remain comparatively weaker, particularly broader tangible changes and program outcomes. Future studies should address the limitations of cross-sectional self-reported data and purposive sampling by incorporating nonusers, longitudinal or probability-based designs, robust statistical procedures, and administrative transaction records to distinguish perceived service effectiveness from actual compliance behavior and fiscal outcomes.

Artificial Intelligence (AI) Use Statement

The authors declare that no generative artificial intelligence (AI) tools were used in the preparation, analysis, or writing of this manuscript.

Author Contributions

Author 1: Conceptualization, Methodology, Formal Analysis, Writing – Original Draft – Review and Editing.

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Author 2,3,4: Data Collection, Investigation, Writing – Review and Editing.
Author 5,6: Supervision, Validation, Writing – Review and Editing.

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Conflict of Interest

Authors declare that there is no conflict of interest related to the research, authorship, and publication of this article.

Data Availability Statement

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

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