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The Influence Of Service Quality And Tax Socialization On The Loyalty Of Individual Taxpayers At Tax Service Offices In Bandar Lampung City With Tax Knowledge As A Moderating Variable

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Abstract

This study aims to examine and analyze the influence of service quality and tax socialization on the loyalty of Individual Taxpayers (WPOP) at Tax Service Offices in Bandar Lampung City, positioning tax knowledge as a variable that moderates both relationships. The research problem stems from the fact that tax revenue achievements exceeding targets in the Bengkulu and Lampung Regional Tax Office area in 2024 do not necessarily reflect genuine voluntary taxpayer loyalty, as indicated by persistently high tax arrears and low participation in tax socialization programs, while prior studies remain inconsistent regarding the effect of service quality on loyalty and have rarely explored the moderating role of tax knowledge, particularly in the context of Lampung Province. The conceptual framework is grounded in the Theory of Planned Behavior (Ajzen, 1991), which positions service quality as a determinant of perceived behavioral control, tax socialization as a driver of subjective norms, while tax knowledge serves as a boundary condition strengthening both effects on loyalty. This study employed a quantitative approach with an explanatory survey design and purposive sampling of 250 Individual Taxpayers registered at KPP Madya Bandar Lampung, KPP Pratama Bandar Lampung Satu, and KPP Pratama Bandar Lampung Dua. Data were collected through a five-point Likert-scale questionnaire and analyzed using descriptive statistics with IBM SPSS Statistics and Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with SmartPLS 4, including moderation testing through a two-stage approach and significance estimation via 5,000-subsample bootstrapping. The results show that service quality has a positive and significant

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effect on WPOP loyalty (β = 0.285; p < 0.001), as does tax socialization (β = 0.334; p < 0.001). Tax knowledge was found to significantly moderate both the effect of service quality (β = 0.110; p < 0.001) and tax socialization (β = 0.106; p = 0.035) on loyalty, such that all four research hypotheses were supported. The overall model explains 79.5 percent of the variance in WPOP loyalty (adjusted R^2 = 0.791), which is considered strong within the context of tax behavior research. It is concluded that WPOP loyalty in Bandar Lampung City is formed through the synergy between positive institutional service experiences and taxpayers' cognitive capacity to understand the tax system, so that improvements in service quality and the intensification of socialization programs need to be accompanied by stronger tax literacy efforts to optimize long-term voluntary compliance.

Keywords: Service Quality; Tax Socialization; Tax Knowledge; Taxpayer Loyalty; SEM-PLS

INTRODUCTION

Taxes have long been recognized as a primary source of state revenue that supports the financing of national development at both the central and regional levels. Under a modern taxation system based on the self-assessment principle, individual taxpayers (WPOP) are given full responsibility for calculating, paying, and reporting their tax obligations independently without waiting for an assessment from the tax authority. Consequently, the success of tax collection depends heavily on taxpayers' voluntary compliance and commitment, rather than solely on the strict enforcement of tax laws (Feld & Frey, 2007; Akbar et al., 2023). Tax revenue data from the Regional Office of the Directorate General of Taxes (DJP) for Bengkulu and Lampung in 2024 recorded actual revenue of IDR 9.27 trillion, equivalent to 100.07% of the annual target, with growth of 11.51% compared with the previous year (DJP, 2025).

Based on preliminary observations and informal communication between the researcher and tax officers at three Tax Service Offices in Bandar Lampung, the annual tax return filing behavior of a considerable proportion of individual taxpayers is estimated to be more reactive and administrative in nature, namely being carried out primarily to avoid sanctions rather than being driven by an awareness of paying taxes as a moral obligation. This indication is further supported by the researcher's preliminary observation of outstanding tax arrears that remain unresolved and the relatively low participation of individual taxpayers in tax education and outreach activities organized by the three KPP offices.

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Institutionally, two factors are believed to have a significant influence on the perceptions and behavior of individual taxpayers: the quality of services provided by tax officials and the effectiveness of tax socialization programs conducted by KPP offices. These two factors have considerable potential to shift taxpayers' orientation from forced compliance toward compliance driven by awareness and trust in tax institutions. A review of previous studies reveals inconsistent findings. On the one hand, Haris (2020) and Lukman (2022) demonstrated that improvements in the quality of tax officials' services significantly contribute to increasing the satisfaction and loyalty of individual taxpayers. However, Akbar et al. (2023) found no significant effect of a similar variable in the context of Palembang City.

Meanwhile, studies directly linking tax socialization to the development of taxpayer loyalty, particularly in Lampung Province, remain very limited in the existing literature. Furthermore, few studies have explicitly positioned tax knowledge as a moderating variable in these relationships. This gap, both in terms of theory, methodology, and geographical context, provides the starting point and scientific justification for this study. Building on this research gap, this study is designed to examine the extent to which service quality and tax socialization influence the loyalty of individual taxpayers within three Tax Service Offices in Bandar Lampung City, as well as to assess the extent to which tax knowledge moderates these relationships. The findings are expected not only to enrich the body of knowledge in tax management but also to provide concrete policy recommendations for the Directorate General of Taxes in strengthening voluntary compliance at the regional level.

This study generally aims to examine and analyze the effect of service quality and tax socialization on individual taxpayer loyalty at Tax Service Offices in Bandar Lampung City, with tax knowledge serving as a moderating variable. This study is expected to provide both theoretical and practical contributions. Theoretically, it is expected to provide empirical evidence for the development of tax management theory, particularly by examining the relevance of the Theory of Planned Behavior in explaining individual taxpayer loyalty in the Indonesian context and by expanding the literature on the moderating role of tax knowledge. Practically, the findings are expected to serve as an evaluation basis for Tax Service Offices in Bandar Lampung in improving service quality and developing more effective and targeted tax socialization programs, as well as to provide empirical insights for the Directorate General of Taxes in formulating policies to strengthen voluntary tax compliance at the regional level. In addition, the study is expected to enhance individual taxpayers' understanding of the importance of tax compliance as a form of

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social responsibility and provide a reference for academics conducting similar research in different geographical contexts and with different variables.

LITERATUR REVIEW

Theory of Planned Behavior

This study is based on the Theory of Planned Behavior (TPB) introduced by Ajzen in 1991, a framework that views human actions not as spontaneous events, but as the result of intentions that are formed gradually. In the context of fulfilling tax obligations, such intention arises from three interconnected factors: an individual's personal evaluation of the behavior to be performed (attitude toward the behavior), the expectations or encouragement originating from the individual's social environment (subjective norms), and the extent to which the individual perceives having the ability or control to perform the behavior (perceived behavioral control). These three factors jointly shape behavioral intention, which subsequently drives actual and observable compliant behavior (Bobek et al., 2013; Nugroho, 2023; Damayanti et al., 2015). The strength of TPB as a theoretical foundation for tax-related studies lies in its ability to explain not only temporary compliance but also long-term taxpayer loyalty. Therefore, TPB provides a strong conceptual foundation for understanding the dynamics of individual taxpayer loyalty within Tax Service Offices in Bandar Lampung.

Theoretical Synthesis

Within the TPB framework, the effect of service quality on taxpayer loyalty can be explained through the mechanism of perceived behavioral control. When tax authorities provide responsive, reliable, and accessible services, taxpayers' perceptions regarding the ease of fulfilling their tax obligations are enhanced. Meanwhile, tax socialization operates through the dimension of subjective norms. The more intensive and relevant the tax socialization programs conducted by Tax Service Offices are, the stronger the internalization of the social norm that paying taxes is a proper behavior and an expected contribution to society. The integration of the three elements of TPB with the moderating variable produces a research model that examines not only direct effects but also the conditional mechanisms that determine the effectiveness of institutional factors in shaping loyal taxpayer behavior. This approach addresses the limitations of previous studies, which generally examined direct relationships without considering factors that may strengthen or weaken these relationships.

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Service Quality

Service quality essentially refers to the gap between what taxpayers expect before interacting with tax officers and what they actually experience afterward. The smaller this gap, the better the service is perceived to be (Parasuraman et al., 1988). For individual taxpayers in Bandar Lampung, such perceptions are formed through accumulated experiences, both when visiting Tax Service Offices directly and when accessing digital services provided by the Directorate General of Taxes (DGT). To systematically assess these experiences, the SERVQUAL framework developed by Parasuraman et al. (1988) identifies five complementary dimensions: the physical facilities and tangible aspects of the service (tangibles), consistency in delivering the promised service (reliability), the speed with which officers respond to taxpayers' needs (responsiveness), the sense of security and competence demonstrated by officers (assurance), and personal attention to the circumstances of individual taxpayers (empathy). These five dimensions shape taxpayers' overall perceptions of the quality of services provided by the tax authorities (Haris, 2020; Lukman, 2022).

This study operationalizes service quality through six indicators that comprehensively cover the five SERVQUAL dimensions, supplemented by one dimension related to digital responsiveness. Representative and well-maintained facilities create a comfortable service environment and enhance taxpayers' trust from the moment they enter the office (Parasuraman et al., 1988; Lukman, 2022). Reliable services, characterized by accurate information, consistent procedures, and fulfilled commitments, establish the foundation of trust that is essential for developing long-term taxpayer loyalty (Parasuraman et al., 1988; Batrancea et al., 2019). Taxpayers who feel that they are treated as individuals rather than simply as queue numbers or case files are more likely to have positive and satisfying service experiences. In practice, empathy is demonstrated through patience in explaining complex matters, a non-judgmental attitude toward taxpayers experiencing difficulties, and the willingness to adjust communication approaches according to taxpayers' backgrounds and levels of understanding (Haris, 2020; Lukman, 2022).

Tax Socialization

Tax socialization refers to efforts initiated by tax authorities to introduce, explain, and instill a proper understanding of the tax system among the general public, particularly taxpayers (Saputro, 2022; Purnamasari, 2024). The frequency with which Tax Service Offices conduct

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socialization activities represents one of the most observable indicators of institutional commitment from taxpayers' perspectives. Socialization activities conducted regularly and continuously, rather than only before tax return filing deadlines, are more effective in developing and updating taxpayers' understanding on an ongoing basis. Higher frequency also enables a greater number of taxpayers to be reached, thereby increasing the aggregate impact on tax awareness (Saputro, 2022; Novida, 2024).

Relevance is a factor that determines whether socialization messages are genuinely understood and applied by taxpayers in their daily lives. Content developed based on a thorough understanding of taxpayers' needs, problems, and levels of comprehension is more likely to be internalized and applied in everyday tax reporting practices (Purnamasari, 2024; Alm, 2019). Clarity of communication encompasses the use of simple language free from unfamiliar technical jargon, a logical and easy-to-follow presentation structure, the use of concrete examples relevant to taxpayers' everyday lives, and the ability of presenters to respond to questions in an understandable manner. Clear socialization not only improves knowledge but also reduces taxpayers' anxiety and confusion, which often constitute major barriers to compliance (Ernawatiningsih & Sudiartana, 2023; Fitria et al., 2021).

High accessibility can be achieved through online formats that can be attended from any location, activities conducted outside regular working hours, and the absence of participation fees. These are prerequisites for ensuring that socialization programs are inclusive and able to reach all segments of individual taxpayers who require tax education (Saputro, 2022; Purnamasari, 2024). Ultimately, the most fundamental measure of the success of a tax socialization program is the actual change in taxpayers' attitudes and behavior following their exposure to the program. Do taxpayers feel that they have a better understanding of their tax obligations? Are they more motivated to report their taxes accurately and on time? Have they begun to perceive taxation as a meaningful contribution rather than merely a burdensome obligation? The answers to these questions determine whether institutional investment in tax socialization generates a meaningful return in the form of sustainable improvements in voluntary compliance (Pertiwi, Iqbal & Baridwan, 2020; Fitria et al., 2021).

Tax Knowledge

Tax knowledge is an individual-level variable that reflects the extent to which a taxpayer possesses an adequate understanding of the tax system, regulations, rights, obligations,

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procedures, and benefits applicable in Indonesia (Oktaviani et al., 2020; Damajanti, 2017). In this study, this variable functions as a moderator that determines the strength of the influence of service quality and tax socialization on taxpayer loyalty. The underlying assumption is that two taxpayers who receive the same level of service quality and socialization intensity may demonstrate different levels of loyalty if they possess different levels of tax knowledge. Taxpayers with higher levels of knowledge are expected to be better able to utilize high-quality services and internalize socialization messages effectively.

Understanding the applicable progressive income tax rates, the amount of Non-Taxable Income based on family status, allowable deductions, and types of income exempt from taxation is essential knowledge for individual taxpayers who wish to fulfill their tax obligations independently and accurately. A lack of understanding of these aspects may cause taxpayers to pay more tax than required (overpayment) or, conversely, pay less than required, potentially resulting in interest charges and penalties (Oktaviani et al., 2020; Ratnawati, Sari & Sanusi, 2019). Taxpayers who possess balanced knowledge of both their obligations—such as registering for a Taxpayer Identification Number (NPWP), calculating, paying, and reporting taxes—and their rights—such as data confidentiality, the right to file objections, the right to claim tax refunds, and the right to receive quality services—will develop a more balanced and equal relationship with tax institutions. This balance is important because taxpayers who understand only their obligations without understanding their rights may feel disadvantaged or unfairly treated, which may ultimately weaken their motivation for voluntary compliance (Kirchler, Hoelzl & Wahl, 2008; Oktaviani et al., 2020).

Taxpayer Loyalty

In the context of taxation, taxpayer loyalty refers to a condition in which individual taxpayers consistently and voluntarily fulfill all of their tax obligations over time, without requiring external pressure in the form of audits or sanctions (Utomo & Nurhidayati, 2022; Tubagus Romdhoni et al., 2023). The first indicator measures the strength of taxpayers' intention and commitment to consistently report and pay taxes in accordance with applicable regulations, without waiting for reminders or warnings from the Tax Service Office and without exploiting available loopholes to delay the fulfillment of their obligations. When such commitment becomes part of an individual's values and identity, taxpayers will continue to comply even in the absence of direct supervision from the tax authorities (Utomo & Nurhidayati, 2022; Nugroho, 2023).

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Truly loyal taxpayers not only fulfill their obligations formally but also substantively report all sources of income without concealing or understating them and pay the amount of tax actually due without manipulating deductions or utilizing unusual tax avoidance schemes. This attitude reflects taxpayers' trust that the taxes they pay will be properly managed and utilized for the public interest (Tubagus Romdhoni et al., 2023; Gangl, Hofmann & Kirchler, 2015). Loyal taxpayers do not remain passive in fulfilling their minimum tax obligations. They proactively seek updated information regarding tax regulations, participate in socialization activities organized by Tax Service Offices, and utilize various official DGT information channels to ensure that their tax reporting and payment practices remain consistent with the latest regulations. Such active engagement reflects a deeper positive relationship between taxpayers and tax institutions, representing a form of loyalty that extends well beyond mere administrative compliance (Nugroho, 2023; Pertiwi, Iqbal & Baridwan, 2020).

Conceptual Framework

The research model positions service quality (X_1) and tax socialization (X_2) as independent variables, each of which directly influences individual taxpayer loyalty (Y) as the dependent variable. Tax knowledge (M) is positioned as a moderating variable that enters the model through interaction effects with each independent variable, resulting in two moderation paths: $X_1 \times M \rightarrow Y$ and $X_2 \times M \rightarrow Y$. The overall model is grounded in the three elements of TPB (Ajzen, 1991), in which service quality influences perceived behavioral control, tax socialization influences subjective norms, and tax knowledge strengthens or weakens the effects of both factors on taxpayer loyalty.

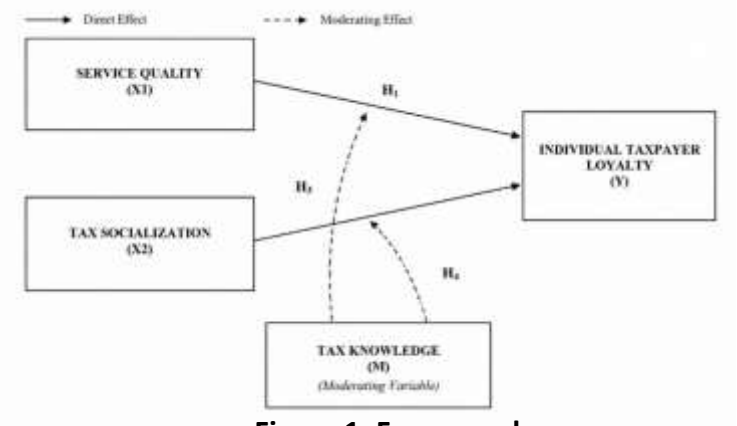


Figure 1. Framework

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Research Hypotheses

Based on the theoretical synthesis and conceptual framework developed in this study, four hypotheses are proposed. H_1 proposes that service quality has a positive and significant effect on individual taxpayer loyalty at Tax Service Offices in Bandar Lampung. H_2 proposes that tax socialization has a positive and significant effect on individual taxpayer loyalty at Tax Service Offices in Bandar Lampung. Furthermore, H_3 proposes that tax knowledge moderates the effect of service quality on individual taxpayer loyalty, while H_4 proposes that tax knowledge moderates the effect of tax socialization on individual taxpayer loyalty at Tax Service Offices in Bandar Lampung.

RESEARCH METHODS

This study employs an explanatory survey design based on a quantitative approach. Data were collected using a cross-sectional approach, in which all data were collected within a relatively short period. This design was selected because it is efficient in terms of time and resources while being capable of providing a sufficiently representative description of the perceptions and behavior of Individual Taxpayers (WPOP) in Bandar Lampung during the research period. Data collection in this study employed a survey method using a questionnaire distributed to Individual Taxpayer respondents. The survey was designed to measure respondents' perceptions of the quality of tax services they received, the effectiveness of tax socialization programs they participated in, their level of tax knowledge, and their commitment to maintaining loyalty as taxpayers.

The research model consists of four variables: service quality (X_1) and tax socialization (X_2) as independent variables, tax knowledge (M) as a moderating variable, and Individual Taxpayer loyalty (Y) as the dependent variable. All variables are latent constructs that cannot be measured directly and are therefore operationalized through indicators that can be assessed by taxpayers using Likert-scale statements. Each variable is measured using six indicators. Accordingly, the questionnaire consists of a total of 24 statement items (4 variables × 6 indicators). The use of an equal number of indicators for each variable ensures that no variable disproportionately dominates the measurement model, thereby allowing the results of the PLS-SEM analysis to be interpreted more fairly and meaningfully.

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Table 1. Operational Definitions and Operationalization of Variables

Variable	Operational Definition	Dimensions	Six Indicators	Scale	Sources
Service Quality (X_1)	Taxpayers' assessment of their overall experience in receiving services from KPP officers, both directly and digitally.	1. Tangibles 2. Reliability 3. Responsiveness 4. Assurance 5. Empathy 6. Digital Responsiveness	1. Completeness of KPP physical facilities 2. Reliability and consistency of information 3. Responsiveness to complaints 4. Data security assurance and staff competence 5. Staff empathy and personal attention 6. Ease of access to Coretax	Likert 1–5	Parasuraman et al. (1988); Haris (2020); Lukman (2022)
Tax Socialization (X_2)	Taxpayers' perceptions of the effectiveness of all tax education and outreach efforts conducted by KPP.	1. Frequency 2. Relevance 3. Clarity 4. Media diversity 5. Accessibility 6. Impact	1. Frequency of socialization activities 2. Relevance of materials to taxpayers' needs 3. Clarity of information delivery 4. Diversity of socialization media and formats 5. Ease of access to socialization activities	Likert 1–5	Saputro (2022); Purnamasari (2024); Alm (2019)

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Variable	Operational Definition	Dimensions	Six Indicators	Scale	Sources
			6. Actual impact on tax awareness		
Tax Knowledge (M)	The level of Individual Taxpayers' cognitive understanding of the tax system, regulations, procedures, rights, obligations, and tax benefits.	1. Tax return procedures 2. Income tax rates 3. Rights and obligations 4. Tax penalties 5. Digital literacy 6. Tax benefits	1. Understanding of tax return filing procedures 2. Knowledge of income tax rates and structure 3. Understanding of taxpayers' rights and obligations 4. Knowledge of tax penalties 5. Ability to operate Coretax 6. Understanding of tax benefits	Likert 1–5	Damajanti (2017); Oktaviani et al. (2020); Ratnawati, Sari & Sanusi (2019)
Individual Taxpayer Loyalty (Y)	Individual Taxpayers' long-term commitment to voluntarily, consistently, and honestly fulfill their tax obligations.	1. Commitment 2. Voluntary compliance 3. Reporting honesty 4. Active involvement 5. Trust 6. Consistency and advocacy	1. Voluntary and timely compliance 2. Honesty and completeness of tax reporting 3. Active participation in tax socialization 4. Trust in the KPP institution 5. Consistency of compliance across tax years	Likert 1–5	Utomo & Nurhidayati (2022); Tubagus Romdhoni et al. (2023); Gangl, Hofmann & Kirchler (2015)

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Variable	Operational Definition	Dimensions	Six Indicators	Scale	Sources
			6. Willingness to recommend tax compliance		

Source: Processed data, 2026

Respondents' responses to each statement were measured using a five-point scale, ranging from strong disagreement to strong agreement, with numerical values from 1 to 5 representing the intensity of the respondents' attitudes. The population of this study consists of all Individual Taxpayers (WPOP) who are registered and have active status at the three tax offices operating in Bandar Lampung, namely KPP Madya Bandar Lampung, KPP Pratama Bandar Lampung Satu, and KPP Pratama Bandar Lampung Dua. The sampling technique employed in this study is purposive sampling.

Primary data were collected through a mixed-mode survey strategy, consisting of online questionnaires distributed through Google Forms and Microsoft Forms, as well as offline printed questionnaires distributed directly at the KPP locations. The questionnaire consists of two sections. Section A contains questions regarding the demographic profile of respondents, while Section B contains 24 closed-ended statements operationalizing the four research variables using a five-point Likert scale. Prior to the full-scale distribution, a pilot test involving 30 Individual Taxpayers outside the research sample was conducted to verify language readability, content appropriateness, and the reasonableness of the completion time.

Descriptive statistics, including respondent demographic characteristics and response tendencies for each indicator, were processed using IBM SPSS Statistics. Meanwhile, relationships among constructs and the research hypotheses were examined using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4.0. PLS-SEM was selected. Model evaluation was conducted in two stages. The significance of each hypothesis was tested using the bootstrapping procedure with 5,000 resamples at a 95% confidence level. The moderation effects were examined using the two-stage approach.

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RESULT AND DISCUSSION

Research Findings

The research findings are based on the analysis of data obtained from 250 Individual Taxpayers (WPOP) within the service coverage of the Bandar Lampung Madya Tax Service Office, Bandar Lampung Satu Primary Tax Service Office, and Bandar Lampung Dua Primary Tax Service Office. The findings are presented systematically, beginning with an overview of the research implementation, respondent characteristics, descriptive analysis, measurement model evaluation, structural model evaluation, moderation hypothesis testing, and analysis of indirect paths available in the SmartPLS 4 output. The analysis of respondent characteristics and descriptive statistics was conducted using SPSS.

The relationships among constructs were evaluated using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM is relevant because service quality, tax socialization, tax knowledge, and Individual Taxpayer loyalty are latent constructs reflected by multiple indicators. A bootstrapping procedure involving 5,000 subsamples was employed to assess the significance of the coefficients at a 5% significance level, with a t-statistic greater than 1.96 and a p-value below 0.05 used as the criteria for statistical significance. The characteristics are presented separately based on gender, age, education, occupation, and length of registration as an Individual Taxpayer. This separation enables a more specific interpretation of the sample composition without combining characteristics that have different substantive meanings.

Respondent Characteristics Based on Gender

Table 2. Respondent Characteristics Based on Gender

Gender	Frequency	Percentage
Male	133	53.2%
Female	117	46.8%
Total	**250**	**100.0%**

Source: Processed data, 2026

Based on Table 2, there were 133 male respondents, representing 53.2%, while female respondents accounted for 117 individuals, or 46.8%. The difference of 16 respondents indicates that the sample composition was relatively balanced and was not excessively concentrated in

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either gender group. This balance provides an opportunity for the service and tax education experiences of both groups to be reflected in the research data.

Respondent Characteristics Based on Age

Table 3. Distribution of Respondents by Age

Age Group	Frequency	Percentage
18–24 years	20	8.0%
25–34 years	88	35.2%
35–44 years	83	33.2%
45–54 years	41	16.4%
≥55 years	18	7.2%
Total	**250**	**100.0%**

Source: Processed data, 2026

From Table 3, respondents aged 25–34 years constituted the largest group, comprising 88 respondents or 35.2%, followed by those aged 35–44 years, with 83 respondents or 33.2%. Combined, these two groups accounted for 68.4% of the total respondents. Respondents aged 45–54 years accounted for 41 individuals or 16.4%, while those aged 18–24 years and 55 years or older represented 8.0% and 7.2%, respectively. This variation indicates that Tax Service Offices need to maintain inclusive services.

Respondent Characteristics Based on Education

Table 4. Distribution of Respondents by Educational Attainment

Education	Frequency	Percentage
Senior High School/Vocational High School	70	28.0%
Diploma (D3)	34	13.6%
Bachelor's Degree (S1)	115	46.0%
Master's/Doctoral Degree (S2/S3)	31	12.4%
Total	**250**	**100.0%**

Source: Processed data, 2026

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According to Table 4, respondents with a bachelor's degree constituted the largest group, totaling 115 individuals or 46.0%. Respondents with senior high school or vocational high school education accounted for 70 individuals or 28.0%, followed by diploma holders with 34 respondents or 13.6%, and respondents with master's or doctoral degrees with 31 individuals or 12.4%. Overall, 72.0% of respondents had higher education qualifications ranging from diploma to postgraduate levels. However, the presence of 28.0% of respondents with senior high school or vocational high school education indicates that the language used in tax socialization and the design of tax services should not be developed exclusively for highly educated groups.

Respondent Characteristics Based on Occupation

Table 5. Distribution of Respondents by Occupation

Occupation	Frequency	Percentage
Private-sector employee	86	34.4%
Entrepreneur	70	28.0%
Civil Servant/Military/Police	52	20.8%
Professional	28	11.2%
Other	14	5.6%
Total	**250**	**100.0%**

Source: Processed data, 2026

Refer to Table 5, private-sector employees represented the largest occupational group, with 86 respondents or 34.4%. Entrepreneurs accounted for 70 respondents or 28.0%, while civil servants, military personnel, and police officers accounted for 52 respondents or 20.8%. Professionals and respondents in other occupations represented 28 individuals or 11.2% and 14 individuals or 5.6%, respectively.

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Respondent Characteristics Based on Length of Registration as an Individual Taxpayer

Table 6. Distribution of Respondents by Length of Registration as an Individual Taxpayer

Length of Registration	Frequency	Percentage
<1 year	23	9.2%
1–2 years	34	13.6%
3–5 years	70	28.0%
6–10 years	68	27.2%
>10 years	55	22.0%
Total	**250**	**100.0%**

Source: Processed data, 2026

The data from Table 6, respondents who had been registered as Individual Taxpayers for 3–5 years constituted the largest group, totaling 70 individuals or 28.0%, followed by those registered for 6–10 years, totaling 68 individuals or 27.2%. Respondents registered for more than 10 years accounted for 55 individuals or 22.0%. Thus, 77.2% of respondents had at least three years of experience as Individual Taxpayers.

Descriptive Analysis of Research Variables

Table 7. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Service quality	250	6	30	23.604	4.496
Tax socialization	250	6	30	23.664	4.630
Tax knowledge	250	6	30	23.044	5.432
Individual Taxpayer loyalty	250	6	30	22.432	8.079

Source: Processed data, 2026

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Referring to Table 7, tax socialization had the highest mean total score of 23.664, followed by service quality at 23.604, tax knowledge at 23.044, and Individual Taxpayer loyalty at 22.432. When divided by the six indicators, the mean scores per item for the four constructs ranged from 3.739 to 3.944. This indicates a general tendency toward agreement regarding the conditions of tax services, socialization activities, tax knowledge, and taxpayer loyalty.

Description of Service Quality

Table 8. Description of Service Quality Indicators

Code	Indicator	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	SD	Category
SQ1	Physical facilities of the Tax Service Office	10 (4.0%)	19 (7.6%)	6 (2.4%)	178 (71.2%)	37 (14.8%)	3.852	0.904	High/Agree
SQ2	Accuracy and consistency of information	4 (1.6%)	17 (6.8%)	3 (1.2%)	179 (71.6%)	47 (18.8%)	3.992	0.786	High/Agree
SQ3	Responsiveness to questions/complaints	7 (2.8%)	19 (7.6%)	5 (2.0%)	179 (71.6%)	40 (16.0%)	3.904	0.854	High/Agree
SQ4	Data security and confidentiality	3 (1.2%)	16 (6.4%)	3 (1.2%)	172 (68.8%)	56 (22.4%)	4.048	0.775	High/Agree
SQ5	Empathy and personal attention	7 (2.8%)	22 (8.8%)	10 (4.0%)	168 (67.2%)	43 (17.2%)	3.872	0.896	High/Agree
SQ6	Ease of digital services	6 (2.4%)	16 (6.4%)	9 (3.6%)	176 (70.4%)	43 (17.2%)	3.936	0.824	High/Agree

Source: Processed data, 2026

Based on Table 8, all service quality indicators were categorized as high, with mean scores ranging from 3.852 to 4.048. The highest mean score was recorded for SQ4, concerning data security and confidentiality, with a mean of 4.048. A total of 228 respondents, or 91.2%, selected agree or strongly agree. This finding indicates that assurance represents one of the strengths of tax services in Bandar Lampung City. Confidence that personal data and financial information are handled securely constitutes an important foundation for a long-term relationship between taxpayers and the institution.

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Description of Tax Socialization

Table 9. Description of Tax Socialization Indicators

Code	Indicator	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	SD	Category
TS1	Frequency of tax socialization	5 (2.0%)	27 (10.8%)	7 (2.8%)	166 (66.4%)	45 (18.0%)	3.876	0.899	High/Agree
TS2	Relevance of materials to taxpayers' needs	2 (0.8%)	23 (9.2%)	7 (2.8%)	158 (63.2%)	60 (24.0%)	4.004	0.843	High/Agree
TS3	Clarity of information delivery	4 (1.6%)	26 (10.4%)	7 (2.8%)	165 (66.0%)	48 (19.2%)	3.908	0.880	High/Agree
TS4	Diversity of media and formats	3 (1.2%)	21 (8.4%)	4 (1.6%)	158 (63.2%)	64 (25.6%)	4.036	0.847	High/Agree
TS5	Accessibility of activities	2 (0.8%)	32 (12.8%)	6 (2.4%)	156 (62.4%)	54 (21.6%)	3.912	0.905	High/Agree
TS6	Impact on understanding/awareness	6 (2.4%)	21 (8.4%)	5 (2.0%)	171 (68.4%)	47 (18.8%)	3.928	0.871	High/Agree

Source: Processed data, 2026

Based on Table 9, all tax socialization indicators were categorized as high, with mean scores ranging from 3.876 to 4.036. TS4, concerning the diversity of media and formats, recorded the highest mean score of 4.036, with 222 respondents or 88.8% selecting agree or strongly agree. TS2, concerning the relevance of materials to taxpayers' needs, obtained a mean score of 4.004. The lowest mean score was recorded for TS1, concerning the frequency of tax socialization, at 3.876.

Description of Tax Knowledge

Table 10. Description of Tax Knowledge Indicators

Code	Indicator	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	SD	Category
TK1	Understanding of tax return filing procedures	16 (6.4%)	17 (6.8%)	4 (1.6%)	181 (72.4%)	32 (12.8%)	3.784	0.974	High/Agree

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Code	Indicator	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	SD	Category
TK2	Knowledge of income tax rates and structure	13 (5.2%)	14 (5.6%)	4 (1.6%)	175 (70.0%)	44 (17.6%)	3.892	0.936	High/Agree
TK3	Understanding of rights and obligations	14 (5.6%)	18 (7.2%)	3 (1.2%)	183 (73.2%)	32 (12.8%)	3.804	0.947	High/Agree
TK4	Knowledge of tax sanctions	12 (4.8%)	15 (6.0%)	5 (2.0%)	172 (68.8%)	46 (18.4%)	3.900	0.932	High/Agree
TK5	Ability to use digital services	14 (5.6%)	17 (6.8%)	3 (1.2%)	182 (72.8%)	34 (13.6%)	3.820	0.946	High/Agree
TK6	Understanding of tax benefits	10 (4.0%)	25 (10.0%)	0 (0.0%)	174 (69.6%)	41 (16.4%)	3.844	0.950	High/Agree

Source: Processed data, 2026

Referring to Table 10, all tax knowledge indicators were categorized as high, with mean scores ranging from 3.784 to 3.900. The highest mean score was recorded for TK4, concerning knowledge of tax sanctions, at 3.900. This finding indicates that respondents were relatively familiar with the consequences of non-compliance. Such knowledge may function as a behavioral control mechanism; however, sustainable loyalty requires not only an understanding of sanctions but also knowledge of taxpayers' rights, the benefits of taxation, and trust in tax institutions so that compliance is not driven solely by fear of penalties. TK2, concerning knowledge of income tax rates and structure, obtained a mean score of 3.892, while TK6, concerning understanding of tax benefits, obtained a mean score of 3.844. The lowest mean score was recorded for TK1, concerning understanding of tax return filing procedures, at 3.784.

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Description of Individual Taxpayer Loyalty

Table 11. Description of Individual Taxpayer Loyalty Indicators

Code	Indicator	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean	SD	Category
TL1	Commitment to file and pay taxes on time	40 (16.0%)	12 (4.8%)	3 (1.2%)	126 (50.4%)	69 (27.6%)	3.688	1.353	High/Agree
TL2	Honesty and completeness of reporting	39 (15.6%)	10 (4.0%)	2 (0.8%)	119 (47.6%)	80 (32.0%)	3.764	1.358	High/Agree
TL3	Active involvement in seeking information	41 (16.4%)	10 (4.0%)	0 (0.0%)	125 (50.0%)	74 (29.6%)	3.724	1.365	High/Agree
TL4	Trust in the Tax Service Office	37 (14.8%)	12 (4.8%)	1 (0.4%)	114 (45.6%)	86 (34.4%)	3.800	1.356	High/Agree
TL5	Consistency of compliance across years	40 (16.0%)	11 (4.4%)	1 (0.4%)	125 (50.0%)	73 (29.2%)	3.720	1.357	High/Agree
TL6	Willingness to encourage others to comply	40 (16.0%)	12 (4.8%)	1 (0.4%)	118 (47.2%)	79 (31.6%)	3.736	1.375	High/Agree

Source: Processed data, 2026

Based on Table 6, all Individual Taxpayer loyalty indicators were categorized as high, with mean scores ranging from 3.688 to 3.800. TL4, concerning trust in the Tax Service Office, recorded the highest mean score of 3.800, with 200 respondents or 80.0% selecting agree or strongly agree. TL2, concerning honesty and completeness of tax reporting, obtained a mean score of 3.764, while TL6, concerning the willingness to encourage others to comply, obtained a mean score of 3.736. These findings indicate that taxpayer loyalty is not only reflected in individual administrative behavior but is also beginning to extend toward social support for tax compliance.

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Structural Equation Modeling–Partial Least Squares Analysis

The PLS-based SEM analysis procedure was conducted in two sequential stages. In this study, tax knowledge was positioned as a moderating variable that conditions the strength of the relationship between the independent variables and individual taxpayer (WPOP) loyalty. A two-stage approach was employed to ensure that the scores of the primary latent constructs were estimated prior to the formation of the interaction constructs (KP × PP and SP × PP). Thus, the moderation effects were examined within a methodologically rigorous framework and were conceptually separated from the direct-effect paths.

Evaluation of the Measurement Model (Outer Model)

Factor Loadings and Convergent Validity

The standards adopted in this study follow the recommendations of Hair et al. (2022), which establish a minimum factor loading of 0.70 as the threshold for adequacy.

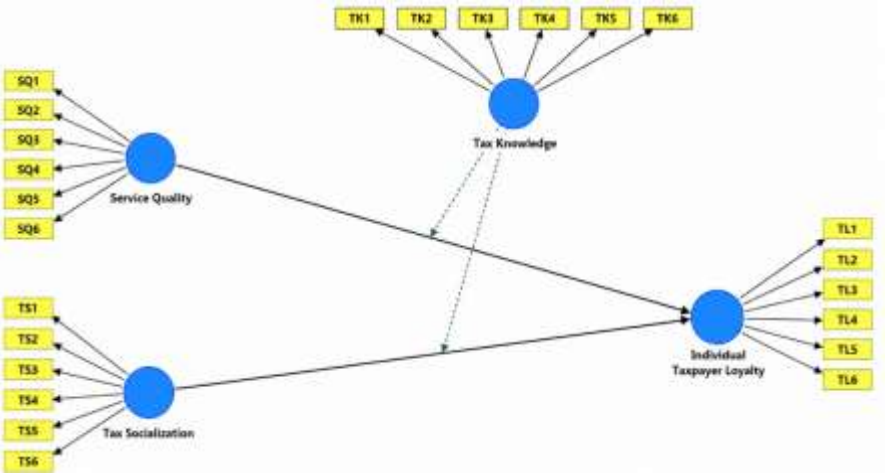


Figure 2. PLS-SEM Model Estimation Results and Factor Loadings

Table 12. Indicator Outer Loading Values

Indicator	Construct	Outer Loading	Remarks
KP1	Service Quality	0.915	Valid
KP2	Service Quality	0.881	Valid

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Indicator	Construct	Outer Loading	Remarks
KP3	Service Quality	0.889	Valid
KP4	Service Quality	0.908	Valid
KP5	Service Quality	0.891	Valid
KP6	Service Quality	0.867	Valid
SP1	Tax Socialization	0.867	Valid
SP2	Tax Socialization	0.883	Valid
SP3	Tax Socialization	0.905	Valid
SP4	Tax Socialization	0.891	Valid
SP5	Tax Socialization	0.859	Valid
SP6	Tax Socialization	0.892	Valid
PP1	Tax Knowledge	0.960	Valid
PP2	Tax Knowledge	0.954	Valid
PP3	Tax Knowledge	0.946	Valid
PP4	Tax Knowledge	0.954	Valid
PP5	Tax Knowledge	0.963	Valid
PP6	Tax Knowledge	0.955	Valid
LP1	Individual Taxpayer Loyalty	0.990	Valid
LP2	Individual Taxpayer Loyalty	0.987	Valid
LP3	Individual Taxpayer Loyalty	0.990	Valid
LP4	Individual Taxpayer Loyalty	0.986	Valid
LP5	Individual Taxpayer Loyalty	0.991	Valid
LP6	Individual Taxpayer Loyalty	0.994	Valid

Source: Processed data, 2026.

Table 12 shows that all 24 indicators in the model meet the required loading criteria. The factor loadings for the service quality construct range from 0.867 to 0.915, those for tax

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socialization range from 0.859 to 0.905, tax knowledge ranges from 0.946 to 0.963, and individual taxpayer loyalty ranges from 0.986 to 0.994. The exceptionally high loadings observed for the loyalty construct (0.986–0.994) and tax knowledge construct (0.946–0.963) fall within a range that is relatively uncommon in purely perceptual data and therefore warrant critical interpretation rather than being regarded solely as evidence of measurement precision.

Average Variance Extracted and Construct Reliability

Table 13. Construct Reliability and Convergent Validity

Construct	Cronbach's α	rho_A	Composite Reliability	AVE	Remarks
Service Quality	0.949	0.949	0.959	0.796	Meets criteria
Tax Socialization	0.943	0.944	0.955	0.780	Meets criteria
Tax Knowledge	0.981	0.981	0.984	0.912	Meets criteria
Individual Taxpayer Loyalty	0.996	0.996	0.997	0.979	Meets criteria

Source: Processed data, 2026

The results presented in Table 13 show that all constructs obtained AVE values exceeding 0.50. Specifically, the AVE values were 0.796 for service quality, 0.780 for tax socialization, 0.912 for tax knowledge, and 0.979 for individual taxpayer loyalty. This indicates that each construct explains at least 78.0 percent of the variance in its respective indicators; therefore, convergent validity at the construct level is established. All three reliability indices—Cronbach's alpha, rho_A, and composite reliability—consistently exceeded the minimum threshold of 0.70 across all constructs. This finding indicates that the research instrument demonstrates satisfactory internal consistency and that the measurement results are not substantially affected by random fluctuations.

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Discriminant Validity

Table 14. Construct Reliability and Convergent Validity

Construct	KP	LP	PP	SP
Service Quality (KP)	0.892			
Individual Taxpayer Loyalty (LP)	0.683	0.990		
Tax Knowledge (PP)	0.758	0.824	0.955	
Tax Socialization (SP)	0.403	0.712	0.073	0.883

Source: Processed data, 2026

The diagonal values on Table 14, representing the square roots of AVE, exceed the corresponding inter-construct correlations. The diagonal values for service quality (0.892), individual taxpayer loyalty (0.990), tax knowledge (0.955), and tax socialization (0.883) are consistently greater than the relevant cross-construct correlations. This pattern demonstrates that each construct explains its own indicators more strongly than its relationships with indicators associated with other constructs.

Table 15. Heterotrait–Monotrait Ratio

Construct Pair	HTMT	Criterion	Remarks
KP–LP	0.702	< 0.85	Meets criteria
KP–PP	0.785	< 0.85	Meets criteria
KP–SP	0.670	< 0.85	Meets criteria
LP–PP	0.833	< 0.85	Meets criteria
LP–SP	0.735	< 0.85	Meets criteria
PP–SP	0.713	< 0.85	Meets criteria

Source: Processed data, 2026

All pairs of constructs produced HTMT values below 0.85. The highest ratio (0.833) was observed for the tax knowledge and individual taxpayer loyalty pair, which remains below the

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specified threshold. Taken together, the results of the two assessments—Fornell–Larcker and HTMT—confirm that the four constructs in the model possess empirically distinct identities.

Common Method Bias Test

Table 16. Full Collinearity VIF as an Indicator of Common Method Bias

Construct	Full Collinearity VIF	Remarks
Service Quality (KP)	2.694	Below 3.3
Tax Socialization (SP)	2.422	Below 3.3
Tax Knowledge (PP)	4.636	Exceeds 3.3
Individual Taxpayer Loyalty (LP)	3.848	Exceeds 3.3

Source: Processed data, 2026 (full collinearity VIF test, Kock, 2015).

Table 16 shows that the service quality construct (VIF = 2.694) and tax socialization construct (VIF = 2.422) are below the 3.3 threshold and therefore do not indicate serious common method bias. However, tax knowledge (VIF = 4.636) and individual taxpayer loyalty (VIF = 3.848) exceed the threshold. This finding is consistent with the results of Harman's single-factor test and the exceptionally high outer loadings observed for these two constructs. Collectively, therefore, these three indications cannot simply be disregarded.

Evaluation of the Structural Model (Inner Model)

Collinearity Statistics

Table 17. Inner Variance Inflation Factor

Structural Relationship	VIF	Criterion	Remarks
KP → Individual Taxpayer Loyalty	3.006	< 5.00	Meets criteria
SP → Individual Taxpayer Loyalty	2.227	< 5.00	Meets criteria
PP → Individual Taxpayer Loyalty	5.112	< 5.00	Attention required
PP × KP → Individual Taxpayer Loyalty	2.507	< 5.00	Meets criteria
PP × SP → Individual Taxpayer Loyalty	2.369	< 5.00	Meets criteria

Source: Processed data, 2026.

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Table 17 shows that the VIF values for most structural relationships are below the threshold of 5.00, ranging from 2.369 to 5.112. The VIF value for tax knowledge predicting individual taxpayer loyalty is 5.112, slightly exceeding the conservative threshold, but remaining well below the tolerance limit of 10.00, which is also commonly applied in PLS-SEM (Hair et al., 2022). This condition is a common consequence of moderation models, as interaction constructs inherently share variance with their constituent predictors.

Coefficient of Determination

Table 18. Inner Variance Inflation Factor

Endogenous Construct	R^2	R^2 Adjusted	Interpretation
Individual Taxpayer Loyalty	0.795	0.791	Strong

Source: Processed data, 2026.

The five predictors in the moderation model—service quality, tax socialization, tax knowledge, and the two interaction constructs—collectively explain 79.5 percent of the variance in individual taxpayer loyalty, with an adjusted R^2 of 0.791.

Effect Size

Table 19. Effect Size of Structural Relationships

Structural Relationship	f^2	Category
KP → Individual Taxpayer Loyalty	0.132	Small
SP → Individual Taxpayer Loyalty	0.244	Medium
PP → Individual Taxpayer Loyalty	0.428	Large
PP × KP → Individual Taxpayer Loyalty	0.108	Small
PP × SP → Individual Taxpayer Loyalty	0.071	Small

Source: Processed data, 2026.

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Tax socialization demonstrates a medium effect size (f^2 = 0.244), while service quality makes a relatively more limited unique contribution, with a small effect size (f^2 = 0.132). The interaction constructs representing the moderation effects produced small effect sizes, namely f^2 = 0.108 for PP × KP and f^2 = 0.071 for PP × SP. The statistical significance of both interactions ($p < 0.001$ and $p = 0.035$) confirms that the moderation effects are statistically significant. However, statistical significance should not be equated with practical significance. With f^2 values of 0.108 and 0.071, the additional contribution of tax knowledge as a moderator to explaining the variance in individual taxpayer loyalty is classified as small according to Cohen (1988).

Model Fit

Table 20. PLS-SEM Model Fit

Measure	Saturated Model	Estimated Model	Criterion	Description
SRMR	0.024	0.086	<0.08	Good
NFI	0.948	0.948	Approaching 1	Good

Source: Processed data, 2026.

The SRMR value for the saturated model is 0.024, which is well below the threshold of 0.08 and indicates a highly satisfactory model-data fit. Meanwhile, the SRMR value for the estimated model is 0.086, slightly exceeding the conservative threshold. The NFI value of 0.948 further supports the assessment that the overall model demonstrates good fit.

Path Coefficient Analysis of the Attached SmartPLS Model

Table 21. Path Coefficients and Bootstrapping Results

Relationship	β	STDEV	t-statistic	p-value	Description
KP → Taxpayer Loyalty	0.285	0.073	3.916	<0.001	Significant
PP × KP → Taxpayer Loyalty	0.110	0.029	3.756	<0.001	Significant
PP → Taxpayer Loyalty	0.670	0.124	5.410	<0.001	Significant
SP → Taxpayer Loyalty	0.334	0.063	5.328	<0.001	Significant

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Relationship	β	STDEV	t-statistic	p-value	Description
PP × SP → Taxpayer Loyalty	0.106	0.050	2.110	0.035	Significant

Source: Processed data, 2026.

The path coefficients presented in this table are entirely derived from the final moderation model (including the PP×KP and PP×SP interaction constructs), which was estimated using the two-stage approach.

Testing the Moderating Effect of Tax Knowledge Based on the Hypotheses

Table 22. Testing of Main Paths and Moderating Effects

Path	β	Bootstrap SD	t-statistic	p-value	Decision
KP → Taxpayer Loyalty (H1)	0.285	0.071	3.916	<0.001	H1 accepted
SP → Taxpayer Loyalty (H2)	0.334	0.063	5.328	<0.001	H2 accepted
PP → Taxpayer Loyalty	0.670	0.123	5.410	<0.001	Significant
KP×PP → Taxpayer Loyalty (H3)	0.110	0.029	3.756	<0.001	H3 accepted
SP×PP → Taxpayer Loyalty (H4)	0.106	0.050	2.110	0.035	H4 accepted

Source: Processed data, 2026.

The direct effects of service quality (β = 0.285; t = 3.916; p < 0.001) and tax socialization (β = 0.334; t = 5.328; p < 0.001) on taxpayer loyalty remain significant after the interaction constructs are incorporated into the model. Overall, the moderation model explains 79.5% of the variance in taxpayer loyalty (adjusted R^2 = 0.791), which is considered strong in tax behavior research.

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Summary of Hypothesis Testing

Table 23. Summary of Research Hypothesis Testing

Hypothesis	Brief Statement	Coefficient	p-value	Decision
H1	Service quality → Taxpayer loyalty	0.285	<0.001	Accepted
H2	Tax socialization → Taxpayer loyalty	0.334	<0.001	Accepted
H3	Tax knowledge moderates the effect of service quality on taxpayer loyalty	0.110	<0.001	Accepted
H4	Tax knowledge moderates the effect of tax socialization on taxpayer loyalty	0.106	0.035	Accepted

Source: Processed data, 2026.

Table 23 shows that all four research hypotheses are accepted. Service quality and tax socialization are each proven to have a significant positive effect on taxpayer loyalty. Tax knowledge is confirmed as a moderator that strengthens both relationships. Substantively, these findings emphasize that individual taxpayer loyalty at the Bandar Lampung City Tax Office (KPP Kota Bandar Lampung) is a product of the synergy between a positive institutional experience and the level of tax knowledge possessed by individual taxpayers.

DISCUSSION

Overview of Respondents' Characteristics and Response Tendencies

The demographic profile of the sample was dominated by taxpayers aged 25–44 years, holding a bachelor's degree, working as private-sector employees or entrepreneurs, and having been registered as taxpayers for at least three years. These characteristics represent a segment of individual taxpayers (WPOP) who are in their productive stage of life and have relatively established tax obligations. Therefore, positive perceptions of service quality and tax socialization reflect not only the courtesy of tax officers but also the institutional capacity of KPP to respond to the diverse and dynamic needs of taxpayers. Damajanti (2017) and Oktaviani et al. (2020) stated that tax competence is domain-specific and cannot be assumed to be a linear derivation of general educational attainment.

The majority of respondents (77.2 percent) had been registered as taxpayers for three years or more, meaning that their assessment of loyalty was based on accumulated experiences

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across several reporting periods and system changes. Nevertheless, the higher standard deviation of loyalty compared with the other variables indicates that the duration of taxpayer registration is not a single predictor of commitment. Within the TPB framework, regularly scheduled socialization has greater potential to internalize compliance norms at the level of subjective norms compared with sporadic activities. Information delivered consistently through various channels can normalize compliant behavior and establish it as a widely accepted social expectation.

The Effect of Service Quality on WPOP Loyalty

The testing of H1 provides strong empirical evidence that service quality has a positive and significant effect on WPOP loyalty at KPP offices in Bandar Lampung. The positive path coefficient indicates that improvements in taxpayers' perceptions of information reliability, officer responsiveness, data security assurance, personal attention, physical facility convenience, and accessibility of digital channels are directly associated with stronger commitment to reporting, paying, and consistently maintaining compliant behavior. Strengthening this perception of control increases the probability that intentions will be translated into actual and sustainable behavior (Ajzen, 1991; Bobek et al., 2013).

This finding is consistent with Haris (2020), who documented a significant positive effect of service quality on taxpayer loyalty in Pekanbaru, and Lukman (2022), who validated the relevance of the SERVQUAL dimensions in the era of digital tax services. Consistency with Batrancea et al. (2019) and Gangl et al. (2015) is also evident in the importance of service orientation as a foundation for trust and voluntary compliance. In the specific context of KPP offices in Bandar Lampung, the high assessment of the assurance aspect—particularly data security—demonstrates that the assurance dimension is one of the main pathways through which loyalty is formed within this sample.

The Effect of Tax Socialization on WPOP Loyalty

The testing of H1 provides strong empirical evidence that service quality has a positive and significant effect on WPOP loyalty at the Tax Service Offices (KPP) in Bandar Lampung. Within the framework of the Theory of Planned Behavior (TPB), the most relevant mechanism for understanding this relationship is perceived behavioral control. Strengthening this sense of

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control, in turn, increases the likelihood that behavioral intentions will be translated into actual and sustained behavior (Ajzen, 1991; Bobek et al., 2013).

The SERVQUAL model provides a complementary perspective by clarifying how each service dimension contributes to the formation of loyalty. This finding is consistent with Haris (2020), who documented a positive and significant effect of service quality on taxpayer loyalty in Pekanbaru, and Lukman (2022), who validated the relevance of SERVQUAL dimensions in the context of digital tax services. Consistency with Batrancea et al. (2019) and Gangl et al. (2015) is also evident in the importance of service orientation as a foundation for trust and voluntary compliance. In the specific context of KPPs in Bandar Lampung, the high assessment of the assurance dimension—particularly data security—indicates that assurance represents one of the primary pathways through which loyalty is formed among the respondents in this study. The only study whose initial findings appear to contradict the present results is Akbar et al. (2023), which found no significant effect of service quality on taxpayer loyalty in Palembang.

From a managerial perspective, the acceptance of H1 does not necessarily imply that all dimensions of service quality have reached an optimal level. The descriptive analysis reveals that physical facilities and personal empathy received relatively lower mean scores compared with data security. This finding suggests that the acceleration of service digitalization has not yet been fully accompanied by improvements in the quality of human interaction. Technically efficient services that lack personal attention may be sufficient to complete transactions, but they may not be adequate to establish the emotional connection that serves as a foundation for long-term taxpayer loyalty.

The Effect of Tax Socialization on WPOP Loyalty

The second hypothesis received significant empirical support: tax socialization programs were found to have a positive effect on WPOP loyalty. The positive path coefficient indicates that increased intensity, content relevance, timing accessibility, clarity of delivery, diversity of media formats, and the impact of educational programs collectively contribute to stronger taxpayer commitment to maintaining compliant behavior over the long term. From the perspective of the Theory of Planned Behavior (TPB), tax socialization operates primarily through two pathways: the formation of subjective norms and the reinforcement of individuals' attitudes toward compliance.

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Messages delivered consistently through various institutional channels and professional communities create a perception that compliant behavior is a normative behavior expected by the social environment. At the same time, socialization provides a rational justification that shifts taxpayers' perceptions of taxes from viewing them as burdensome external obligations to understanding them as meaningful contributions to the financing of public goods (Ajzen, 1991; Nugroho, 2023). The findings of this study reinforce and extend the empirical evidence provided by Saputro (2022), Purnamasari (2024), Fitria et al. (2021), and Alm (2019) regarding the effectiveness of tax socialization in promoting tax compliance and awareness.

This study goes further by positioning loyalty, rather than merely administrative compliance, as the dependent variable, thereby making a significant conceptual contribution to the existing literature. The findings are also consistent with Widiastini and Supadmi (2020) and Pratiwi and Jati (2020), who position tax socialization as a strategic instrument for shaping taxpayer behavior.

The Moderating Role of Tax Knowledge in the Effect of Service Quality on WPOP Loyalty

The testing of H3 confirms that tax knowledge significantly moderates the effect of service quality on WPOP loyalty. The positive interaction coefficient indicates an enhancing moderation effect: the higher the level of tax knowledge possessed by taxpayers, the greater the positive impact of improved service quality on their loyalty. Through the lens of the Theory of Planned Behavior (TPB), this moderating mechanism can be understood as an interaction between external resources and internal capacity. High-quality services provide convenience and institutional support as external resources, while tax knowledge provides the capacity to utilize such support effectively.

Empirically, this finding reinforces the argument of Ratnawati et al. (2019), who positioned tax knowledge as an important factor conditioning the effectiveness of service quality on tax-related behavior. It is also consistent with Oktaviani et al. (2020) and Pertiwi et al. (2020), who emphasized that individuals' cognitive capacity is a key variable in explaining heterogeneity in taxpayers' responses to institutional interventions. Although the dependent variable differs between loyalty and compliance, the fundamental mechanism remains unchanged: without adequate knowledge, even sophisticated institutional interventions may not be fully translated into the intended behavior.

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It should be emphasized that the statistical significance of H3 ($p < 0.001$) does not necessarily imply a large practical effect. The effect size of the PP×KP interaction is relatively small ($f^2 = 0.108$; see Subsection 4.1.4.2.3), indicating that the additional contribution of tax knowledge in strengthening the effect of service quality on loyalty is limited rather than transformative. In other words, tax knowledge has been empirically demonstrated to function as a moderator, but the resulting "boost" is not as substantial as the main effects of service quality or tax socialization. Therefore, KPPs should not position the strengthening of tax literacy as a substitute for investment in service quality, but rather as a complementary factor that enhances—rather than replaces—the impact of existing service quality improvements.

The Moderating Role of Tax Knowledge in the Effect of Tax Socialization on Taxpayer Loyalty

The fourth hypothesis (H4) is empirically supported, demonstrating that tax knowledge significantly strengthens the effectiveness of tax socialization in fostering individual taxpayer (WPOP) loyalty. This finding carries an important implication: the impact of an educational program cannot be evaluated independently of the cognitive characteristics of its target audience. From a comparative perspective, these findings are consistent with Oktaviani et al. (2020), Fitria et al. (2021), and Pertiwi et al. (2020), who consistently emphasize the relationship between tax knowledge, tax socialization, and tax compliance.

As with H3, the statistical significance of H4 ($p = 0.035$) should also be interpreted alongside its small effect size ($f^2 = 0.071$; see Subsection 4.1.4.2.3), which is the smallest effect size among all structural paths in the model. Practically, this indicates that although the role of tax knowledge in strengthening the effectiveness of tax socialization is statistically significant, its substantive contribution is relatively limited. A proportionate policy recommendation is therefore to prioritize the improvement of taxpayers' basic tax knowledge in general, particularly because tax knowledge itself is the direct predictor with the largest effect size in the model ($f^2 = 0.428$; Subsection 4.1.4.2.3), before relying on its relatively small moderating effect on tax socialization as the primary basis for policy intervention.

Theoretical Implications

This study provides a substantial empirical contribution to the development of the Theory of Planned Behavior (TPB) within the taxation domain. Specifically, the findings validate the relevance of the three components of TPB in explaining taxpayer loyalty, extending beyond its

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original scope, which primarily focuses on behavioral intentions and short-term compliance. This study contributes to extending the application of TPB from predicting short-term compliance intentions to explaining the formation of tax loyalty, which encompasses a broader range of behavioral dimensions.

At a broader theoretical level, this study establishes a conceptual bridge between the service quality framework rooted in SERVQUAL and the social-psychological approach of TPB. The theoretical position of tax knowledge within this model also warrants critical discussion. This study positions and examines tax knowledge exclusively as a moderating variable, consistent with the conceptual framework and hypotheses formulated at the outset. However, conceptually, tax knowledge may also function as a mediator.

Practical Implications for Tax Offices (KPP) in Bandar Lampung

For KPP Madya Bandar Lampung, KPP Pratama Bandar Lampung Satu, and KPP Pratama Bandar Lampung Dua, the findings of this study underscore the importance of integrating service delivery and taxpayer education strategies into a synergistic and unified program. Maintaining high standards of data security and information consistency should remain a non-negotiable priority, given that these aspects have been identified by taxpayers as key strengths. The most urgent areas for improvement are identified in the dimensions of personal empathy, physical facility comfort, the regularity of tax socialization programs, and assistance with tax return (SPT) filing procedures. One potential innovation is the development of a service-to-learning journey model, in which every point of contact between WPOP and KPP officers—whether through service counters, digital channels, or tax socialization activities—is simultaneously designed as a learning experience. Finally, KPPs should develop a taxpayer loyalty evaluation system that goes beyond the conventional metric of the number of tax returns submitted on time.

CONCLUSION

1. Service quality has a positive and significant effect on individual taxpayer (WPOP) loyalty.
2. Tax socialization has a positive and significant effect on WPOP loyalty.
3. Tax knowledge significantly strengthens the effect of service quality on WPOP loyalty.
4. Tax knowledge also significantly strengthens the effect of tax socialization on WPOP loyalty.

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5. Overall, the moderation model explains 79.5% of the variance in WPOP loyalty (adjusted R^2 = 79.1%), indicating strong explanatory power.

SUGGESTION

1. Practical Suggestions

   Based on the findings, tax offices (KPPs) in Bandar Lampung are recommended to maintain high standards of data security, information consistency, and staff professionalism while improving personal assistance and guidance for taxpayers. Tax socialization should be conducted regularly through diverse and accessible media, with materials tailored to taxpayers' levels of tax knowledge and specific needs. KPPs are also encouraged to provide practical guidance for SPT filing and continuously evaluate taxpayers' understanding to strengthen voluntary compliance and long-term taxpayer loyalty.
2. Academic Suggestions

   Future research is recommended to employ longitudinal or mixed-method approaches and incorporate objective tax behavior data to complement self-reported responses. Further studies may also examine additional factors, such as tax morale, institutional trust, perceived tax fairness, and information system quality. Multi-group analysis based on demographic characteristics and research across different regions could provide broader insights into the moderating role of tax knowledge. Future researchers may also examine tax knowledge as both a mediator and moderator through a moderated mediation model.

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