

Enhancing Individual Taxpayer Compliance through Digital Tax Administration: The Role of Service Quality Mediation

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ABSTRACT

Digital transformation in tax administration has become a strategic initiative to improve taxpayer compliance. However, the effectiveness of electronic tax services in promoting compliance is still inconclusive. This study aims to analyze the impact of the implementation of E-Registration, E-Filing, E-Billing, and E-SPT on the compliance of individual taxpayers with the quality of tax services as a mediation variable. The research is based on the Technology Acceptance Model, Theory of Planned Behavior and Compliance Theory to explain taxpayer behavior in the digital tax environment. The study uses a quantitative approach, primary data through a questionnaire to individual taxpayers registered at KPP Pratama Tangerang Timur through *incidental sampling* of 400 respondents. Data analysis using Partial Least Squares. The findings revealed that E-Registration and E-Filing had a positive and significant impact on taxpayer compliance, while E-Billing and E-SPT had no significant impact. In addition, E-Registration, E-Filing, and E-Billing significantly improve the quality of tax services, whereas E-SPT does not. The quality of tax services was found to have no significant impact on taxpayer compliance and failed to mediate the impact of the electronic tax administration system on taxpayer compliance. This research contributes theoretically that the success of digitization of tax administration does not always depend on the quality of services, but is also influenced by the level of digital literacy, tax awareness, and readiness of taxpayers to adopt tax technology. These findings have practical implications for tax authorities in designing more effective digital transformation strategies to improve voluntary tax compliance.

Keywords: E-Billing, E-Filing, E-Registration, E-SPT, Taxpayer Compliance, Tax Service Quality

1. INTRODUCTION

Tax revenue remains the largest source of state revenue in Indonesia, contributing more than 70% of the national budget and playing a vital role in financing sustainable economic development. Consequently, improving taxpayer compliance has become one of the Directorate General of Taxes' (DGT) primary policy priorities. To enhance administrative efficiency and voluntary compliance, the DGT has implemented a comprehensive digital tax administration reform through electronic services, including E-Registration, E-Filing, E-Billing, and E-SPT. These systems are intended to simplify tax registration, reporting, and payment processes while improving transparency and reducing compliance costs. Nevertheless, despite the increasing adoption of electronic tax services, taxpayer compliance has not improved consistently, indicating that digitalization alone may not be sufficient to enhance voluntary tax compliance.

This study focuses on KPP Pratama Tangerang Timur, one of the tax offices serving a rapidly growing urban area with a substantial number of registered individual taxpayers and

extensive implementation of digital tax services. Despite these favorable conditions, taxpayer compliance in this jurisdiction has fluctuated over recent years, making East Tangerang an analytically relevant setting for examining whether digital tax administration and tax service quality effectively encourage taxpayer compliance. Tax revenue is the main source of financing for national development in Indonesia. The success of state revenue is highly dependent on the level of compliance of taxpayers in fulfilling their tax obligations. Therefore, the Directorate General of Taxes (DGT) continues to reform tax administration through the use of information technology. Digitization of tax administration is realized through the development of an E-System consisting of E-Registration, E-Filing, E-Billing, and E-SPT. The system was developed to improve the efficiency of tax services, reduce administrative costs, speed up the tax reporting and payment process, as well as increase the transparency of tax administration. Although various electronic systems have been implemented, the level of taxpayer compliance has not shown an optimal increase.

One of the major reforms introduced by the Directorate General of Taxes (DGT) is the digitalization of tax administration through electronic tax systems, including E-Registration, E-Filing, E-Billing, and E-SPT, to improve taxpayer compliance and simplify tax registration, payment, and reporting processes. This study focuses on the implementation of these digital tax services at KPP Pratama Tangerang Timur, a local tax office operating under the Regional Office of the Directorate General of Taxes of Banten Province and serving a large population of individual taxpayers. Despite these reforms, taxpayer compliance remains a significant challenge (DJP, 2025). According to the Directorate General of Taxes (2025), the annual personal income tax return filing ratio within the Regional Office of DGT Banten reached 80.13% in 2024, slightly exceeding the national average of 80.02%. Nevertheless, 210,325 registered taxpayers in the region still failed to submit their annual tax returns, indicating that voluntary compliance remains below the expected level. To provide a local context, this study also examines taxpayer compliance trends at KPP Pratama Tangerang Timur.

Table 1. Compliance Ratio of Annual Income Tax Return Submission, 2017-2021

Year	WPOP Registered	WPOP Mandatory Tax Return	Receipt of Tax Returns	Compliance Ratio
2017	293.213	244.743	94.407	39%
2018	316.494	224.576	88.432	39%
2019	338.290	248.770	93.785	38%
2020	381.128	199.981	91.303	46%
2021	408.611	190.186	105.484	55%

Source: KPP Pratama East Tangerang, 2023

Empirical conditions at KPP Pratama East Tangerang show that the increase in the number of registered Individual Taxpayers (WPOP) has not been fully followed by an increase in the compliance ratio of submitting the Annual Tax Return (SPT). Based on Table 1.1, the

number of registered WPOP has increased consistently from 293,213 taxpayers in 2017 to 408,611 taxpayers in 2021, or an increase of about 39.36% in five years. However, the compliance ratio for filing tax returns tended to be low in the 2017-2019 period, namely 39%, 39%, and 38%, respectively, before increasing to 46% in 2020 and 55% in 2021. The increase shows an improvement, but still indicates that almost half of the taxpayers who are required to submit their tax returns have not fulfilled their obligations. This condition shows that the increase in the number of taxpayers has not been automatically followed by an increase in the level of compliance. This phenomenon raises questions about the effectiveness of the implementation of an electronic-based tax administration system. Although various digital services have been implemented to simplify the process of tax registration, reporting, and payment, the level of taxpayer compliance has not shown an optimal increase. This indicates that the success of tax digitalization is likely to be determined not only by the existence of technology, but also influenced by other factors, such as the quality of tax services, taxpayers' digital literacy, ease of use of the system, and acceptance of technology. The historical data from 2017–2021 are presented to illustrate the long-term trend of taxpayer compliance at KPP Pratama Tangerang Timur because more recent office-level compliance statistics were not publicly available during the preparation of this study.

Previous studies have reported inconsistent findings regarding the effectiveness of digital tax administration systems in improving taxpayer compliance. Several studies found that the implementation of E-Registration, E-Filing, E-Billing, and E-SPT significantly enhanced taxpayer compliance by simplifying tax administration and reducing compliance costs (Kania, P., et al., 2017);(Sulistiyorini et al, 2017);(R. R. Sari & Erawati, 2018);(Zakiyah, 2020). In contrast, other studies reported insignificant effects for certain digital tax services, particularly E-Filing, E-Billing, and E-SPT (Arifin & Syafii, 2019); (Rizky & Amir, 2020);(Sari, N. W, 2021)These inconsistent findings may be attributed to differences in research contexts, taxpayer characteristics, and analytical methods, suggesting that the relationship between digital tax administration and taxpayer compliance is not yet fully understood. From a theoretical perspective, the Technology Acceptance Model (TAM) suggests that digital tax systems improve users' perceptions of usefulness and ease of use, while Compliance Theory argues that high-quality tax services can strengthen voluntary taxpayer compliance. Therefore, Tax Service Quality is theoretically expected to mediate the relationship between digital tax administration and taxpayer compliance by improving taxpayers' trust, satisfaction, and willingness to comply. However, limited empirical studies have simultaneously examined the mediating role of Tax Service Quality across the four major digital tax services (E-Registration, E-Filing, E-Billing, and E-SPT), particularly among individual taxpayers at KPP Pratama Tangerang Timur. This study addresses this gap by developing and testing an integrated mediation model within Indonesia's digital tax administration context.

This study is grounded in three complementary theories that collectively explain the relationship between digital tax administration, tax service quality, and taxpayer compliance. The Technology Acceptance Model (TAM) (Davis, 1989) in (Isyarah, 2018), provides the primary theoretical basis for explaining how taxpayers accept and use digital tax administration systems, including E-Registration, E-Filing, E-Billing, and E-SPT. According to TAM, information technology that is perceived as useful and easy to use will encourage users to adopt the system, thereby improving the efficiency, accessibility, and quality of tax services. Consequently, TAM supports the proposed relationships between digital tax administration and Tax Service Quality. The Theory of Planned Behavior (TPB) (Ajzen, 1991) in (Rusdi, 2020) complements TAM by explaining that taxpayers' intention to comply is influenced by their behavioral beliefs, subjective norms, and perceived behavioral control. The implementation of user-friendly digital tax systems is expected to strengthen taxpayers' intention to fulfill their tax obligations by reducing procedural complexity and increasing convenience. Therefore, TPB provides theoretical support for the direct relationship between digital tax administration and Taxpayer Compliance. Finally, Compliance Theory (Pratiwi, 2020), explains that taxpayers are more likely to comply voluntarily when tax administration is perceived as fair, reliable, responsive, and efficient. Based on this perspective, Tax Service Quality is positioned as a mediating variable because digital tax systems are expected to improve the quality of tax services, which subsequently enhances taxpayers' trust, satisfaction, and willingness to comply with tax regulations. The integration of these three theories provides a comprehensive framework for explaining both the direct and indirect effects of digital tax administration on taxpayer compliance. Accordingly, this study proposes that E-Registration, E-Filing, E-Billing, and E-SPT improve Tax Service Quality through taxpayers' acceptance of digital technology (TAM). Improved Tax Service Quality is subsequently expected to strengthen voluntary Taxpayer Compliance (Compliance Theory), while the direct influence of digital tax administration on compliance is explained through taxpayers' behavioral intentions as proposed by the Theory of Planned Behavior (TPB).

Taxpayer compliance refers to the extent to which taxpayers fulfill their tax obligations in accordance with prevailing tax laws and regulations. It includes timely tax registration, accurate reporting, correct tax payment, and compliance with administrative requirements. According to (Wilmart, 2020) taxpayer compliance reflects taxpayers' willingness to exercise both their rights and obligations in accordance with applicable tax legislation. In Indonesia, the legal basis for taxpayer compliance is stipulated in Law No. 16 of 2009, which defines tax as a compulsory contribution imposed by the state to finance public expenditure and national development. Digital tax administration refers to the application of information technology to simplify tax registration, reporting, payment, and administration. In Indonesia, the Directorate General of Taxes has introduced four major electronic services, namely E-Registration, E-Filing, E-Billing, and E-SPT, to improve administrative efficiency and facilitate taxpayer compliance.

E-registration is an online system that enables taxpayers to register, update taxpayer information, and manage tax identification numbers electronically in accordance with DGT Regulation PER-02/PJ/2018. E-Filing is an electronic system that allows taxpayers to submit annual tax returns online in real time through the Directorate General of Taxes or authorized Application Service Providers (DGT Regulation No. 19/PJ/2009). E-Billing is an electronic tax payment system that generates billing codes for tax payments through integrated electronic channels (DGT Regulation PER-05/PJ//2017). E-SPT is an electronic application used by taxpayers to prepare and submit tax return data in digital format (Minister of Finance Regulation No. 181/PMK.03/2007). Tax Service Quality refers to the ability of tax authorities to provide reliable, responsive, accessible, and efficient services that meet taxpayers' expectations (Zakiyah, 2020). In the context of digital taxation, service quality reflects how electronic tax systems improve taxpayers' experiences by reducing administrative complexity and increasing convenience.

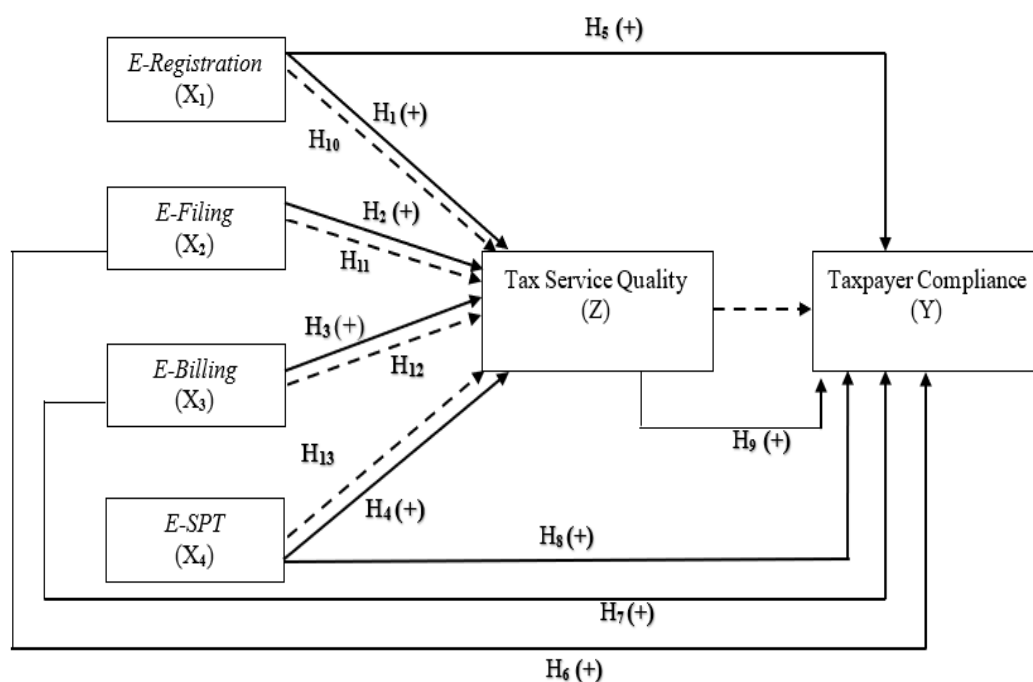


Figure 1. Conceptual Framework

2. METHODS

This study employed a quantitative research design using primary data collected through a structured questionnaire. The study was conducted at KPP Pratama Tangerang Timur during February until July, 2023. The target population comprised 408,611 registered individual taxpayers. Respondents were eligible if they were registered individual taxpayers, possessed an active Taxpayer Identification Number (NPWP), had experience using at least

one electronic tax service (E-Registration, E-Filing, E-Billing, or E-SPT), and voluntarily agreed to participate in the survey. Using incidental sampling, 400 valid questionnaires were obtained. Although incidental sampling is a non-probability technique that limits statistical generalization, the sample size exceeds the minimum recommendation for PLS-SEM based on (Hair et al., 2021) and the ten-times rule, making it adequate for prediction-oriented analysis. The questionnaire was adapted from established studies (Zakiyah, 2020); (Isyarah, 2018); (Rusdi, 2020) and employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Prior to data collection, the instrument was reviewed to ensure content validity. Participation was voluntary, informed consent was obtained, respondents' anonymity was maintained, and incomplete questionnaires were excluded from the analysis. Data were analyzed using SmartPLS. The measurement (outer) model was evaluated through indicator loadings, Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), and discriminant validity (Fornell–Larcker criterion and HTMT). The structural (inner) model was assessed using collinearity (VIF), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and bootstrapping with 5,000 resamples to test the proposed hypotheses.

3. RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 1. Descriptive Statistics

	N	Minimum	Max	Mean	SD
<i>Electronic Registration</i> (X1)	400	14.00	25.00	22.13	2.830
<i>E-filing</i> (X2)	400	15.00	25.00	22.13	2.975
<i>E-Billing</i> (X3)	400	15.00	25.00	21.55	3.025
<i>E-SPT</i> (X4)	400	10.00	20.00	17.12	2.489
Tax Service Quality Level (Z)	400	10.00	30.00	25.31	3.829
Individual Taxpayer Compliance (Y)	400	14.00	30.00	26.30	3.144

Source: Processed Primary Data (2023)

Table 1 presents the descriptive statistics of the study variables. The mean values indicate relatively positive perceptions across all constructs, while the standard deviation values suggest moderate variability in respondents' responses. These statistics are reported solely to describe the characteristics of the data and do not imply any assumptions regarding data distribution.

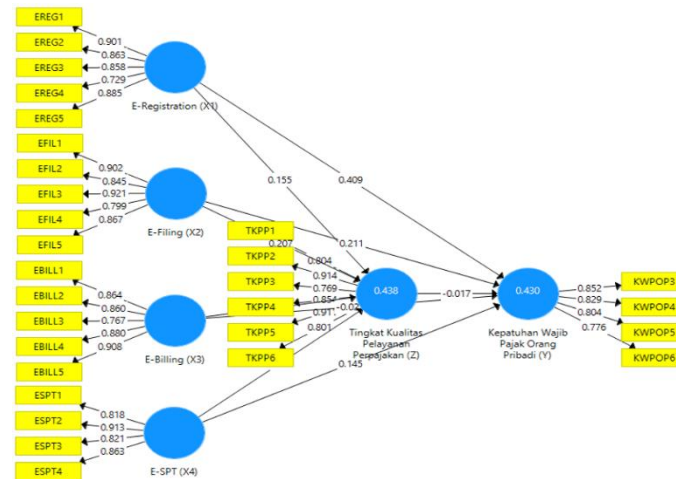


Figure 2. PLS Algorithm Model

Source: Processed Primary Data (2023)

Based on Figure 2, the *R-square* value of individual taxpayer compliance is 0.430 and the level of tax service quality is 0.438.

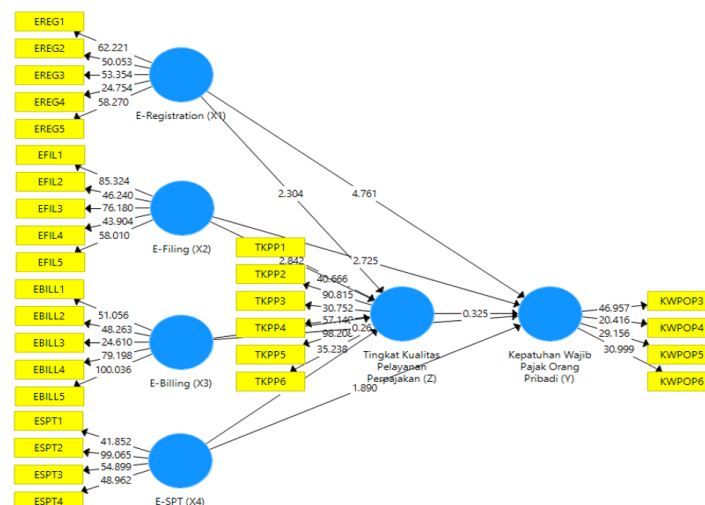


Figure 3. Model Bootstrapping

Source: Processed Primary Data (2023)

Based on figure 3, the *T-statistic* value for direct testing of the level of quality of tax services to the compliance of individual taxpayers is 0.325.

Measurement Model (Outdoor Model)

Convergent Validity Test

Table 2. Convergent Validity Test Results

Variable	Question Items	External Loading	AVE
<i>Electronic Registration (X1)</i>	X1.1	0,901	0,721
	X1.2	0,863	
	X1.3	0,858	
	X1.4	0,729	
	X1.5	0,885	
<i>E-filing (X2)</i>	X2.1	0,902	0,753
	X2.2	0,845	
	X2.3	0,921	
	X2.4	0,799	
	X2.5	0,867	
<i>E-Billing (X3)</i>	X3.1	0,864	0,735
	X3.2	0,860	
	X3.3	0,767	
	X3.4	0,880	
	X3.5	0,908	
<i>E-SPT (X4)</i>	X4.1	0,818	0,731
	X4.2	0,913	
	X4.3	0,821	
	X4.4	0,863	
Taxpayer Compliance Individual (Y)	Y3	0,852	0,665
	Y4	0,829	
	Y5	0,804	
	Y6	0,776	
Tax Service Quality Level (Z)	Z1	0,804	0,712
	Z2	0,914	
	Z3	0,769	
	Z4	0,854	
	Z5	0,911	
	Z6	0,801	

Source: Processed Primary Data (2023)

Table 2 shows the *outer loading* on each indicator of more than 0.7. Thus it can be concluded that the whole construct can be said to be convergently valid. Likewise, the *Average Variance Extracted* (AVE) value is above 0.5. This means that all latent variables can be said to be valid.

Table 3. Results of the Discriminant Validity Test

	<i>Electronic Registration (X1)</i>	<i>E- filing (X2)</i>	<i>E- Billing (X3)</i>	<i>E- SPT (X4)</i>	Individual Taxpayer Compliance (Y)	Tax Service Quality Level (Z)
<i>Electronic Registration (X1)</i>	0,849					
<i>E-filing (X2)</i>	0,645	0,868				
<i>E-Billing (X3)</i>	0,717	0,707	0,857			
<i>E-SPT (X4)</i>	0,701	0,671	0,838	0,855		
Individual Taxpayer Compliance (Y)	0,621	0,547	0,531	0,545	0,816	
Tax Service Quality Level (Z)	0,561	0,573	0,619	0,588	0,405	0,844

Source: Processed Primary Data (2023)

Table 3 presents the results of the discriminant validity assessment using the Fornell–Larcker criterion. The square root of the Average Variance Extracted (AVE) (Nugraha et al., 2023), shown along the diagonal, is greater than the correlations between constructs, indicating that each construct shares more variance with its own indicators than with other constructs. These results demonstrate satisfactory discriminant validity based on the Fornell–Larcker criterion (Hair et al., 2021). Furthermore, all indicators exhibited higher loadings on their respective constructs than on other constructs, providing additional evidence of discriminant validity.

Table 4. Cronbach's alpha Results

Variable	Alpha Cronbach	Remarks
<i>Electronic Registration (X1)</i>	0,903	Reliable
<i>E-filing (X2)</i>	0,918	Reliable
<i>E-Billing (X3)</i>	0,909	Reliable
<i>E-SPT (X4)</i>	0,877	Reliable
Individual Taxpayer Compliance (Y)	0,832	Reliable
Tax Service Quality Level (Z)	0,918	Reliable

Source: Processed Primary Data (2023)

Based on table 4, *Cronbach's alpha* value above 0.7 for each variable can be concluded that the level of consistency of respondents' answers in each construct has good reliability.

Structural Model (*Inner Model*)

Table 5. Determination coefficient (R²) test results

	<i>R-Square</i>
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Individual Taxpayer Compliance (Y)	0,430
Tax Service Quality Level (Z)	0,438

Source: Processed Primary Data (2023)

Based on table 5, it shows that the *R-Square* value for the Individual Taxpayer Compliance variable is 0.430 and for the Tax Service Quality Level variable is 0.438. This shows that the variables of *E-Registration*, *E-Filing*, *E-Billing* and *E-SPT* are simultaneously able to explain the variable of the Tax Service Quality Level of 43.8%, the remaining 56.2% is explained by other variables. Furthermore, the variables of *E-Registration*, *E-Filing*, *E-Billing*, *E-SPT* and Tax Service Quality Level were simultaneously able to explain the variable of Individual Taxpayer Compliance by 43% and the remaining 57% were explained by other variables.

Table 6. Direct Effect Test Results

	<i>Original Sample</i>	<i>T-Statistics</i>	<i>P-Value</i>	Remarks
X1 -> Z	0,155	2,304	0,021	Significant
X2 -> Z	0,207	2,842	0,005	Significant
X3 -> Z	0,257	2,173	0,030	Significant
X4 -> Z	0,125	1,098	0,272	Insignificant
X1 -> Y	0,409	4,761	0,000	Significant
X2 -> Y	0,211	2,725	0,006	Significant
X3 -> Y	-0,022	0,261	0,794	Insignificant
X4 -> Y	0,145	1,890	0,059	Insignificant
Z -> Y	-0,017	0,325	0,745	Insignificant

Source: Processed Primary Data (2023)

Based on Table 6, it shows that *e-registration* (X1), *e-filing* (X2), *e-billing* (X3) have a positive impact on the level of quality of tax services, while *e-SPT* (X4) has no impact on the level of quality of tax services. On the other hand, *e-registration* (X1), *e-filing* (X2) have a positive impact on the compliance of individual taxpayers (Y), while *e-billing* (X3) and *e-SPT* (X4) as well as the level of quality of tax services have no impact on the compliance of individual taxpayers by proving that the $p\text{-value} \leq 0.05$.

Table 7. Intervening Effect Test Results

	<i>T-Statistics</i>	<i>P-Value</i>	Remarks
X1 -> Z -> Y	0,293	0,770	Insignificant
X2 -> Z -> Y	0,304	0,762	Insignificant
X3 -> Z -> Y	0,302	0,763	Insignificant
X4 -> Z -> Y	0,221	0,825	Insignificant

Source: Processed Primary Data (2023)

Based on table 7, it is proven that the level of quality of tax services is not able to mediate the impact of *e-registration* (X1), *e-filing* (X2), *e-billing* (X3), *E-SPT* (X4) on individual taxpayer compliance. This is evidenced by the $p\text{-value}$ of each variable ≥ 0.05 .

The Effect of the Implementation of E-Registration on the Tax Service Quality

The results of the test table 6 show that E-Registration has a positive and significant effect on the quality of tax services with a coefficient value of 0.155, T-statistic of 2.304, and P-value of 0.021 (<0.05). These findings show that the better the implementation of E-Registration, the higher the taxpayer's perception of the quality of tax services. Digitization of the registration and administration process of NPWP provides convenience, accelerates services, and increases the efficiency and transparency of tax administration. These findings support the Technology Acceptance Model (TAM) which states that the perception of ease of use and benefits of technology drives system acceptance by users. In addition, the Theory of Planned Behavior (TPB) explains that the ease of access and availability of facilities increases perceived behavioral control, so that taxpayers have higher confidence in using the electronic tax system and assessing the quality of service more positively. Based on Compliance Theory, the digitization of tax administration is part of service reform that aims to build voluntary compliance through easier, faster, and more transparent services. Although the quality of service in this study has not been proven to increase compliance directly, E-Registration has been proven to be able to improve service quality as an important foundation in supporting the modernization of tax administration. The results of this study are consistent with Zakiyah (2020) and Isyarah (2018) who stated that E-Registration has a positive effect on the quality of tax services. The results of this study are in line with (Zakiyah, 2020) and (Isyarah, 2018) shows that e-Registration has a positive and significant impact on the Quality Level of Tax Services. However, the results of this study are not in line with (Rahayu, 2019) showing that the implementation of e-Registration does not have an impact on the quality of tax administration services.

The Effect of E-Filing Implementation on the Tax Service Quality

The results of the test table 6 show that E-Filing has a positive and significant effect on the quality of tax services with a coefficient value of 0.207, T-statistic of 2.842, and P-value of 0.005 (<0.05). These findings show that the more effective the implementation of E-Filing, the higher the taxpayer's perception of the quality of tax services. The ease of electronic reporting of tax returns provides faster, flexible, efficient, and transparent services so as to improve the experience of taxpayers in fulfilling their tax obligations. These findings support the Technology Acceptance Model (TAM) (Davis, 1989), which explains that the perception of benefits (*Perceived usefulness*) and ease of use (*Perceived ease of use*) encourage the adoption of technology. In this study, the ease of use of E-Filing increases taxpayers' perception of the quality of tax services. Furthermore, the Theory of Planned Behavior (TPB) (Ajzen, 1991) explains that the ease of access to electronic systems increases perceived behavioral control, so that taxpayers are more confident and able to carry out their tax obligations independently.

Based on Compliance Theory, the modernization of tax administration through E-Filing is an effort to encourage voluntary compliance through easier, faster, and more transparent services. Although the quality of services in this study has not been proven to improve compliance directly, the implementation of E-Filing has been proven to improve the quality of tax services as an important part of tax administration reform. These findings are consistent with the research of Zakiyah (2020), Sari and Erawati (2018), and Ningsih et al. (2019) which stated that E-Filing has a positive and significant effect on the quality of tax services. The results of this study are in line with (Zakiyah, 2020), (Sari & Erawati, 2018) and (Ningsih, D., Sari, F. R., & Heryenzus, H, 2019) showed that the implementation of e-Filing has a positive and significant impact on the Quality Level of Tax Services. However, the results of this study are not in line with the research conducted by (Kara, 2018) showing that the use of e-Filing does not affect the quality of service.

The Effect of E-Billing Implementation on the Tax Service Quality

The test results of table 6 show that E-Billing has a positive and significant effect on the quality level of tax services with a coefficient value of 0.257, T-statistic of 2.173, and P-value of 0.030 (<0.05). These findings show that the better the implementation of E-Billing, the higher the taxpayer's perception of the quality of tax services. The electronic tax payment system provides convenience, speed, and certainty in the payment process, thereby improving the efficiency of tax services and reducing administrative obstacles faced by taxpayers. These findings support the Technology Acceptance Model (TAM) which explains that the perception of benefits (*Perceived usefulness*) and ease of use (*Perceived ease of use*) encourage the adoption of technology by users. In the context of this study, the ease of use of E-Billing increases taxpayers' perception of the quality of tax services. Furthermore, the Theory of Planned Behavior (TPB) explains that the ease of access to electronic payment systems increases perceived behavioral control, so that taxpayers feel more able to fulfill their tax obligations independently. Based on Compliance Theory, the digitization of the tax payment system through E-Billing is part of the tax administration reform that aims to create more effective, transparent, and accountable services to encourage voluntary compliance. Although the quality of service in this study has not been proven to increase compliance directly, the implementation of E-Billing has been proven to be able to improve the quality of tax services. This finding is in line with the research of Isyarah (2018) and Rahayu (2019) which states that the implementation of E-Billing has a positive and significant effect on the quality of tax services. The results of this study are in line with (Isyarah, 2018) and (Rahayu, 2019) showed that the implementation of e-Billing had a positive and significant impact on the Quality Level of Tax Services. However, the results of this study are not in line (Pratama Putra, D., & Padriyansyah, 2019) which shows that the e-Billing system has no effect on the level of service satisfaction.

The Effect of the Implementation of E-SPT on the Tax Service Quality

The results of the test in Table 6 show that E-SPT has no significant effect on the level of quality of tax services with a coefficient value of 0.125, T-statistic of 1.098, and P-value of 0.272 (>0.05). These findings indicate that the implementation of E-SPT has not been able to increase taxpayers' perception of the quality of tax services. Although the E-SPT system is designed to make it easier to fill out and report Notification Letters (SPT) and minimize administrative errors, these benefits have not been fully felt by all taxpayers. This indicates that the effectiveness of E-SPT is still influenced by the level of user understanding, ease of system operation, and service support provided by tax authorities. These findings do not fully support the Technology Acceptance Model (TAM) which states that the perception of ease of use and benefits of technology drives system acceptance by users. In this study, the benefits of E-SPT are not strong enough to increase taxpayers' perception of service quality. Similarly, based on the Theory of Planned Behavior (TPB), low perceived behavioral control due to limited understanding and experience in using the system can reduce a positive assessment of the quality of tax services. From the perspective of Compliance Theory, the modernization of tax administration through E-SPT has not been able to have an optimal impact on service quality if it has not been followed by increasing digital literacy, continuous socialization, and technical assistance for taxpayers. This finding is in line with the research of Rahayu (2019) who stated that the implementation of E-SPT does not have a significant effect on the quality of tax services. The results of this study are in line with (Rahayu, 2019) showing that the implementation of E-SPT does not have an impact on the Quality Level of Tax Administration Services. However, the results of this study are not in line with (Zakiyah, 2020) and (Ningsih, D., Sari, F. R., & Heryenzus, H, 2019) showing that the e-SPT facility has a positive and significant impact on taxpayer satisfaction in reporting tax returns.

The Effect of E-Registration Implementation on Individual Taxpayer Compliance

The results of the test in Table 6 show that E-Registration has a positive and significant effect on the compliance of individual taxpayers with a coefficient value of 0.409, T-statistic of 4.761, and P-value of 0.000 (<0.05). These findings indicate that the better the implementation of E-Registration, the higher the level of taxpayer compliance. The ease of the NPWP registration process, data updates, and online tax administration is able to encourage taxpayers to fulfill their tax obligations more effectively. These findings support the Technology Acceptance Model (TAM) which states that the perception of ease of use (*Perceived ease of use*) and benefits (*Perceived usefulness*) increase the acceptance of technology by users. In this study, the ease of use of E-Registration increases the willingness of taxpayers to utilize electronic tax administration services. Furthermore, the Theory of Planned Behavior (TPB) explains that the ease of access to digital systems increases perceived behavioral control, so that taxpayers have greater confidence to carry out their tax obligations. The results of this study are also in line with Compliance Theory, which explains that voluntary compliance (*voluntary compliance*) can be improved through the provision of a simple, accessible, and efficient tax administration

system. Thus, the implementation of E-Registration not only supports the modernization of tax administration, but also contributes to increasing the compliance of individual taxpayers. These findings are consistent with the research of Sulistyorini et al. (2017), Isyarah (2018), Kania et al. (2017), and Ramdani (2019) which states that E-Registration has a positive and significant effect on individual taxpayer compliance. The results of the study are in line with (Sulistyorini, et al. 2017), (Isyarah, 2018), (Kania, et al, 2017) and (Ramdani 2019) show that the implementation of E-Registration has a positive and significant impact on Individual Taxpayer Compliance. However, the results of this study are not in line with (Zakiyah, 2020), (Rieza Adhitya Pradana, 2019) and (Larasdiputra, 2020) showing that the implementation of E-Registration does not have an impact on taxpayer compliance.

The Effect of E-Filing Implementation on Individual Taxpayer Compliance

The results of the test in Table 6 show that E-Filing has a positive and significant effect on the compliance of individual taxpayers with a coefficient value of 0.211, T-statistic of 2.725, and P-value of 0.006 (<0.05). These findings show that the better the implementation of E-Filing, the higher the level of compliance of taxpayers in fulfilling their tax obligations. The ease of electronic reporting of the Tax Return (SPT) allows taxpayers to submit their tax returns faster, more efficiently, and more flexibly, thereby encouraging increased compliance. These findings support the Technology Acceptance Model (TAM) put forward by Davis (1989), which states that the perception of benefits (*Perceived usefulness*) and ease of use (*Perceived ease of use*) is a major factor influencing the adoption of technology. In this study, the ease of use of E-Filing increases the willingness of taxpayers to report tax returns electronically. Furthermore, the Theory of Planned Behavior (TPB) (Ajzen, 1991) explains that the ease of use of the system increases perceived behavioral control, so that taxpayers feel more capable and confident in fulfilling their tax obligations. Based on Compliance Theory, the provision of digital-based tax services through E-Filing is a form of administrative reform that aims to increase voluntary compliance by reducing administrative obstacles in tax reporting. The results of this study show that E-Filing has contributed to increasing taxpayer compliance through ease of access, efficiency of the reporting process, and increased convenience in fulfilling tax obligations. These findings are consistent with the research of Zakiyah (2020), Sulistyorini et al. (2017), Sari and Erawati (2018), Afifi and Maria (2021), Kania et al. (2017), Larasdiputra (2020), and Solicha et al. (2019) which stated that E-Filing has a positive and significant effect on individual taxpayer compliance. The results of this study are in line with (Zakiyah, 2020), (Sari & Erawati, 2018), (Sulistyorini, et al. 2017), (Rieza Adhitya Pradana, 2019), (Afifi, M.A., & Maria, E, 2021), (Kania, P., et al, 2017), (Larasdiputra, 2020), (Solicha et al, 2019) and (Ramdani, 2019) show that E-Filing has a positive and significant impact on Taxpayer Compliance. However, the results of this study are not in line with (Isyarah, 2018), (Sari, N. W, 2021), (Arifin & Syafii, 2019) which shows that the implementation of E-Filing does not have an impact on the compliance of individual taxpayers.

The Effect of E-Billing Implementation on Individual Taxpayer Compliance

The results of the test in Table 6 show that E-Billing has no significant effect on the compliance of individual taxpayers with a coefficient value of -0.022, T-statistic 0.261, and P-value of 0.794 (>0.05). These findings indicate that the ease of use of E-Billing has not been able to encourage increased compliance of taxpayers in fulfilling their tax obligations. Although the E-Billing system is designed to simplify the tax payment process, the convenience has not directly affected the compliance behavior of taxpayers. The results of this study do not fully support the Technology Acceptance Model (TAM) which states that perceived *usefulness* and *perceived ease of use* encourage technology acceptance. In this study, the benefits of E-Billing were not strong enough to influence compliance behavior, indicating that other factors such as understanding procedures, digital literacy, and experience using the system are still obstacles for taxpayers. Furthermore, based on the Theory of Planned Behavior (TPB), low perceived behavioral control can cause taxpayers to not have adequate confidence to use E-Billing optimally. This condition shows that the convenience of technology alone is not enough to form compliant behavior if it is not followed by the ability and readiness of taxpayers to utilize electronic systems. From the perspective of Compliance Theory, *voluntary compliance* is not only influenced by the availability of digital payment facilities, but also by tax awareness, regulatory understanding, and trust in the tax administration system. Therefore, the implementation of E-Billing needs to be balanced with increasing digital literacy, tax education, and assistance in the use of the system in order to be able to have a more tangible impact on taxpayer compliance. These findings are in line with the research of Ningsih et al. (2019) and Afifi and Maria (2021) which shows that E-Billing does not necessarily have a significant effect on taxpayer compliance in certain contexts. The results of the study are in line with (Arifin & Syafii, 2019) showing that E-Billing has no impact on Individual Taxpayer Compliance. However, the results of this study are not in line with (Ambarrizky, R. L, 2017), (Sulistiyorini et al, 2017), (Sari, N. W, 2021) and (Ramdani, 2019) which show that the implementation of E-Billing has a positive and significant impact on individual taxpayer compliance.

The Effect of the Implementation of E-SPT on Individual Taxpayer Compliance

The test results in Table 6 show that E-SPT has no significant effect on the compliance of individual taxpayers with a coefficient value of 0.145, T-statistic of 1.890, and P-value of 0.059 (>0.05). Although the coefficient indicates the direction of a positive relationship, the influence has not yet reached the significance level of 5%. These findings indicate that the implementation of E-SPT has not been able to increase taxpayer compliance optimally. One of the reasons is that there are still taxpayers who have difficulty understanding the procedure for using the application and calculating taxes according to the provisions, so that the benefits of the system have not been felt to the maximum. These findings do not yet fully support the

Technology Acceptance Model (TAM) which states that the perception of benefits (*Perceived usefulness*) and ease of use (*Perceived ease of use*) will increase the acceptance of technology. In this study, the benefits of E-SPT are not strong enough to influence compliance behavior because the use of the system still requires adequate technical understanding. Furthermore, the Theory of Planned Behavior (TPB) explains that low perceived behavioral control can reduce taxpayers' confidence in using E-SPT, so that it has not consistently encouraged compliant behavior. From the perspective of Compliance Theory, taxpayer compliance is not only influenced by the modernization of the tax administration system, but also by the level of awareness, understanding of taxation, and the ability of taxpayers to utilize technology. According to (Pratiwi, 2020), taxpayer compliance is a behavior that is based on a taxpayer's awareness of his tax obligations while still being based on the laws and regulations that have been determined. Therefore, the implementation of E-SPT needs to be balanced with increasing digital literacy, simplifying the system, and tax education so that the benefits can be felt optimally and have an impact on increasing taxpayer compliance. This finding is in line with Pratiwi's (2020) research which shows that modernization of tax administration does not necessarily increase compliance if it is not supported by taxpayers' understanding and readiness in using electronic systems. The results of the study are in line with Larasdiputra, 2020), (Rizky & Amir, 2020) and (Wibowo, H., & Mahpudin, E, 2021) show that E-SPT has no impact on Individual Taxpayer Compliance. However, the results of this study are not in line with h (Zakiyah, 2020), (Wibawa & Hasibuan, 2021), (Kania, P., et al, 2017) and (Sulistyorini et al, 2017) show that E-SPT has a positive and significant impact on individual taxpayer compliance.

The Effect of Tax Service Quality on Individual Taxpayer Compliance

The results presented in Table 6 indicate that tax service quality does not have a statistically significant effect on Individual Taxpayer Compliance with p-value 0.745. This finding suggests that improvements in perceived tax service quality alone were not sufficient to directly increase taxpayer compliance among the respondents. From a theoretical perspective, this finding provides limited support for the Theory of Planned Behavior (Ajzen, 1991) which proposes that behavioural intentions are shaped by attitudes, subjective norms, and perceived behavioural control. In the context of this study, improvements in service quality may not have been sufficient to strengthen taxpayers' intentions to comply. Likewise, Compliance Theory suggests that voluntary compliance is influenced by multiple behavioural and institutional factors rather than service quality alone. Furthermore, the Technology Acceptance Model (TAM) implies that taxpayers may place greater emphasis on the perceived usefulness and ease of use of digital tax systems than on service quality itself when fulfilling their tax obligations. The present findings are consistent with those reported by (Pratiwi, 2020); (Zakiyah, 2020) who also found that Tax Service Quality did not significantly influence taxpayer compliance. However, they differ from the findings of (Isyarah, 2018; R. R. Sari & Erawati, 2018) which

reported a positive and significant relationship between service quality and taxpayer compliance. These inconsistent findings suggest that the relationship between Tax Service Quality and taxpayer compliance may depend on contextual factors, taxpayer characteristics, or institutional settings that were beyond the scope of this study. Future research is therefore encouraged to examine additional behavioural and technological variables, such as digital literacy, tax awareness, or technological readiness, to provide a more comprehensive explanation of taxpayer compliance.

The results of the test in Table 6 show that the level of quality of tax services does not have a significant effect on the compliance of individual taxpayers with a coefficient value of -0.017, T-statistic 0.325, and P-value of 0.745 (>0.05). These findings indicate that improving the quality of tax services has not been able to encourage an increase in taxpayer compliance directly. Although the services provided are getting better, taxpayers' decisions to fulfill their tax obligations seem to be more influenced by internal factors, such as tax awareness, tax knowledge, digital literacy, and motivation in fulfilling their obligations as citizens. These findings do not fully support the Theory of Planned Behavior (TPB) (Ajzen, 1991), which explains that individual behavior is influenced by attitudes, subjective norms, and perceived behavioral control. In this study, the quality of service has not been able to form the belief or intention of taxpayers to behave obediently. Similarly, from the perspective of Compliance Theory, voluntary *compliance* is not only determined by the quality of services provided by the tax authorities, but also by the level of awareness, understanding of tax regulations, and taxpayers' trust in the tax system. Meanwhile, the Technology Acceptance Model (TAM) provides an explanation that in the digital era, taxpayers tend to consider the convenience and benefits of electronic systems more than the quality of face-to-face services in fulfilling their tax obligations. These findings show that the modernization of tax administration through digital services has shifted the role of service quality as the main factor in shaping compliance. Therefore, the Directorate General of Taxes needs to combine improving service quality with tax education, increasing digital literacy, and strengthening taxpayer awareness so that compliance can increase sustainably. The results of this study are in line with Pratiwi (2020) and several previous studies that stated that service quality does not necessarily have a significant effect on taxpayer compliance when taxpayer behavior factors are more dominant. The results of the study are in line with (Zakiyah, 2020) showing that the Quality Level of Tax Services does not have an impact on the Compliance of Individual Taxpayers. However, the results of this study are not in line with (Sari & Erawati, 2018), (Isyarah, 2018) which shows that the quality of service has a positive and significant impact on taxpayer compliance.

The Effect of the Implementation of E-Registration on Individual Taxpayer Compliance through the Tax Services Quality

The results of the test in Table 7 show that the level of quality of tax services is not able to mediate the influence of E-Registration on the compliance of individual taxpayers, with a

coefficient value of -0.003, T-statistic 0.293, and P-value of 0.770 (>0.05). These findings show that the ease of use of E-Registration has not been able to increase taxpayer compliance through improving the quality of tax services. In other words, service quality is not a mechanism that explains the relationship between the implementation of E-Registration and taxpayer compliance. These findings do not fully support the Technology Acceptance Model (TAM) which explains that technology acceptance will result in positive behavior if the benefits of technology are truly felt by users. In addition, the Theory of Planned Behavior (TPB) indicates that even though taxpayers have the convenience of registering NPWP electronically, compliant behavior is still influenced by internal factors, such as tax awareness and perceived behavioral control, not solely by the quality of service received. From the perspective of Compliance Theory, voluntary compliance (*voluntary compliance*) is more influenced by the awareness and motivation of taxpayers in fulfilling tax obligations than the quality of administrative services alone. The results of this study indicate that the success of E-Registration in improving compliance does not depend on the quality of tax services, but is more determined by the readiness of taxpayers to utilize technology and the level of tax awareness. These findings reinforce that service quality has not played a mediating variable in the relationship between digitization of tax administration and taxpayer compliance. The results of the study are in line with (Zakiyah, 2020) and (Isyarah, 2018) showing that the Level of Tax Quality cannot mediate the influence of E-Registration on Individual Taxpayer Compliance. However, the results of this study are not in line with the research conducted by (Sulistiyorini, et al. 2017), (Isyarah, 2018), (Kania, et al, 2017) and (Ramdani 2019) show that the implementation of E-Registration has a positive and significant impact on Individual Taxpayer Compliance. And research conducted by (Sari & Erawati, 2018), (Isyarah, 2018) shows that the quality of service has a positive and significant impact on taxpayer compliance. This means that the level of quality of tax services can mediate the influence of E-Registration on the compliance of individual taxpayers.

The Effect of the Implementation of E-Filing on Individual Taxpayer Compliance through the Tax Services Quality

The results of the test in Table 7 show that the level of quality of tax services is not able to mediate the influence of E-Filing on the compliance of individual taxpayers, with a coefficient value of -0.004, T-statistic 0.304, and P-value of 0.762 (>0.05). This finding indicates that the ease of use of E-Filing has not been able to increase taxpayer compliance through improving the quality of tax services. In other words, service quality is not a mechanism that explains the relationship between E-Filing implementation and taxpayer compliance. These findings do not fully support the Technology Acceptance Model (TAM) which explains that the benefits and ease of use of technology will encourage user behavior if it is really felt by taxpayers. In addition, the Theory of Planned Behavior (TPB) explains that although E-Filing provides convenience in reporting tax returns, compliance behavior is still influenced by internal factors

such as perceived behavioral control, awareness, and taxpayer motivation. From the perspective of Compliance Theory, voluntary *compliance* does not only depend on the quality of service, but also on tax understanding, digital literacy, and taxpayers' commitment to fulfilling their tax obligations. The results of this study show that improving the quality of tax services has not been able to strengthen the influence of E-Filing on taxpayer compliance. Therefore, the optimization of E-Filing needs to be balanced with increasing digital literacy, tax education, and strengthening taxpayer awareness so that the benefits of digitizing tax administration can encourage compliance more effectively. The results of the study are in line with (Zakiyah, 2020) and (Isyarah 2018) showing that the Level of Tax Quality cannot mediate the influence of E-Filing on Individual Taxpayer Compliance. However, the results of this study are not in line with (Sari & Erawati, 2018) showing that the implementation of E-Filing has a positive and significant impact on taxpayer compliance through service quality.

The Effect of E-Billing Implementation on Individual Taxpayer Compliance through the Tax Services Quality

The results of the test in Table 7 show that the level of quality of tax services is not able to mediate the influence of E-Billing on the compliance of individual taxpayers, with a coefficient value of -0.004, T-statistic 0.302, and P-value of 0.763 (>0.05). This finding indicates that the ease of use of E-Billing in the tax payment process has not been able to increase taxpayer compliance through improving the quality of tax services. Thus, service quality is not a mechanism that explains the relationship between E-Billing implementation and taxpayer compliance. These findings do not fully support the Technology Acceptance Model (TAM) which explains that perceived *usefulness* and *perceived ease of use* will encourage technology acceptance if the benefits are truly felt by users. In this study, the ease of payment through E-Billing is not enough to form compliant behavior because it is still influenced by other factors, such as tax understanding, digital literacy, and the ability of taxpayers to fulfill their tax obligations. Furthermore, the Theory of Planned Behavior (TPB) explains that compliance behavior is more influenced by perceived behavioral control, attitudes, and intentions of taxpayers than the quality of services received. From the perspective of Compliance Theory, *voluntary compliance* is not only determined by the convenience of the electronic payment system, but also by the awareness, knowledge of taxation, and the commitment of taxpayers in fulfilling their obligations. The results of this study show that improving the quality of tax services has not been able to strengthen the influence of E-Billing on taxpayer compliance. Therefore, the successful implementation of E-Billing requires support in the form of increasing digital literacy, tax education, and sustainable socialization so that the benefits of the electronic payment system can be optimized in increasing taxpayer compliance. The results of the study are in line with (Isyarah, 2018) showing that the level of satisfaction cannot mediate the influence between E-Billing on taxpayer compliance. However, the results of this study are not in line (Ambarrizky, R. L, 2017), (Sulistyorini et al, 2017), (Sari, N. W, 2021)

and (Ramdani, 2019) show that the implementation of E-Billing has a positive and significant impact on individual taxpayer compliance. And research conducted by (Sari & Erawati, 2018), (Isyarah, 2018) shows that the quality of service has a positive and significant effect on taxpayer compliance. This means that the level of quality of tax services can mediate the influence of E-Billing on individual taxpayer compliance.

The Effect of the Implementation of E-SPT on Individual Taxpayer Compliance through the Tax Services Quality

The test results showed that the level of quality of tax services was not able to mediate the influence of E-SPT on the compliance of individual taxpayers, with a coefficient value of -0.002, T-statistic 0.221, and P-value of 0.825 (>0.05). These findings indicate that the implementation of E-SPT has not been able to increase taxpayer compliance through improving the quality of tax services. Thus, service quality is not a mechanism that explains the relationship between the implementation of E-SPT and taxpayer compliance. These findings do not fully support the Technology Acceptance Model (TAM) which explains that benefits (*perceived usefulness*) and perceived *ease of use* will encourage technology acceptance if they are truly felt by users. In this study, the ease of use of E-SPT is not enough to improve compliance through service quality, which indicates that there are still obstacles in the form of limited system understanding, digital literacy, and socialization of application use. Furthermore, the Theory of Planned Behavior (TPB) explains that compliance behavior is more influenced by perceived behavioral control, attitudes, and intentions of taxpayers than the quality of services received. From the perspective of Compliance Theory, voluntary *compliance* is not only determined by the modernization of the tax administration system, but also by the level of tax awareness, knowledge, and ability of taxpayers to utilize tax technology. The results of this study show that improving the quality of tax services has not been able to strengthen the influence of E-SPT on taxpayer compliance. Therefore, the optimization of E-SPT needs to be supported through system simplification, increasing digital literacy, continuous socialization, and technical assistance so that the implementation of the electronic tax administration system can encourage taxpayer compliance more effectively. The results of the study are in line with (Zakiyah, 2020) showing that the Level of Tax Quality cannot mediate the influence of E-SPT on the Compliance of Individual Taxpayers. However, the results of this study are not in line with the research conducted by (Zakiyah, 2020), (Wibawa & Hasibuan, 2021), (Kania, P., et al, 2017) and (Sulistiyorini et al, 2017) showing that the implementation of E-SPT has a positive and significant impact on taxpayer compliance. And research conducted by (Sari & Erawati, 2018), (Isyarah, 2018) shows that service quality has a positive and significant impact on taxpayer compliance.

4. CONCLUSION

The findings of this study indicate that E-Registration and E-Filing have positive and statistically significant effects on Individual Taxpayer Compliance, whereas E-Billing and E-SPT do not exhibit significant effects. Regarding Tax Service Quality, E-Registration, E-Filing, and E-Billing show positive and significant effects, while E-SPT does not significantly influence service quality. Furthermore, Tax Service Quality does not have a significant effect on Individual Taxpayer Compliance, indicating that it does not function as an effective mediating variable in the proposed research model. Consequently, the indirect effects of the electronic tax administration variables on taxpayer compliance through Tax Service Quality were not supported. These findings suggest that not all digital tax administration services contribute equally to improving taxpayer compliance. The significant effects of E-Registration and E-Filing highlight the importance of digital services that simplify taxpayer registration and tax return submission, whereas the effectiveness of E-Billing and E-SPT in promoting compliance requires further investigation. Future studies are encouraged to examine additional factors that may explain taxpayer compliance behaviour and to validate these findings across different taxpayer groups and institutional settings. Theoretically, this study enriches the study of Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Compliance Theory by showing that the adoption of tax technology can directly affect taxpayer compliance without having to go through the quality of tax services as a mediation mechanism. From a practical perspective, the Directorate General of Taxes needs to optimize the implementation of digital services through increasing digital tax literacy, simplifying electronic systems, more intensive socialization, and developing the competence of tax officers so that digital transformation can encourage taxpayer compliance in a sustainable manner.

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