
THE IMPACT OF E-FILING AND DIGITAL TAX ADMINISTRATION ON TAXPAYER COMPLIANCE IN EMERGING ECONOMIES: EVIDENCE FROM LOMBOK

M. Restu Bagus P¹

Universitas Gunung Rinjani, Nusa Tenggara Barat, Indonesia
Mrestu.student@ugr.ac.id

Sulkiah²

Universitas Gunung Rinjani, Nusa Tenggara Barat, Indonesia
sulkiah@ugr.ac.id

Abstract

Digital transformation has become a fundamental pillar of tax administration reform in many developing economies. This study investigates the impact of e-filing and digital tax administration on taxpayer compliance, with digital literacy as a moderating variable, using evidence from Lombok, Indonesia. A quantitative explanatory approach was employed using survey data from 92 taxpayers who had used e-filing for at least two consecutive years. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The findings reveal that e-filing has a significant positive effect on formal tax compliance ($\beta = 0.32$; $p < 0.01$), while digital tax administration significantly influences material compliance ($\beta = 0.28$; $p < 0.01$). Furthermore, digital literacy significantly moderates the relationship between digital tax administration and taxpayer compliance ($\beta = 0.21$; $p < 0.05$), indicating that taxpayers with higher digital literacy benefit more from digitalization. The model explains 56% of the variance in taxpayer compliance ($R^2 = 0.56$) with strong predictive relevance ($Q^2 = 0.41$). This study confirms that digital tax systems can effectively enhance compliance, provided that digital infrastructure and taxpayer literacy are adequately developed. The findings strengthen the applicability of the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) in digital taxation contexts. Practically, this study offers policy implications for the Indonesian Directorate General of Taxes (DJP) to enhance digital literacy education and optimize digital tax systems, especially in underdeveloped regions such as East Lombok.

Keywords: Digital Literacy, Digital Tax Administration, E-Filing, Taxpayer Compliance

INTRODUCTION

Digital transformation has become one of the main pillars in tax administration reform in various countries. Digitalization in the field of taxation, including the implementation of e-filing, is expected to increase efficiency, transparency, and taxpayer compliance (Xavier, 2019; Restoy, 2014. Gupta et al., 2020). In the context of developing countries, the issue of tax compliance is crucial because the tax ratio is relatively low compared to developed countries. Indonesia, for example, has a tax ratio of around 10–11% in the last decade, far below the OECD average of 33% (OECD, 2021; Acquah, 2025).

Tax compliance is influenced by various factors, ranging from the burden of compliance, perception of fairness, to the quality of tax administration services (IA Horodnic, 2018; Torgler, 2008). The implementation of e-filing is expected to reduce compliance costs by simplifying procedures, reducing direct contact between fiscal authorities and taxpayers, and minimizing corrupt practices (Purnamasari, 2020; Okunogbe, 2022, Hasnain, 2022). Empirical research in various countries shows that tax digitalization can increase state revenue while improving taxpayer compliance levels (L McKenzie, M Sinning, 2024; Mascagni et al., 2021, Santoro, 2020, C Nell, 2022).

However, the effectiveness of tax digitalization in developing countries is not always the same as in developed countries. Challenges such as low digital literacy, limited information technology infrastructure, and taxpayers' resistance to system changes can reduce the benefits of tax digitalization (Bird, 2008; N. N., 2024; Bird & Zolt, 2019; Gaspar & Leite, 2022). Therefore, a study based on local context is urgently needed to assess the extent to which the implementation of e-filing and digital tax administration really affects tax compliance.

Lombok, as one of the regions in Indonesia with rapid tourism-based economic growth and MSMEs, is an interesting context to study. Tax compliance rates in regions dominated by the informal sector are often lower, so the implementation of tax digitalization can provide a clearer picture of the effectiveness of policies on the ground. This case study can also make an important contribution to the international literature, particularly related to how digital tax reform works in developing economies with unique characteristics such as eastern Indonesia.

This study aims to: (1) Analyze the effect of the implementation of e-filing on taxpayer compliance in Lombok. (2) Examine the role of digital tax administration in improving formal compliance (on-time reporting) and material compliance (tax payment). (3) Provide evidence-based policy recommendations to increase the effectiveness of tax digitalization in developing regions.

This research not only contributes to the academic discourse on digital tax administration in developing countries but also provides practical implications for fiscal policymakers in Indonesia.

There is an urgent need to increase Indonesia's tax ratio through optimizing taxpayer compliance. The government's digital-based tax reform requires locally based empirical evidence to ensure its effectiveness, especially in developing areas such as Lombok. Without a comprehensive understanding of how taxpayers respond to e-filing and digital tax administration, fiscal reform policies have the potential to be suboptimal. Thus, this study not only closes the gap in the literature on digital tax administration in developing countries

but also provides strategic policy implications for Indonesian tax authorities in improving state compliance and revenue.

Although many studies affirm the benefits of tax digitalization, most studies still focus on developed country contexts or cross-country analysis (Gupta et al., 2020; OECD, 2021). Research based on local contexts in developing countries is still limited, especially related to: (1) The impact of e-filing on formal and material compliance simultaneously. (2) The role of digital literacy and infrastructure quality as moderation factors. (3) Regional contexts with the dominance of the informal sector and MSMEs, such as Lombok, which have unique challenges.

REVIEW OF LITERATURE

Digital Tax Administration and Fiscal Reform

Digitalization has revolutionized tax administration in many countries. According to Gupta et al. (2020), the application of digital technology in the fiscal system not only improves administrative efficiency but also expands the tax base through electronic transaction tracking. The OECD (2021) also emphasizes that the digital maturity of tax authorities is positively correlated with the effectiveness of tax collection.

In the context of developing countries, Bird and Zolt (2019) stated that tax digitalization can help overcome human resource limitations and reduce rent-seeking practices in tax administration. However, the limitations of information technology infrastructure are often an obstacle.

E-Filing and Tax Compliance

E-filing is one of the main innovations in digital tax administration. Empirical research shows that e-filing can lower compliance costs, increase transparency, and minimize errors in reporting (Okunogbe & Santoro, 2022).

A study by Fu et al. (2022) in China found that the adoption of a digital tax reporting system improves taxpayers' formal compliance. Similar findings were shown by Mascagni et al. (2021) in Rwanda, that ICT-based innovations (Information and Communication Technology) encourage taxpayers to report more in a timely manner.

However, some studies also note that the success of e-filing is highly dependent on taxpayers' digital literacy. In the context of developing countries, the digital literacy gap can be a significant obstacle (Gaspar & Leite, 2022).

Tax Compliance: Formal vs Material

The literature distinguishes tax compliance into two: formal compliance (timeliness and completeness of reporting) and material compliance (accuracy of the amount of tax paid) (Torgler, 2007).

Formal compliance tends to be easier to achieve through digital systems, as taxpayers are facilitated to report tax returns quickly and cheaply (Alabede et al., 2011). Material compliance is more complex, because it is related to tax morale, perception of justice, and trust in the government (Pomeranz, 2015).

Thus, tax digitization does not necessarily guarantee increased material compliance, especially if taxpayers' perceptions of fiscal fairness are low.

Moderation Factors: Digital Literacy and Infrastructure

Several recent studies emphasize that new tax digitization is effective if supported by taxpayers' digital literacy and adequate infrastructure (Okunogbe & Santoro, 2022). In Africa, for example, Mascagni et al. (2021) found that the success of digital systems is highly dependent on internet access and user understanding of taxation applications.

In the Indonesian context, uneven digital literacy, especially in developing areas such as Lombok, can be an important factor affecting tax compliance levels. In other words, digital literacy functions as a moderating variable that strengthens or weakens the influence of e-filing on taxpayer compliance.

1. Theory of Planned Behavior (TPB) – Ajzen (1991)

The SDGs explain that individual behavior (e.g. tax compliance) is influenced by attitudes, subjective norms, and perceptual behavior controls. In the context of taxation, the adoption of e-filing increases the control of perceptual behavior because taxpayers find it easier and able to carry out tax obligations.

2. Technology Acceptance Model (TAM) – Davis (1989)

TAM explained the acceptance of technology based on perceived usefulness and perceived ease of use. E-filing and digital tax administration are considered to increase the ease of reporting and reduce compliance costs, thus affecting both formal and material compliance.

3. Economic Deterrence Theory – Becker (1968); Allingham & Sandmo (1972)

This theory emphasizes tax compliance as the result of a rational calculation between tax avoidance benefits vs sanctions risks. Digitization increases the probability of detection and transparency, thereby reducing the incentive for non-compliance.

E-filing makes it easier for taxpayers to report tax returns, thereby increasing the timeliness of reporting. This is in accordance with empirical evidence: Fu et al. (2022); Mascagni et al. (2021).

H1: E-filing has a positive effect on taxpayers' formal compliance.

Digital Tax Administration → Material Compliance

Digital services (accessibility, speed, system reliability) increase taxpayers' trust in tax authorities. This encourages material compliance in the form of paying taxes according to the actual amount. Empirical evidence: Okunogbe & Santoro (2022).

H2: Digital tax administration has a positive effect on taxpayers' material compliance.

Digital Literacy as a Moderation Variable

Taxpayers with high digital literacy are better able to take advantage of e-filing, so the positive effect on compliance is stronger. Conversely, low literacy can reduce the effectiveness of digitalization. Empirical evidence: Gaspar & Leite (2022).

H3: Digital literacy moderates the relationship between digital tax administration and taxpayer compliance, making the relationship stronger in taxpayers with high digital literacy.

RESEARCH METHOD

This study uses an explanatory quantitative approach to analyze the influence of e-filing and digital tax administration on taxpayer compliance, with digital literacy as a moderation variable. This design was chosen because it is able to test the causal relationship

between variables through survey data and inferential statistical analysis (Creswell & Creswell, 2018).

The population in this study is all individual and corporate taxpayers registered at the Selong Pratama Tax Service Office, East Lombok. The sample of this study is 92 taxpayers, determined by the purposive sampling method, namely taxpayers who have used e-filing at least 2 times in a row.

The data collection technique uses primary data in the form of a survey with a Likert scale questionnaire (1–5) to taxpayers in Lombok. Secondary data is in the form of DGT annual reports, Lombok tax compliance data, international literature related to digital taxation.

This research adheres to the ethical principles of social research by maintaining the confidentiality of respondents' data, obtaining informed consent, and ensuring that data is used only for academic purposes.

This study uses Partial Least Squares – Structural Equation Modeling (PLS-SEM) with the help of SmartPLS 4 software. PLS-SEM was chosen because:

1. Suitable for small sample sizes (less than 100 respondents).
2. Able to process non-normal data and models with complex latent variables.
3. Focus on the analysis of predictive relationships between latent variables (Hair et al., 2017).

The hypothesis is tested based on the path coefficient value and the statistical significance of the bootstrapping results:

1. H1: E-filing → Taxpayer Compliance (positive and significant).
2. H2: Digital Tax Administration → Taxpayer Compliance (positive and significant).
3. H3: Digital Literacy moderates the influence of Digital Tax Administration → Taxpayer Compliance.

RESULTS AND DISCUSSION

Convergent Validity

Construct	Indicators	Loading Factor	Information
E-Filing (X1)	EF1	0.82	Valid
	EF2	0.87	Valid
	EF3	0.85	Valid
	EF4	0.72	Valid
	EF5	0.77	Valid
Digital Tax Administration (X2)	AD1	0.83	Valid
	AD2	0.88	Valid
	AD3	0.81	Valid
	AD4	0.71	Valid
	AD5	0.70	Valid
Digital Literacy (M)	LD1	0.80	Valid
	LD2	0.86	Valid
	LD3	0.84	Valid
	LD4	0.81	Valid

	LD5	0.87	Valid
Taxpayer Compliance (Y)	KP1	0.85	Valid
	KP2	0.89	Valid
	KP3	0.83	Valid
	KP4	0.88	Valid
	KP5	0.82	Valid

Source: Pls in processing

All loading factors > 0.70 mean they meet the convergence validity requirements. Of the 10 statements in the variable indicator, only 5 items are valid and that is the basis for further processing.

Construct	Cronbach's Alpha	Composite Reliability	AVE
E-Filing (X1)	0.83	0.89	0.71
Digital Tax Administration (X2)	0.85	0.90	0.72
Digital Literacy (M)	0.84	0.89	0.70
Taxpayer Compliance (Y)	0.87	0.92	0.74

All constructs are reliable with Cronbach's Alpha and Composite Reliability values > 0.70.

Hypothesis Testing

Hypothesis	Jalur	Path Coefficient	t-statistic	p-value
H1	E-Filing → Taxpayer Compliance	0.32	3.45	0.001
H2	Digital Tax Administration → Taxpayer Compliance	0.28	2.89	0.004
H3	Digital Literacy × Digital Tax Administration → Taxpayer Compliance	0.21	2.36	0.018

1. E-Filing (H1) has a positive and significant effect on taxpayer compliance ($\beta = 0.32$, $p < 0.01$). This shows that the easier and more useful the use of e-filing is, the higher the level of formal compliance of taxpayers in East Lombok.
2. Digital Tax Administration (H2) had a significant positive effect ($\beta = 0.28$, $p < 0.01$). This means that the quality of the DGT's digital services encourages taxpayers to be more compliant materially.
3. Digital Literacy (H3) can moderate the influence of digital tax administration on taxpayer compliance ($\beta = 0.21$, $p < 0.05$). With high digital literacy, taxpayers will get greater benefits from the tax digital system so that compliance increases.

Based on the output results, the PLS-SEM model has been proven to be valid and reliable. The results of this study support the theory that tax digitalization is effective in increasing compliance, especially if supported by good digital literacy from the community.

Based on the analysis of PLS-SEM with 92 taxpayer respondents in East Lombok, the following results were obtained:

1. E-Filing had a significant positive effect on taxpayer compliance ($\beta = 0.32$; $t = 3.45$; $p < 0.01$).

2. Digital tax administration had a significant positive effect on taxpayer compliance ($\beta = 0.28$; $t = 2.89$; $p < 0.01$).
3. Digital literacy moderated the influence of digital tax administration on taxpayer compliance ($\beta = 0.21$; $t = 2.36$; $p < 0.05$).

The research model was able to explain the 56% variability of taxpayer compliance ($R^2 = 0.56$), with strong predictive relevance ($Q^2 = 0.41$).

1. The Effect of E-Filing on Taxpayer Compliance

The results of the study show that the use of e-filing has a positive effect on taxpayer compliance. This is in line with research by Gupta et al. (2020) and Okunogbe & Santoro (2022) which found that digitizing taxation lowers compliance *costs* through simplifying procedures and accelerating reporting.

In East Lombok, respondents felt that e-filing helped them report their tax returns more easily and on time, thereby increasing formal compliance. This reinforces the Technology Acceptance Model (TAM) theory that *perceived ease of use* and *perceived usefulness* encourages more compliant technology usage behavior (Davis, 1989).

2. The Effect of Digital Tax Administration on Taxpayer Compliance

The findings of this study show that the quality of digital tax administration services contributes significantly to the material compliance of taxpayers. Service accessibility, transparency, and reliable systems make taxpayers more confident in tax authorities.

These results are consistent with the research of Mascagni et al. (2021) which confirms that digital tax administration increases taxpayer trust and reduces tax avoidance practices. In addition, these results confirm the view of Bird & Zolt (2019) who stated that tax digitalization can be an effective strategy to increase the tax ratio in developing countries.

3. The Role of Digital Literacy Moderation

This study found that digital literacy strengthens the relationship between digital tax administration and taxpayer compliance. Taxpayers with high digital literacy find it easier to understand procedures, access information, and utilize technology-based tax services.

These findings support the research of Gaspar & Leite (2022) which emphasizes that the success of tax digitalization in developing countries is largely determined by the level of digital literacy of the community. The digital literacy of East Lombok respondents has proven to be a differentiating factor for respondents with a better understanding of technology and more compliant than those who are still experiencing technical difficulties.

4. Theoretical and Practical Implications

Theoretically, this study enriches the digital taxation literature in developing countries by showing that tax compliance is not only influenced by the digital system itself, but also by the digital literacy of the community.

Practically, the results of the study provide implications for the Directorate General of Taxes (DGT), namely:

1. It is necessary to expand digital literacy education for taxpayers, especially in areas with low technology adoption rates.
 2. Improving the quality of e-filing systems and digital services to be more inclusive and easier to use by MSMEs and the informal sector.
- ✓ Making tax digitalization a strategy to improve Indonesia's tax ratio, especially in developing areas such as East Lombok.

CONCLUSION

The results of this study demonstrate that e-filing has a significant positive effect on taxpayer compliance, particularly in enhancing formal compliance. Similarly, digital tax administration exerts a significant positive influence on taxpayer compliance, especially in terms of material compliance. Moreover, digital literacy serves as a moderating variable that strengthens the relationship between digital tax administration and taxpayer compliance. Overall, the research model successfully explains 56% of the variation in taxpayer compliance, indicating a strong predictive relevance. These findings confirm that the digitalization of taxation effectively enhances taxpayer compliance, yet its success is largely dependent on the level of digital literacy among the public.

In terms of policy implications, the study highlights the importance of strengthening digital tax literacy, especially through intensive education programs led by the Directorate General of Taxes (DGT) in regions with low technological adoption such as East Lombok. Providing simple training, online learning modules, and community-based consultation services can enhance taxpayers' ability to navigate digital systems effectively. Furthermore, improving the quality, stability, security, and accessibility of e-filing systems is essential, alongside developing more user-friendly interfaces to accommodate MSMEs and the informal sector. Given that East Lombok's economy is predominantly driven by MSMEs, specific policies should be designed to support their transition toward digital tax systems, such as offering tax incentives, simplifying reporting procedures, and providing technical assistance. In addition, leveraging technology to promote transparency can build public trust in tax authorities; developing applications that feature notifications, status tracking, and interactive communication will enhance the overall taxpayer experience.

Academically, this research addresses a significant gap in the literature regarding tax digitalization in developing countries and contributes empirically to understanding how digital literacy influences the effectiveness of digital tax administration. From a policy standpoint, the findings serve as a strategic foundation for the DGT to strengthen the national tax ratio through inclusive and literacy-oriented digitalization initiatives. Therefore, this study not only enriches theoretical discussions within the digital taxation domain but also provides substantial practical implications for the formulation of fiscal policies in Indonesia.

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