

# Does Taxpayer Supervision Affect Compliance and Tax Revenue? Evidence from Indonesia

Frederik Halomoan Tambunan<sup>a\*</sup> and Antonius Ragil Kuncoro<sup>b</sup>

<sup>a</sup>*Polytechnic of State Finance STAN, frederik\_4132230030@pknstan.ac.id, Indonesia*

<sup>b</sup>*Polytechnic of State Finance STAN, ant\_ragil\_kun@pknstan.ac.id, Indonesia*

**Abstract.** Taxpayer supervision is one of the key strategies employed by the Directorate General of Taxes to ensure taxpayer compliance and optimize tax revenue. Motivated by questions regarding the effectiveness of this strategy, this study aims to analyze the impact of three types of supervisory activities—Requests for Clarification of Data and/or Information (P2DK), Field Data Collection (KPDL), and Issuance of Tax Collection Letters (STP)—on tax revenue and tax compliance, as well as to examine the mediating role of tax compliance. The novelty of this study lies in the use of a quantitative, panel data approach at the national level, integrating all three forms of tax supervision as independent variables. The quantitative approach analysis is based on panel data from 259 selected Tax Service Offices (KPP) in Indonesia for the period 2021–2023, obtained through purposive sampling. The results show that P2DK has a significant positive effect on both tax revenue and compliance, while STP only affects tax revenue. In contrast, KPDL does not exhibit a significant influence on either. Furthermore, tax compliance significantly increases revenue but does not mediate the relationship between the supervisory activities and tax revenue. These findings suggest that P2DK is the most effective supervisory instrument for simultaneously enhancing tax revenue and compliance. These findings suggest that P2DK is the most effective tool for simultaneously enhancing compliance and optimizing revenue. Policy implications include prioritizing P2DK in supervision strategies, improving the quality and follow-up of KPDL data, and adopting the approaches used in P2DK for both STP issuance and KPDL procedures.

Keywords: kpd, p2dk, stp, tax compliance, taxpayer supervision

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\*Corresponding author. E-mail: frederik\_4132230030@pknstan.ac.id

## Introduction

The tax ratio is commonly used as a performance indicator to evaluate the effectiveness of a country's tax system (Wahyuningsih & Setyowaty, 2020). OECD (2024) show that Indonesia's tax ratio increased from 10.9% in 2021 to 12.1% in 2022. However, from a broader perspective, this achievement remains far below expectations. For comparison, the average tax ratio in Asia-Pacific countries is 19.3%, while in OECD member countries it reaches 34.0%. Lewis (2019) estimated that Indonesia should be capable of achieving a tax ratio of up to 22%, suggesting a substantial tax gap that must be addressed through improved taxpayer compliance and more effective supervision.

Indonesia applies a self-assessment tax system, which entrusts taxpayers to calculate and report their own tax obligations. Nevertheless, various studies indicate that tax compliance in Indonesia is still largely driven by enforcement rather than voluntary compliance (Cahyonowati, 2011; Sjahrir et al., 2020). Policies such as tax amnesty and the Voluntary Disclosure Program (PPS) reflect this approach. Therefore, strengthening supervision remains a key strategy to enhance both compliance and revenue.

Tax return filing compliance, often referred to as formal compliance, is commonly used as a proxy for overall taxpayer compliance, given that assessing material compliance or the actual income that should be reported is complex and challenging at scale (IRS, 2022). The trend of Indonesia's annual tax return (SPT) filing compliance ratio from 2019 to 2023 illustrates ongoing challenges. Although there has been a year-on-year increase (2019: 73.06%; 2020: 77.63%; 2021: 84.07%; 2022: 86.80%; 2023: 86.97%), the compliance ratio has yet to meet its target and even shows a slowdown in growth in the latest year.

Alm (2019), within the framework of behavioural economics, identifies three strategic paradigms to improve tax compliance and optimize revenue: increasing the probability of audits and sanctions (enforcement paradigm), improving taxpayer services (service paradigm), and building trust in tax authorities (trust paradigm).

Given the limited number of tax officials relative to the number of taxpayers, the Directorate General of Taxes (DGT) cannot audit every taxpayer. Thus, strengthening pre-audit compliance and supervision functions has become a strategic policy to optimize tax revenue (Ministry Of Finance, 2023). Unlike audits,

which emphasize enforcement, taxpayer supervision tends to adopt a more persuasive approach.

Several supervision activities are implemented at the tax office level, three of which are the focus of this study: (1) requests for clarification of data and/or information (P2DK), (2) field data collection (KPDL), and (3) issuance of tax collection letters (STP). P2DK begins with the analysis of data or information by an account representative (AR). If the AR identifies noncompliance or potential underreporting, a Request for Clarification Letter (SP2DK) is issued in the hope that the taxpayer will respond and rectify the issue.

To ensure the effectiveness of supervision activities like P2DK, DGT requires accurate and reliable data. However, the prevalence of informal transactions necessitates direct field investigations. This is where KPDL plays a role: a data collection initiative conducted directly in the field by tax officers. Additionally, administrative sanctions, such as STP issuance, serve as an enforcement tool intended to deter noncompliance, in line with the economic deterrence or enforcement paradigm (Alm, 2019). STPs are expected to influence taxpayer behavior regarding tax payments and SPT filing (DGT, 2024).

DGT's Performance Reports from 2021 to 2023 indicate that the performance indicators for P2DK resolution (P4DK) and STP issuance consistently exceeded national targets. However, the Audit Board of Indonesia (BPK), through its Compliance Audit Reports on Taxpayer Supervision for 2021 and 2022, revealed several anomalies in the implementation of P2DK and STP. These include the issuance of multiple SP2DKs for the same taxpayer and tax period, unresolved SP2DKs that lapsed, and lost revenue potential due to unissued STPs. These findings raise an important question: *Do these supervision activities (P2DK, KPDL, and STP) truly align with and contribute to the organization's objectives (improving taxpayer compliance and increasing tax revenue)?*

Motivated by this question, this study aims to evaluate the impact of taxpayer supervision activities, specifically P2DK, KPDL, and STP, on tax revenue, with taxpayer compliance serving as a mediating variable. This study differs from prior research by simultaneously examining the influence of these three supervisory activities, rather than focusing solely on a general measure of supervision or a single activity. Furthermore, it employs secondary data representing the actual performance of the Directorate General of Taxes, with a sample drawn from tax offices across Indonesia. As such, the findings are expected to better reflect the nationwide impact of these activities and

offer insights for enhancing taxpayer supervision as a strategy to optimize tax revenue.

## Literature Review

### *Tax Compliance*

The OECD (2014) defines tax compliance as the degree to which taxpayers conform to the tax laws of their respective countries. Under a self-assessment system, where taxpayers are fully responsible for calculating and reporting their tax obligations, compliance plays a critical role in achieving state revenue targets. The risk aversion theory by Allingham & Sandmo (1972) posits that the decision to pay taxes involves weighing the risk of penalties against the potential benefit of noncompliance. Since taxes are perceived as an economic burden, not all individuals will comply voluntarily without the possibility of sanctions or monitoring.

The Internal Revenue Service (IRS) measures compliance using three primary indicators: filing compliance, reporting compliance, and payment compliance. In Indonesia, the most commonly used indicator is the formal compliance ratio which can be defined as the proportion of Annual Tax Returns (SPT) filed relative to those required to file. This indicator is analogous to the IRS's filing rate and is referenced in the DGT's Strategic Plan 2019–2024. Formal compliance is more widely applied because measuring material compliance, i.e., the income that should have been reported, is more complex and difficult to carry out on a large scale (IRS, 2022).

### *Economic Deterrence and Behavioural Economics*

Allingham & Sandmo (1972) describe tax compliance decisions as something occur under conditions of uncertainty. Taxpayers who underreport income do not face immediate consequences unless audited. Thus, noncompliance becomes a rational option. Their model implies that compliance decisions are influenced by the trade-off between benefits (represented by tax rates) and costs (represented by the probability of detection and penalties). Higher tax rates incentivize evasion, whereas increased audit likelihood and penalties reduce noncompliance. Based on this model, compliance can be improved primarily through stricter enforcement or a concept known as economic deterrence.

However, over time, economic deterrence theory has proven insufficient to fully explain real-world taxpayer behavior. Subsequent research has incorporated psychological and behavioural factors, giving rise to

the behavioural economics approach. This theory holds that individuals are not always rational, self-interested, or outcome-oriented. Factors such as perceived fairness, tax morale, and social norms significantly influence compliance behavior.

Building on this view, Alm (2019) categorizes three general paradigms for improving compliance. The first is the enforcement paradigm, which aims to increase the likelihood of detection and punishment for noncompliance. Policy instruments include enhancing audit quality and quantity, improving audit selection systems, raising penalties, inter-agency data sharing, publicizing tax evasion cases, and strengthening taxpayer registration through third-party data.

The second is the service paradigm, which focuses on improving taxpayer services in a more client-friendly manner, such as tax education, filing assistance, mobile services, website improvement, and tax system simplification. This paradigm emphasizes treating taxpayers as clients rather than suspects. The third is the trust paradigm, which aims to foster a culture of tax compliance as an ethical norm. Strategies include promoting ethical codes between tax officials and taxpayers, increasing transparency, and reducing perceived injustices in tax administration.

### *Taxpayer Supervision Activities*

Taxpayer supervision refers to a set of monitoring and educational activities aimed at achieving sustainable tax compliance (SE-05/PJ/2022). The Directorate General of Taxes (DGT) performs this function through Account Representatives (ARs) stationed in Tax Offices (KPP).

Supervision activities encompass four main aspects: (1) formal compliance review, (2) material compliance review, (3) requests for clarification of data and/or information (P2DK), and (4) taxpayer visits. In addition, supervision also involves Field Data Collection (KPDL) as regulated in SE-11/PJ/2020, aimed at expanding the tax base. Data collected from unregistered taxpayers are used for extensification, while those from registered taxpayers support potential exploration (intensification).

### *Research Hypotheses*

In a self-assessment tax system, taxpayers are responsible for calculating, reporting, and paying their own tax obligations. Consequently, tax authorities must rely on supervisory mechanisms to ensure that taxpayers comply with tax regulations. According to the economic deterrence theory developed by Allingham & Sandmo (1972), taxpayers make

compliance decisions by comparing the benefits of tax evasion with the expected costs, which depend on the probability of detection and the magnitude of penalties. Increasing the likelihood of monitoring and sanctions can therefore discourage noncompliance and improve tax revenue.

From this perspective, supervisory activities conducted by the DGT can be interpreted through the enforcement paradigm, which emphasizes monitoring, detection, and penalties to influence taxpayer behavior (Alm, 2019). Supervisory activities such as Requests for Clarification of Data and/or Information (P2DK), Field Data Collection (KPDL), and the issuance of Tax Collection Letters (STP) represent mechanisms through which tax authorities increase the visibility of enforcement and encourage taxpayers to fulfill their obligations.

P2DK is initiated when tax officers identify discrepancies between taxpayer reports and available data. Taxpayers who fail to respond to clarification requests may subsequently be subject to further enforcement actions, such as tax audits. This process increases the perceived probability of detection and may encourage taxpayers to report their tax obligations more accurately. Previous studies indicate that supervisory mechanisms such as P2DK can increase tax payments and improve tax revenue (Afe et al., 2022; Alamien et al., 2023). Therefore, P2DK activities are expected to contribute positively to tax revenue.

H<sub>1</sub> : P2DK have a significant positive effect on tax revenue.

In addition to influencing tax revenue directly, supervisory activities may also affect taxpayer compliance behavior. P2DK is designed as a persuasive tool (nudge), offering taxpayers the opportunity to improve their compliance with their obligations before a formal audit is initiated, which considered fairer rather than being an audit subject directly (Genio Septianto & Saptono, 2025; Wardana, 2019). This process fosters interaction, education, and consultation, promoting understanding and encouraging voluntary compliance. It is aligned with the behavioural economics perspective which suggests that interactions between tax authorities and taxpayers can influence attitudes toward compliance and increase awareness of tax obligations (Alm, 2019). When taxpayers receive clarification requests from tax authorities, they may become more cautious in reporting their tax obligations and more likely to comply with filing requirements in the future. Thus, P2DK activities are expected to improve taxpayer compliance.

H<sub>2</sub> : P2DK has a significant positive effect on tax compliance.

Another supervisory activity implemented by the DGT is Field Data Collection (KPDL), which involves gathering information about taxpayers' economic activities directly from the field. In environments where informal economic activities are prevalent and third-party information is limited, field data collection can help tax authorities obtain more accurate information regarding taxpayer activities. From the enforcement perspective, the visibility of monitoring may discourage tax evasion and encourage taxpayers to report their income more accurately. As previous study by Zaman (2022) found that the KPDL activities can increase the tax revenue, therefore in this research we expected that the KPDL activities can also significantly have positive effect on tax revenue.

H<sub>3</sub> : KPDL has a significant positive effect on tax revenue.

Furthermore, KPDL activities often involve direct interaction between tax officers and taxpayers. These interactions may include providing information, reminders, or assistance related to tax obligations (Rahim, 2022). Such activities reflect elements of the service paradigm, which emphasizes improving taxpayer understanding and support in fulfilling their obligations (Alm, 2019). Through education and reminders, KPDL may also encourage taxpayers to comply with tax regulations.

H<sub>4</sub> : KPDL has a significant positive effect on tax compliance.

In addition to monitoring activities, the issuance of Tax Collection Letters (STP) represents a formal enforcement instrument used to impose administrative sanctions on taxpayers who violate tax regulations. According to economic deterrence theory, financial penalties increase the expected cost of noncompliance and may discourage taxpayers from delaying or avoiding their tax obligations (Allingham & Sandmo, 1972). In the Indonesian tax system, penalties collected through STP also contribute directly to government revenue. Previous studies have shown that tax sanctions can increase tax revenue through the collection of administrative penalties (Arisandi et al., 2015; Meidhawati et al., 2019). Therefore, STP issuance is expected to positively affect tax revenue.

H<sub>5</sub> : STP issuance has a significant positive effect on tax revenue.

However, beyond their financial impact, sanctions may also influence taxpayer behavior. When taxpayers perceive that noncompliance will result in penalties, they may be more likely to comply with tax regulations to avoid additional costs. Consequently, STP issuance is also expected to influence taxpayer compliance.

H<sub>6</sub> : STP issuance has a significant positive effect on tax compliance.

Tax compliance itself plays a crucial role in determining the effectiveness of tax systems, particularly in countries implementing self-assessment regimes. When taxpayers comply with reporting and payment obligations, governments can collect tax revenues more effectively. Formal compliance, commonly measured through the timely submission of annual tax returns, reflects taxpayers' willingness to fulfill their obligations. Previous research has consistently found that higher levels of tax compliance are associated with increased tax revenue (Alamien et al., 2023; Basrowi, 2020). Therefore, improved tax compliance is expected to contribute to higher tax revenue.

H<sub>7</sub> : Tax compliance has a significant positive effect on tax revenue.

Finally, supervisory activities may influence tax revenue not only directly but also indirectly through their effect on taxpayer compliance. In this mechanism, supervision first affects taxpayer behavior, which subsequently influences the amount of tax paid to the government. When supervisory activities encourage taxpayers to comply with their obligations, the resulting increase in compliance may ultimately enhance tax revenue. While previous studies suggest that taxpayer compliance can not mediate the relationship between tax administration activities and tax revenue Afe et al. (2022), in this study we try to propose that the tax compliance can mediate the effect of tax supervision activities on tax revenue.

H<sub>8</sub> : Tax compliance mediates the effect of P2DK on tax revenue.

H<sub>9</sub> : Tax compliance mediates the effect of KPDL on tax revenue.

H<sub>10</sub> : Tax compliance mediates the effect of STP issuance on tax revenue.

## Research Methods

This study employs a quantitative approach, which involves the use of numerical data and statistical analysis techniques (Sugiyono, 2015). The data used

are secondary data spanning the period from 2021 to 2023 and sourced from the Directorate General of Taxes (DGT).

The population of the study comprises tax supervision implementing units, namely Tax Offices (KPP). The sample selection used a purposive sampling technique, which involves selecting samples based on specific criteria. Two criteria were applied: (1) the selected KPP must conduct all three tax supervision activities covered in this study—Request for Clarification of Data and/or Information (P2DK), Field Data Collection (KPDL), and issuance of Tax Collection Letters (STP); and (2) the KPP must not contain data classified as outliers.

There are 352 KPP units throughout Indonesia. However, 51 of them—comprising Large Taxpayer Offices, Special Tax Offices, and KPP Madya—do not conduct KPDL activities and were thus excluded from the sample. This left 301 Primary Tax Offices (KPP Pratama) eligible for analysis. Among these, 42 KPPs were found to have at least one variable with a z-score below -3 or above 3, which qualified them as outliers. Outliers are defined as observations with large residuals relative to others, which can distort regression models due to their distance from the fitted regression line (Gujarati & Porter, 2012).

According to Yaro et al. (2023), various methods can be applied to minimize the impact of outliers on regression models. The simplest and most common approach—especially when the data pool is large—is removal of the outliers. Therefore, to improve model validity, these 42 KPPs were excluded, resulting in a final sample of 259 KPPs for observation over the 2021–2023 period as illustrated in Table 1.

Table 1  
Research Sample Selection

Criteria	Total	Unit
Tax Offices conducting taxpayer supervision activities	352	units
Tax Offices not conducting KPDL activities	(51)	units
Tax Offices with outlier data	(42)	units
Total sample	259	units
Number of years	3	years
Number of observations	777	observations

Source: processed by the authors

Tax revenue is measured using the realized net revenue received by each KPP in the respective year, representing actual revenue transferred to the state treasury. To reduce variance and improve normality, the variable is transformed into its natural logarithm (Ln) form. This transformation is consistent with prior

studies (Hartanti et al., 2018; Inriama & Setyowati, 2020; Sinurat, 2023).

Tax Revenue (LN\_TAX)=ln(Net Tax Revenue)

P2DK activity is measured using the Success Rate of SP2DK (SRP2DK), calculated as the ratio between the realized revenue from SP2DK and the initial tax potential identified by the Account Representative (AR). According to Prof. Haula Rosdiana (Komwasjak Instagram Live, February 2, 2022), this is the most appropriate metric to assess SP2DK's contribution to tax compliance and revenue. This proxy is also used by Parmono (2016).

$$\text{Success Rate P2DK (SRP2DK)} = \frac{\text{Realized SP2DK Revenue}}{\text{Initial SP2DK Potential}}$$

KPDL and STP are measured based on output volume which were the number of KPDL forms submitted and the number of STPs issued, respectively.

KPDL (KPDL)=Number of KPDL Forms

STP (STP)=Number of STPs Issued

Tax compliance is represented by the formal compliance ratio, calculated as the percentage of annual tax returns (SPT) submitted on time compared to the number of taxpayers obligated to submit them. This proxy was also used by Afe et al. (2022).

$$\text{Tax Compliance (TC)} = \frac{\text{Number of Timely Annual SPTs}}{\text{Total Taxpayers Required to Submit Annual SPTs}}$$

The conceptual research model is illustrated in Attachment 1.

To examine both direct and indirect effects of the independent variables on the dependent variable, the study applies two regression models as follows:

Model 1 (Effect on Tax Compliance):

$$TC_{it} = \alpha_1 + \beta_1(SRP2DK)_{it} + \beta_2(KPDL)_{it} + \beta_3(STP)_{it} + \varepsilon_{it}$$

Model 2 (Effect on Tax Revenue):

$$\ln(TAX)_{it} = \alpha_2 + \beta_4(SRP2DK)_{it} + \beta_5(KPDL)_{it} + \beta_6(STP)_{it} + \beta_7(TC)_{it} + \varepsilon_{it}$$

Note:

LN\_TAX : Tax revenue  
SRP2DK : Success rate of SP2DK

KPDL : number of KPDL forms  
STP : number of STPs issued (PPh Art. 25/29)  
TC : tax compliance  
 $\alpha$  : intercept  
 $\beta$  : regression coefficient  
 $\varepsilon$  : error term  
i : tax office unit  
t : observation year

## Results and Discussions

### *Descriptive Statistics*

This study applied the winsorization method to the research data. Winsorization is a technique used to address outliers in data distribution by replacing extreme values (outliers) with the nearest values that are not considered outliers, resulting in a more normalized data distribution (Reifman & Garrett, 2010). Winsorization was applied to four variable: SRP2DK<sub>it</sub>, KPDL<sub>it</sub>, STP<sub>it</sub>, and TC<sub>it</sub>. The variable LN\_TAX<sub>it</sub> was not winsorized as the normality test showed that the original (pre-winsorized) data had a higher probability of normal distribution than the winsorized data. The descriptive statistics after winsorization are presented in Attachment 2.

As shown in Attachment 2, from 777 observations across 259 selected samples, the average LN\_TAX<sub>it</sub> was 27,67, equivalent to IDR 1.041 billion during 2021–2023, with a minimum of 25,68 (IDR 142 billion), a maximum of 29,62 (IDR 7.308 billion), and a median of 27,71 (IDR 1.082 billion). The skewness value being less than 0 indicates a negatively skewed distribution, meaning most data points lie on the right-hand side (higher values). The kurtosis value being below 3 suggests a flatter and broader distribution (platykurtic) (Gujarati & Porter, 2012), implying greater variance and fewer outliers. The normality test produced a probability of 0,21 (>0,05), indicating that the LN\_TAX<sub>it</sub> data are normally distributed. Meanwhile, TC<sub>it</sub> values ranged from 0,368 to 1,014, with an average of 0,633, indicating that 63,3% of taxpayers who are obligated to submit annual tax returns did so on time. SRP2DK<sub>it</sub> values ranged from 0,011 to 0,428, with an average of 0,137. KPDL<sub>it</sub> values ranged from 369 to 1.972, averaging 994, while STP<sub>it</sub> values ranged from 545 to 10.096, with an average of 3.363. This variation reflects the differences among tax offices.

The skewness, kurtosis, and normality probabilities for SRP2DK<sub>it</sub>, KPDL<sub>it</sub>, STP<sub>it</sub>, and TC<sub>it</sub> show similar characteristics: positive skewness, kurtosis greater than

3, and normality probabilities below the 0,05 threshold. This means the data are positively skewed (more low-value data points), leptokurtic (peaked), and not normally distributed.

#### Selection of Regression Model

Three tests were conducted to determine the most appropriate panel regression model: the Chow test, Lagrange Multiplier (LM) test, and Hausman test. As shown in 2, the fixed effect model (FEM) was selected for both models.

Table 2  
Results of Regression Model Selection

Model	Tests	CEM	FEM	REM
2	Chow		✓	
	LM			✓
	Hausman		✓	
	Selected Model		✓	
2	Chow		✓	
	LM			✓
	Hausman		✓	
	Selected Model		✓	

Source: processed by the authors

#### Classical Assumption Test

To ensure the regression model meets the BLUE criteria, tests for multicollinearity, heteroskedasticity, autocorrelation, and normality were conducted. As illustrated in the 3, both models showed no multicollinearity issues but did exhibit heteroskedasticity and autocorrelation. Normality test results varied, with Model 1 not normally distributed and Model 2 normally distributed.

The Central Limit Theorem (CLT) supports the validity of non-normal distributions in large samples. According to Gujarati & Porter (2012), normality becomes less critical with more than 100 observations. Given the 777 observations from 259 samples in this study, it can be assumed the data follow a normal distribution.

Heteroskedasticity and autocorrelation issues were addressed using robust standard errors, which adjust the standard error without changing regression

Table 3  
Classical Assumption Test Results

Classical Assumption	Model 1	Model 2
No Multicollinearity	✓	✓
Homoskedasticity	✗	✗
No Autocorrelation	✗	✗
Normally Distributed	✓	✗

Source: processed by the authors

coefficients. This was implemented using the STATA command: *xtreg, fe cluster ()* (Hoechle, 2007).

#### Statistical Test

Attachment 3 presents the regression results using the fixed effect model and robust standard errors. The adjusted R<sup>2</sup> value indicates that model 1 explains 49,02% of the variance in tax compliance through P2DK, KPDL, and STP, while model 2 explains 91,78% of the variance in tax revenue through the same variables plus tax compliance. F-statistics probabilities for both models were below the 5% significance threshold (0,0436 and 0,0000), indicating significant simultaneous effects of the independent variables.

STATA's two-tailed significance values were converted to one-tailed values (divided by two) to match the study's one-tailed hypotheses. Using a 5% significance level ( $\alpha = 0,05$ ), model 1 showed that P2DK significantly affects tax compliance, while KPDL and STP do not. In model 2, P2DK and STP significantly affect tax revenue, but KPDL does not.

Sobel test results in 4 showed that tax compliance does not mediate the effect of any independent variables on tax revenue, as all z-scores were below 1,96 or had p-values above 0,05.

Table 4  
Sobel Test Results

	SRP2DK	KPDL	STP
a	0,127455	-0,000015	-0,000002
b	0,266188	0,266188	0,266188
S <sub>a</sub>	0,044794	0,000015	0,000002
S <sub>b</sub>	0,108849	0,108849	0,108849
z	1,854631	-0,889208	-0,621734
p	0,063649	0,373892	0,544822

Source: processed by the authors

#### The Effect of P2DK Activities on Tax Revenue and Tax Compliance

The statistical tests indicate that P2DK activities have a significant positive effect on both tax revenue and tax compliance. This suggests that enhancing the effectiveness of P2DK can lead to higher tax revenues and greater compliance. This finding aligns with studies by Afe et al. (2022) and Alamien et al. (2023), which also showed positive impacts of taxpayer supervision (measured through P2DK) on tax outcomes.

These findings highlight the strategic importance of early-stage supervisory interventions in tax administration. Unlike audits, which are costly and limited in coverage, P2DK allows tax authorities to address potential noncompliance through communication-based enforcement. The result suggests that relatively low-cost supervisory instruments can generate substantial improvements in both compliance and revenue. For tax administrations operating under limited resources, this finding indicates that strengthening data-driven clarification mechanisms may provide a cost-effective alternative to expanding audit capacity.

P2DK emphasizes not only law enforcement but also service and trust-building. A communicative approach from tax officers is crucial. Rivani & Cheisviyanny (2023) found that taxpayers respond better when officers explain errors transparently rather than moving directly to collection. The consultative nature of P2DK also facilitates taxpayer education, reducing reporting or calculation errors.

Furthermore, P2DK allows taxpayers to correct their records before undergoing formal audits. This reduces negative perceptions of an overly strict or unfair tax system. Thus, P2DK acts not only as a repressive tool but also as a preventive and educational strategy to enhance voluntary compliance.

#### *The Effect of KPDL Activities on Tax Revenue and Tax Compliance*

The statistical tests revealed that KPDL does not significantly affect tax revenue or compliance. In other words, increasing the number of KPDL forms does not significantly raise revenues or compliance. This contrasts with Zaman (2022), who found a positive effect in KPP Pratama Mamuju.

The absence of a significant effect suggests that supervision activities focused solely on data collection may not be sufficient to influence taxpayer behaviour unless they are integrated with enforcement or follow-up mechanisms. In practical terms, KPDL activities must be embedded within a broader compliance management framework that ensures collected data are actively used for compliance risk analysis and enforcement actions.

Tax compliance supervision under intensification involves analysis or verification that compares the taxpayer's fulfillment data with third-party data. Such reference data are typically made available in the *Approweb* application to be followed up with P2DK activities by Account Representatives (ARs). However, in practice, the utilization of KPDL data as trigger data

for the 2021–2023 period remains hindered by system integration challenges. The DJP's systems have not yet accommodated the transfer of data from the applications used to record KPDL outcomes into the *Approweb* system. In other words, data collected through KPDL are not automatically updated into *Approweb* and therefore risk being underutilized by tax officers for compliance analysis—especially when the KPDL data are obtained by officers who are not the assigned AR of the concerned taxpayer.

On the other hand, the contribution of KPDL to tax revenue through extensification is also still limited. From a total of 35,934 new taxpayers registered through extensification between January and September 2022, only 4,184 (approximately 11,6%) proceeded to make tax payments (IKPI, 2022). Furthermore, the results of these extensification efforts were not categorized based on data source (KPDL or non-KPDL).

Data quality remains a critical factor in determining the success of KPDL. The collected data should be of high relevance and usability to inform follow-up research or action. However, current KPDL performance indicators focus primarily on quantitative aspects—namely, the number of forms recorded on time in the system. As a result, there is little incentive for officers to collect data that are truly meaningful in enhancing compliance and revenue.

The lack of follow-up actions on KPDL data through P2DK or audits limits its contribution to tax compliance from the enforcement paradigm. Consequently, taxpayers subject to KPDL may not perceive it as a credible enforcement threat. Meanwhile, from a service-oriented perspective, the educational and assistive components that often accompany KPDL activities show promise. Nevertheless, such elements are not yet formally institutionalized under SE-11/PJ/2020. In reality, education regarding tax return filing, billing code generation, and payment procedures can be highly effective in fostering voluntary compliance. Therefore, strengthening the educational role of KPDL within its operational procedures could serve as a strategic step aligned with the DJP's service-based approach.

This study offers several constructive recommendations. First, KPDL standard operating procedures (SOPs) should formally mandate taxpayer education and assistance. For instance, when tax officers identify registered taxpayers who have not submitted their annual tax returns, they should be required to provide relevant education or assistance. Second, improving the quality of collected data can be

pursued through layered validation and the incorporation of data quality weighting into performance assessments. This would encourage officers to actively seek and report actionable data. Third, the system used to record KPDL forms should be integrated with *Approweb* to facilitate proper data follow-up. Lastly, regular monitoring of KPDL data utilization can serve as a feedback mechanism to support systemic improvements going forward (Matabean & Juwono, 2021).

#### *The Effect of STP Issuance on Tax Revenue and Tax Compliance*

The statistical tests confirm that STP issuance significantly increases tax revenue. This result is consistent with Meidhawati et al. (2019) and Arisandi et al. (2015), who also found a significant revenue effect. This is because late tax return submission penalties (IDR 100.000 for individuals and IDR 1.000.000 for corporations) are collected as revenue under Article 7 of the General Tax Provisions and Procedures Law (UU KUP). The effectiveness is partly due to the possibility of active collection by state tax bailiffs (JSPN), as stated in Article 9(3) of UU KUP.

However, STP issuance does not significantly affect compliance. This finding implies that financial penalties may function primarily as a revenue-generating instrument rather than a behavioral compliance tool. While STP contributes directly to tax revenue through administrative sanctions, its limited influence on compliance behavior suggests that penalties alone may not be sufficient to change taxpayer attitudes toward compliance.

Cynthia & Djauhari (2020) and Nurhadi & Usman (2018) also found that penalties are ineffective when taxpayer awareness is low and enforcement weak. Ndlovu & Schutte (2023) noted that fines are often seen as business costs, not deterrents. Some taxpayers perceive that paying penalties at a later time is more advantageous than submitting their tax returns on time, as the funds that should be used for tax payments can instead be used to alleviate their cash flow shortages during that period.

The IRS's Taxpayer Advocate Service IRS (2013) recommends that penalties should be preceded by taxpayer communication to improve future compliance. This aligns with the psychological tax contract concept (Feld & Frey, 2006), which emphasizes trust-building over strict enforcement.

Thus, although STP issuance has proven effective in increasing tax revenue, additional approaches based on service and trust can serve as complementary strategies

to foster voluntary compliance. One alternative is to integrate proactive communication with taxpayers before or after the issuance of an STP, so that the collection process becomes more human-centered and promotes sustainable compliance

#### *The Effect of Tax Compliance on Tax Revenue*

Statistical test results indicate that tax compliance has a significant positive effect on tax revenue. This implies that an increase in formal compliance—specifically, the timely submission of annual tax returns—can contribute to higher revenue collection at tax offices. This finding is consistent with those of Alamien et al. (2023) and Basrowi (2020).

The results also support the risk aversion theory, which posits that tax revenue is inherently influenced by the extent to which taxpayers are willing to comply with tax regulations. When taxpayers choose to comply, they tend to report accurate income and pay any outstanding tax liabilities. Therefore, enhancing tax compliance directly improves revenue performance.

Moreover, this study confirms that taxpayers' willingness to submit their annual tax returns on time (formal compliance) is a crucial factor in optimizing tax revenue. According to Article 9 of the General Tax Provisions and Procedures Law (UU KUP), taxpayers are required to settle their tax dues based on reported income before filing their annual returns. Consequently, if a taxpayer decides not to submit a return, it widens the tax gap, as defined by Brown & Mazur (2003).

In addition, once a tax return is received by the KPP, tax officers can perform a compliance review by cross-checking reported income against third-party data. The sooner returns are filed, the sooner these verifications can be conducted. This enables the tax office to determine appropriate follow-up actions—such as issuing a reminder letter, initiating an audit, or adopting other compliance strategies—to optimize tax collection outcomes.

#### *The Mediating Role of Tax Compliance*

Sobel test results showed no significant mediation effect of tax compliance on the relationship between supervision activities (P2DK, KPDL, and STP) and tax revenue. This aligns with Afe et al. (2022). According to Jose (2013), mediation requires significant relationships among all three links: independent to dependent, independent to mediator, and mediator to dependent. Meanwhile, this study found that KPDL did not significantly affect tax compliance and revenue,

and despite STP influencing revenue, it did not affect compliance.

Furthermore, even though P2DK significantly affects both tax revenue and tax compliance, the Sobel test still indicates no significant mediating effect. According to Jose (2013), if all three variables demonstrate significant relationships, but the Sobel test does not confirm mediation, the researcher must accept the null hypothesis ( $H_0$ ) and acknowledge that the mediator variable explains only a minimal (insignificant) portion of the effect. This study supports that conclusion.

This finding suggests that the impact of supervision on tax revenue may occur primarily through direct administrative enforcement rather than through gradual behavioural changes in taxpayer compliance. In other words, supervisory instruments may generate revenue through immediate corrective actions, additional assessments, or penalties rather than through long-term improvements in voluntary compliance. This implies that while supervisory activities are effective in increasing tax revenue in the short term, strengthening strategies that foster sustainable voluntary compliance remains essential for long-term revenue performance.

P2DK and STP issuance manifests directly through higher tax payments without needing to first improve taxpayer compliance. P2DK primarily aims to extract tax potential through correspondence or consultation with taxpayers, with the ultimate goal of increasing revenue. While this process may indirectly enhance formal compliance by encouraging timely submission of tax returns, the effect is statistically insignificant. Similarly, STP issuance can increase revenue without necessarily improving compliance. Since STPs are legally enforceable sanctions, taxpayers are obligated to pay the penalties regardless of whether their compliance behaviour improves. Therefore, STP-induced payments occur even in the absence of changes in taxpayer behaviour regarding timely filing.

## Conclusion

This study aimed to examine the effect of taxpayer supervision activities on tax revenue in Indonesia. Supervision was operationalized through three independent variables: P2DK (Request for Explanation of Data and/or Information), KPDL (Field Data Collection), and the issuance of STP (Tax Collection Letters). Additionally, the study assessed whether tax compliance mediates the effect of each of these supervision activities on tax revenue.

The results reveal that P2DK has a significant positive effect on both tax revenue and tax compliance, indicating that enhancing the effectiveness of P2DK can simultaneously improve both outcomes. Conversely, KPDL does not have a significant impact on either tax revenue or tax compliance, suggesting that merely increasing the volume of KPDL activities may not directly enhance tax administration performance. The issuance of STP has a significant positive impact on tax revenue but not on tax compliance. Tax compliance itself is found to have a significant positive impact on tax revenue. However, tax compliance does not mediate the relationship between the three supervision activities (P2DK, KPDL, and STP) and tax revenue. These findings indicate that P2DK and STP can directly boost revenue without necessarily increasing formal compliance beforehand.

## Implications

Enhancing the scope and completion of P2DK follow-up activities can be prioritized in DGT's supervision strategies. Efforts to improve KPDL should focus on elevating data quality by refining performance indicators to include qualitative aspects, strengthening supervisory validation, and integrating KPDL data into *Approweb* to facilitate its use in compliance research, SP2DK issuance, or audits. To further encourage voluntary compliance, DJP could formalize the roles of taxpayer education and assistance in KPDL operational procedures. Regarding STP issuance, complementary strategies that are service and trust-oriented, such as behavioural nudges or proactive communication with taxpayers may help foster more sustainable compliance.

Beyond its practical implications for tax administration, this study contributes to the development of taxation research in several ways. First, it enriches the tax compliance literature by distinguishing between different forms of taxpayer supervision rather than treating supervision as a single construct. By examining P2DK, KPDL, and STP separately, the findings demonstrate that supervisory instruments influence taxpayer behaviour and tax revenue through different mechanisms, providing a more nuanced understanding of tax administration practices. The results also support the behavioural economics perspective in tax compliance research, as the significant effect of P2DK on compliance suggests that communication-based supervision and clarification mechanisms can effectively influence taxpayer behaviour alongside traditional enforcement measures.

In addition, the absence of a mediating role of tax compliance indicates that certain supervisory instruments may affect tax revenue directly rather than through behavioural changes. This finding expands theoretical discussions on tax compliance by suggesting that administrative interventions can influence revenue outcomes independently of long-term compliance improvements. Furthermore, by using panel data from tax offices across Indonesia, this study contributes empirical evidence to the literature on tax administration in developing countries, providing insights into operational tax supervision mechanisms that remain relatively underexplored in taxation studies.

### Limitations

This study has several limitations. First, the observation period spans only three years (2021–2023), which may not sufficiently reflect long-term trends. Second, proxy variables were constrained by the availability of secondary data. For instance, tax compliance was measured solely through formal compliance (timely filing of returns), although true compliance should also include material aspects. Moreover, the success of P2DK was not differentiated between taxpayers who had or had not previously filed, potentially affecting the accuracy of its influence on compliance. Similarly, the impact of STP issuance on compliance was assessed only within the same fiscal year, whereas it may be more appropriate to analyze its effects on subsequent years' behavior.

Future research is encouraged to use alternative proxies for tax compliance, extend the time horizon, consider qualitative or experimental approaches, and incorporate additional independent variables, such as taxpayer education, audits, and collection measures to further strengthen the explanatory power of the research model.

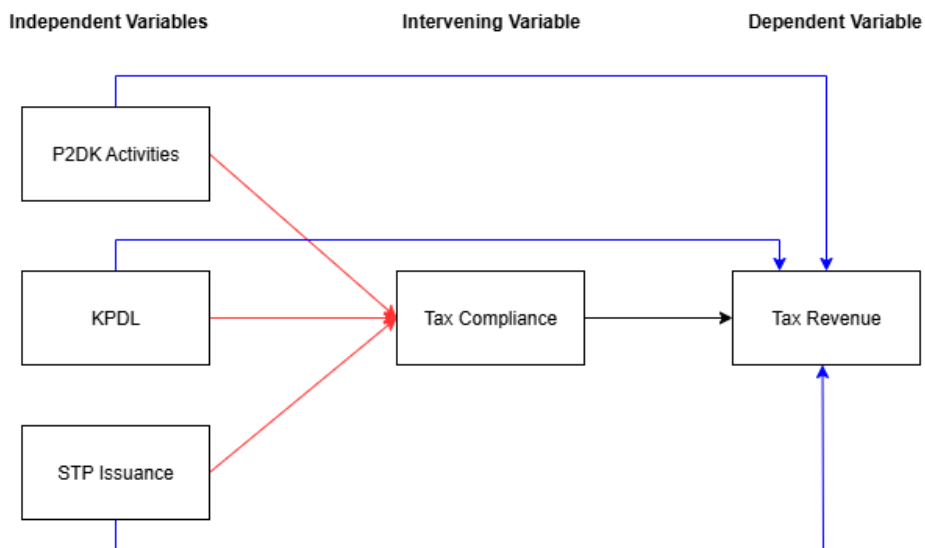
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**Attachment**

Attachment 1  
Research Model



Attachment 2  
Statistic Descriptive

Var.	LN_TAX <sub>it</sub>	SRP2DK <sub>it</sub>	KPDL <sub>it</sub>	STP <sub>it</sub>	TC <sub>it</sub>
Obs	777	777	777	777	777
Mean	27,67	0,137	994,297	3363,873	0,633
Median	27,71	0,117	954	2926	0,628
Std. Dev.	0,69	0,091	334,888	2022,756	0,120
Min	25,68	0,011	369	545	0,368
Max	29,62	0,428	1972	10096	1,014
Skewness	-0,030	1,135	0,5508	1,065	0,369
Kurtosis	2,66	3,999	3,025	3,9149	3,462
Prob.	0,21	0,000	0,000	0,000	0,000

Source: processed by the authors using Stata 18

Attachment 3  
Regression Test Results

Model	X	Y	Coefficient	P>t (1-tailed)	Prob>F	R <sup>2</sup>	Adj. R <sup>2</sup>
1	TC	SRP2DK	0,1274553	0,0025	0,0436	0,6617	0,4902
		KPDL	-0,0000147	0,1700			
		STP	-0,0000015	0,2600			
		_cons	0,6351623	0,0000			
2	LN_TAX	SRP2DK	0,2782283	0,0055	0,0000	0,9455	0,9178
		KPDL	0,0000520	0,0765			
		STP	0,0000147	0,0050			
		TC	0,2661884	0,0075			
		_cons	27,3633200	0,0000			

Source: processed by the authors using Stata 18