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## Article

# Managing taxpayer compliance: Reflections on the drivers of willingness to pay taxes in times of crisis

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## Managing taxpayer compliance: Reflections on the drivers of willingness to pay taxes in times of crisis

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## ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

# Managing taxpayer compliance: Reflections on the drivers of willingness to pay taxes in times of crisis

Ismail Khozen<sup>1</sup> and Milla Sepliana Setyowati<sup>2\*</sup>

**Abstract:** Throughout the COVID-19 pandemic, the Indonesian government has taken proactive measures to meet the needs of COVID-19 survivors by allocating substantial funds, primarily sourced from tax contributions, to support healthcare and social welfare. This study examines the drivers of willingness to pay taxes of individuals who survived COVID-19 in Greater Jakarta. We performed the study by collecting data from 411 individuals using a combination of traditional paper-based and online survey instruments. The findings indicate that several factors, including the tax system's complexity, the dissemination of tax information, taxpayer morale, trust in the government, and the perceived worth of COVID-19-related expenditures, play a significant role in influencing individuals' willingness to pay taxes. On the other hand, factors such as tax penalties, fairness of the tax system, and tax knowledge may not necessarily have a significant impact. However, utilising tax fairness and tax knowledge to predict regulatory compliance yields expected results, indicating a broader requirement for implementing more complex tax procedures and ensuring broader aspects of tax compliance. The results largely validate the main extended behavioural perspectives. The study also offers the theoretical and policy implications of these findings and provides suggestions for future research in the field.

**Subjects:** Economic Psychology; Organizational Communication; Business, Management and Accounting

**Keywords:** Tax compliance; tax structure; tax education; tax perception; willingness to pay taxes; COVID-19; Indonesia

### 1. Introduction

This paper aims to investigate the factors that influence the willingness of COVID-19 survivors in Indonesia to pay taxes. Our objective is to provide valuable information for policymakers and tax authorities regarding tax compliance management during times of crisis. To achieve this goal, we analyse both economic deterrence and psychological factors that impact attitudes toward tax payment behaviour using behavioural economic theory (Alm et al., 2020; Fischer et al., 1992; Vincent & Ntim, 2021).

A few analyses of tax compliance since the onset of the crisis have focused on conceptualising the tax compliance framework (Alm et al., 2020; Utami & Ilyas, 2021), rather than providing empirical evidence from affected individuals. The limited body of literature examining the impact of behavioural economic instruments on taxpayers during the COVID-19 pandemic has primarily focused on ordinary individual taxpayers and citizens (Hartmann et al., 2022; Kireçtepe & Açıkgöz, 2022; Mascagni & Santoro, 2023). It appears that Asmoro (2023) is the only study to specifically investigate the unique circumstances of working women in light of pandemic-related issues, where in this case is working women. There is a lack of research on taxpayers' willingness to pay taxes (WTP) who have recovered from COVID-19 with behavioural economic theory. This study aims to address this gap and applies it specifically to Indonesia. By integrating both economic and behavioural factors, we anticipate that the insights derived from the study findings will be relevant for understanding tax payment compliance.

WTP is a critical issue for governments worldwide as it directly affects their ability to fund public goods and services, such as healthcare, education, and infrastructure (Ali et al., 2014). Therefore, tax compliance is essential in achieving the state's goal of providing equitable welfare distribution. The concept of tax compliance refers to the degree to which taxpayers fulfil their tax obligations, including timely filing and payment of taxes (James & Alley, 2002; Kirchler et al., 2008). Conversely, noncompliance refers to any behaviour that deviates from the legal requirements of tax laws, such as underreporting income or evading taxes (Allingham & Sandmo, 1972). Despite the importance of tax compliance, research has shown that achieving high levels of compliance is challenging, especially amid economic downturns (Batrancea et al., 2022).

The COVID-19 pandemic has significantly impacted economies and societies worldwide (Batrancea et al., 2022; Hartmann et al., 2022), including Indonesia. The Indonesian government has implemented various measures to handle the pandemic, such as lockdowns, travel restrictions, and financial assistance programs for affected individuals and businesses (OECD, 2021a; Saptono & Khozen, 2022). The government measures implemented during the COVID-19 pandemic can significantly impact the tax compliance behaviour of individuals who have survived the virus. These survivors often receive distinct benefits and programs, including access to free healthcare services related to the virus. These unique circumstances differentiate them from the general taxpayer population and may influence their attitudes and actions regarding tax compliance. Accounting for these circumstances can contribute to a more comprehensive understanding of their willingness to pay taxes.

The country's regulatory setting may also play a role in shaping tax compliance behaviour. Indonesia has a progressive tax system with multiple tax regimes and regulations that can be complex and burdensome for individual taxpayers to navigate. Additionally, tax compliance in Indonesia has been reported to be relatively low, with issues such as corruption, lack of trust in the government, and perceived unfairness of the tax system affecting taxpayers' willingness to comply (Mietzner, 2020; Rosid et al., 2016; Saptono et al., 2023). Therefore, investigating how the government measures to handle the COVID-19 pandemic in Indonesia may influence tax compliance among COVID-19 survivors which can provide valuable insights into the relationship between government policies, regulatory environment, and tax compliance behaviour.

The current study seeks to make theoretical and practical contributions to the existing literature. Firstly, it is the pioneering research to apply behavioural economic theory in predicting tax compliance in times of COVID-19 crisis. Previous studies focusing on tax compliance in specific individual contexts have primarily relied on economic deterrence theory, the slippery slope framework, and the theory of planned behaviour, without considering the amalgamation of economic deterrence and broader social-psychological factors. Hence, this study has the potential to expand the scope of behavioural economic theory by providing insights into the behavioural dimensions of WTP. Secondly, this study lays the foundation for developing a research model concerning tax compliance during high-risk circumstances such as pandemics

and economic crises. Considering that COVID-19 survivors have directly experienced the importance of public expenditure on healthcare and emergency services, their perception of the value of public spending and their willingness to pay taxes is likely to have been influenced. This can contribute to the ongoing discourse in the tax compliance literature regarding challenging situations. Thirdly, this study addresses the participants' perception of the importance of receiving benefits in exchange for paying taxes, which is pivotal in fostering their willingness to comply. This aspect holds significant relevance as the conventional understanding of taxation, including the provisions outlined in Indonesian tax laws, is often associated with the notion of "no direct return on benefits." Lastly, the findings of this study can offer valuable guidance to policymakers in formulating effective tax policies. By incorporating appropriate strategies that encourage tax contributions, tax authorities can benefit from the insights obtained from this study.

## 2. Background

During the COVID-19 crisis, the government encountered a heightened urgency to depend heavily on tax revenue as a vital funding source for numerous government programs, specifically those to address the crisis. However, the pandemic has substantially impacted tax revenue, historically constituting over 65% of the Indonesian government's total expenditure in recent decades. As the Audit Board of the Republic of Indonesia (BPK, 2022) reported, tax revenue plummeted to just 49.5% in 2020 and 55.5% in 2021. This sharp decline in tax revenue has raised concerns about the government's ability to adequately finance the necessary economic and health measures required to effectively combat the COVID-19 pandemic. Daily news reports on the increasing number of positive COVID-19 cases have become routine information disseminated across nearly all national media outlets, which further compels the government to respond and take action in addressing the ongoing crisis.

The Indonesian government, however, has responded to previous concerns by taking concrete measures to address the crisis and support affected households. For example, they have implemented social safety net programs and healthcare policies aimed at assisting COVID-19 survivors and covering their treatment expenses at designated hospitals. In the early days of the pandemic, the Minister of Health issued Decree No. HK.01.07/MENKES/238/2020 on the Technical Guidelines for Claiming Reimbursement of Treatment Costs for Specific Emerging Infectious Disease Patients, which establishes criteria for patients whose treatment costs can be claimed by hospitals from the government. These criteria apply to both Indonesian citizens and non-Indonesian citizens receiving treatment within the territory of the Republic of Indonesia, and they include:

1. Persons Under Monitoring (ODP)
  - a. ODP aged over 60 years with or without underlying diseases.
  - b. ODP aged less than 60 years with underlying diseases.
2. Patients Under Surveillance (PDP)
3. Confirmed positive for COVID-19 cases.

The Indonesian government has proactively addressed the needs of COVID-19 survivors and has allocated substantial funds to support their healthcare and social welfare. According to the Ministry of Health, the number of hospital claims for handling COVID-19 in 2020 and 2021 was IDR 40.6 trillion (approximately USD 2.67 billion) and IDR 90.2 trillion, respectively (Ministry of Health, 2022/02/13). This increase in claims in 2021 can be attributed to the rising number of COVID-19 cases compared to the previous year, with 1.7 million cases addressed with state support in 2021. The inclusion of taxpayers who are also COVID-19 survivors in research on tax compliance is of particular interest due to the significant government attention they have received during the pandemic, particularly with the funds derived from tax contributions.

By examining the regulatory, reform, and policy landscape concerning the COVID-19 pandemic in Indonesia, this study aims to provide insights into the factors that influence individuals' willingness to comply with their tax payment obligations. This research is particularly relevant because taxes are obligatory payments made to the government without expecting immediate and proportionate benefits in return (Alem & Tewabe, 2022). This aligns with the definition stated in Article 1 number 1 of the Law on General Provisions and Tax Procedures in Indonesia. Taxpayers may exhibit reluctance in fulfilling their tax responsibilities since there are no direct benefits associated with taxes. Considering the multitude of benefits individuals have received from the government amidst the COVID-19 crisis, it is intriguing to explore their inclination towards active participation in tax payments. Thus, the primary objective of this study is to provide valuable insights into the underlying factors that motivate individuals' willingness to contribute.

### 3. Theoretical framework

Due to its broad nature, researchers define tax compliance in different ways, depending on their study's objectives and nature. One definition of tax compliance is presented by Allingham and Sandmo (1972), who use the economic deterrence theory, initially derived from the economics of crime model proposed by Becker (1968). Tax compliance, as defined by Allingham and Sandmo, refers to the act of reporting one's actual income to the tax authorities under uncertain circumstances. The foundation of their model lies in the understanding that when individuals submit a tax return, they are making a decision amidst uncertainty, driven by the potential for an audit by tax authorities and the potential adverse outcomes resulting from unreported income. Despite being the most popular model for academic research and policy-making, many empirical evidence in this area does not support the model (Bergman, 2002; Taing & Chang, 2020). The lack of support could be explained by the link between tax compliance and social and psychological factors that shape people's attitudes and beliefs, ultimately affecting their compliance behaviour (Devos, 2014).

Regarding the inclination of risk-based theories to support a coercive approach to tax compliance, there has been an increasing endorsement of integrating non-risk-based approaches (Akhand & Hubbard, 2016). Advocates of the latter contend that relying exclusively on economic rationality to address tax noncompliance assumes that taxpayers are either gamblers or criminals (Cowell, 2004). They further argue that in the long term, only mutually agreed-upon exchanges of resources will ultimately succeed (Timmons, 2005; Tool & Samuels, 1989). Psychological and sociological theories are commonly used in non-risk-based analyses, emphasising the persuasive elements of tax compliance (Akhand & Hubbard, 2016). These theories underscore the personal and social factors that impact tax compliance behaviour (Devos, 2014; Taing & Chang, 2020). The integration of risk-based (economic) and non-risk-based (behavioural) factors that contribute to tax noncompliance behaviour is referred to as behavioural economics theory in certain literature (Alem & Tewabe, 2022; Vincent & Ntim, 2021). A study conducted by Vincent and Ntim (2021) on tax noncompliance behaviour among SMEs in Nigeria utilised a theory derived from the Fischer Model of taxpayer compliance (Fischer et al., 1992).

According to Roth et al. (1989), who took a social and psychological perspective, tax compliance refers to the "accurate reporting of tax liability" (p. 20). Long and Swingen (1991, p. 641) reviewed Roth et al.'s work and added two important components for modern income tax laws, which are "filing all required returns on a timely basis" and "paying all taxes when due." The latter definition of tax compliance is in line with and rooted in what Kirchler (2007) identified as "taxpayers' willingness to pay their taxes" (p. 21). Thus, the willingness to pay taxes is an essential, if not the most crucial, component of tax compliance itself.

Notwithstanding the significance of tax compliance, scholarly investigations have revealed the arduous nature of attaining elevated levels of compliance (Batrancea et al., 2022). To comprehend people's willingness to pay taxes, it is essential to consider a strategy that focuses not only on economic deterrence but also on improving services for taxpayers and cultivating a culture of



customer service within the tax administration (Mardhiah et al., 2023). More recently, a socio-psychological theory encompassing both sociological and psychological factors has also been frequently considered to assess their impacts on taxpayer compliance. For instance, Devos (2014) identified that several factors, including tax morals, tax fairness, and to a lesser extent, tax law enforcement, tax penalties, and tax awareness, influence compliance behaviour. These variables have a direct and indirect impact on compliance. In addition to the previously identified variables, Youde and Lim (2019) and Taing and Chang (2020) have found that trust in tax authorities and tax complexity are significant determinants of willingness to pay taxes. However, their empirical analysis weakly supports the notion of power of authority, tax information, and tax awareness. In a study conducted by Onu et al. (2019), the psychological factors influencing tax compliance behaviour were examined. It was found that individuals who engage in tax avoidance and evasion tend to have weak personal norms. Tax avoidance is typically linked to the perception that the tax system is unfair and that there are loopholes that can be exploited, while tax evasion is often linked to the belief that it is a trivial crime (Onu et al., 2019).

#### **4. Empirical literature review and hypotheses development**

##### **4.1. Willingness to pay taxes in times of crisis**

The COVID-19 pandemic has highlighted the importance of adequate public healthcare services (Gugushvili, 2022). It is widely believed that citizens' willingness to pay taxes can play a significant role in achieving better provision of public services (Con Wright & Gedik, 2023; Gugushvili, 2022; Lachapelle et al., 2021). However, COVID-19 was found to have implications for the fiscal resilience of the state budget. One of the real impacts of the pandemic on the economy is the decrease in tax revenue (Țibulcă, 2021). The spread of the virus has exposed taxpayers to numerous obstacles and hazards. If made without careful consideration, the fiscal policies implemented during the economic crisis negatively affected worker earnings considerably (Spinthiropoulos et al., 2021). This situation may encourage taxpayers to find ways to migrate their activities from the formal to the informal sector, which can have serious adverse effects on the culture of tax compliance (OECD, 2020). The difficulty posed by the pandemic emphasises the need to encourage a culture of taxpayer compliance.

Most recent proposals for taxpayer compliance management in the pre-pandemic context have suggested a compliance risk-based approach. The theories based on risk imply the use of a coercive strategy to enforce tax compliance, highlighting the role of penalties and audits as deterrents against noncompliance (Akhand & Hubbard, 2016). The economic perspective of tax compliance was initially formulated by Allingham and Sandmo (1972). However, Okello (2014) highlights the importance of risk management procedures within a self-assessment system for income tax, urging tax administrations to adopt a service-oriented approach that goes beyond accepting tax returns and conducting audits to correct assessments. Chooi (2020) used a similar tone to encourage revenue bodies to modify the monitoring and assessment system to measure and report compliance outcomes and areas of practice for each tax, taxpayer type, and key industry sector.

Following the pandemic, efforts to manage tax compliance have been widely echoed, commencing with international agencies, specifically the tax administration. As the crisis persists, governments must closely monitor and update revenue implications to support cash and debt management operations and allow space for health and fiscal aid (OECD, 2020). On the country level, the National Audit Office (2022) of the United Kingdom reported that HMRC, the country's tax administration, highlighted that taxpayers' debt to HMRC had more than doubled and remained significantly above levels before the pandemic. Also, HMRC's assessment for 2021 showed a growing risk of tax evasion, mistakes, or not taking reasonable care in some areas. Numerous governments have stressed these facts, notably Indonesia's Directorate General of Taxes. As it is the responsibility of the tax administration to handle matters of policy and its operations in dealing

with the pandemic (OECD, 2020), the rest may require contributions from researchers on factors that impact tax compliance.

## 4.2. Hypotheses development

### 4.2.1. Tax system/structure

It is widely recognised that tax compliance levels have been declining in numerous developing nations. One of the main reasons for this trend is the inadequate development of the tax system (Fischer et al., 1992). Fischer et al. (1992)'s model of taxpayer compliance (hereafter the Fischer Model) suggests that the effectiveness of the tax system is impacted by a range of factors, such as the complexity of the tax structure, the tax rates applied, and the probability of detection and associated penalties (Vincent & Ntim, 2021). However, it has been reported that approximately three-quarters of administrations, including Indonesia, have temporarily halted or significantly scaled back their regular audit operations since the outset of the pandemic (OECD, 2021b). Therefore, this study only focuses on tax system complexity and common tax penalties as the factors under consideration.

Much research on taxpayer compliance often uses a financial self-interest model based on Becker's (1968) economics-of-crime approach. This model assumes that individuals consider the gains from evading taxes against the risk of detection and punishment. While this approach allows for a more complex utility function, the costs and benefits of evasion are usually measured in monetary terms (Fischer et al., 1992). Therefore, taxpayers strive to maximise their expected net income while considering factors such as the penalty structure, which impact their compliance behaviour (Vincent & Ntim, 2021). Numerous empirical studies provide evidence that taxpayer compliance behaviour is significantly affected by the presence of penalties. For instance, the perceived severity of penalties plays a crucial role in ensuring compliance among various groups, including low-income individuals (Efebera et al., 2004), small and medium enterprises (Alshira'h & Abdul-Jabbar, 2020), and large corporations (Sapiee et al., 2014; Ya'u et al., 2020).

While tax penalties can encourage (enforced) tax compliance, on the other hand, tax system complexity often poses obstacles to the process of taxpayer compliance. The complexity of tax laws and administrative structures is a long-standing concern for researchers, as it can lead to higher levels of noncompliance due to confusion and misunderstanding (Tanzi, 2018). Increased complexity in tax legislation, challenges in preparing income tax returns, and issues of ambiguity and clarity contribute to increased tax noncompliance behaviour (Vincent & Ntim, 2021). Studies have shown that tax complexity contributes to noncompliance and causes confusion and undesirable reactions (Musimenta & Ntim, 2020; Owusu et al., 2023). Based on the literature above, we hypothesised as follows:

**H1:** Tax system/structure influences the willingness to pay taxes of COVID-19 survivors.

**H1a:** Power of authority positively influences the willingness to pay taxes.

**H1b:** Tax complexity negatively influences the willingness to pay taxes.

### 4.2.2. Tax education

Although taxation plays a significant role in fostering economic development, instances of tax noncompliance persist. To encourage taxpayers to meet their tax obligations, authorities employ strategies such as the use of fear-inducing messages, which are backed by taxation regulations (Trawule et al., 2022). In addition to employing coercive measures, the literature also proposes non-coercive strategies to encourage tax compliance, such as taxpayer education initiatives that provide comprehensive tax information and raise awareness about taxpayers' rights and responsibilities (Ali et al., 2014; Taing & Chang, 2020; Vincent & Ntim, 2021). Enhancing citizen



understanding through education can help develop honest taxpayers and increase trust in government organisations (Kuandykov et al., 2021). Lack of education and tax awareness influence non-compliant behavior (Devos, 2014). Revenue agencies should prioritise improving tax compliance and increasing public awareness as essential tasks, as taxes remain the primary source of state revenue (Agusti & Rahman, 2023).

Vincent and Ntim's (2021) research has substantiated that the presence of easily accessible tax-related information diminishes the probability of engaging in tax noncompliance behavior. When individuals have convenient access to tax information, they are able to acquire the essential knowledge required to fulfill their tax responsibilities. Individuals who possess a sufficient comprehension of tax laws tend to exhibit greater respect towards the taxation system and a higher willingness to pay their taxes (Eriksen & Fallan, 1996; Harris, 1989). Previous research has established a review and conceptualisation between tax knowledge and taxpayers' capacity to comprehend and adhere to tax laws and regulations (Abdu & Adem, 2023; Bornman & Ramutumbu, 2019). Moreover, both seminal and recently published studies have provided evidence that improving taxpayers' understanding of taxation can increase their level of compliance (Agusti & Rahman, 2023; Eriksen & Fallan, 1996; Kurniawan, 2020). Based on the literature review discussed above, this study has developed the following hypotheses:

**H2:** Tax education influences the willingness to pay taxes of COVID-19 survivors.

**H2a:** Tax information positively influences the willingness to pay taxes.

**H2b:** Tax awareness positively influences the willingness to pay taxes.

#### 4.2.3. *Tax attitude and perception*

According to Fischer et al. (1992), taxpayer ethics, their perceived fairness of the tax system, and peer influence are among the four factors impacting taxpayer compliance. Furthermore, quasi-experimental research studies have found a positive association between individuals' perception of tax evasion as morally wrong and their compliance with tax obligations (Grasmick & Bursik, 1990; Klepper & Nagin, 1989). There are multiple approaches to assessing an individual's attitude towards taxation. This includes their perception of the state and government policies, their biased evaluation of tax evasion, and their moral and ethical stance on the matter (Peprah et al., 2020). Extensive research has proved that individuals with higher tax morale are more inclined to comply with tax obligations (e.g., Andriani, 2016; Halla, 2012; Taing & Chang, 2020).

Regarding the pandemic situation, Alm et al. (2020) assert that factors such as the perceived fairness of the tax system and the perceived effectiveness of tax measures are essential in establishing and maintaining trust, promoting a greater willingness among individuals to comply with tax laws. Taxpayers tend to voluntarily pay taxes if they perceive fair treatment from tax authorities (Alexander & Balavac-Orlic, 2022; Taing & Chang, 2020). The relationship between the perception of tax system fairness and tax compliance behaviour is well-established. Porcano (1984) discovers that taxpayers' considerations of their need and ability to pay are crucial factors influencing their perception of the tax system's fairness. Similarly, a survey conducted by Onu et al. (2019) reveals that individuals who believe that the tax system lacks fairness are more inclined to exhibit noncompliance behaviours with tax regulations. Therefore, the government must comprehend the factors contributing to taxpayers' sense of fairness in their interactions with tax authorities (Kim, 2002). The literature offers several tax fairness characteristics, suggesting that taxpayers are more likely to comply if they feel the tax burden is distributed equitably among their peers (Taing & Chang, 2020).

People who trust the government are more likely to support its policies and actions (Jimenez & Iyer, 2016). However, decreasing trust levels can affect one's support for government actions. The

study conducted by Anderson (2017) found that trust in government institutions plays a pivotal role in positively influencing individuals' willingness to financially support public goods and services. This underscores the importance for governments in transitional countries to prioritise cultivating trust among their citizens as a crucial step towards fostering economic growth and establishing a strong fiscal foundation (Anderson, 2017). Achieving good economic performance is recognised as crucial in fostering a heightened level of trust among the general population towards the government (Yang et al., 2021). The literature also indicates that government should shift its focus from simply demanding increased tax contributions from citizens to prioritising accountability and transparency in expenditure (Sebele-Mpofu & Ntim, 2020).

Taxpayers are more likely to voluntarily comply with tax laws when they perceive that their tax payments fund valuable public facilities, such as education, health care, public transportation, and defence (Palil & Mustapha, 2011). This reciprocal motivation is based on the theory of fiscal contract, which views taxation as an exchange between taxpayers and the government for tangible and intangible public goods (Feld & Frey, 2007; Luttmer & Singhal, 2014). The government may encourage compliance by providing residents with demanded public goods in an efficient and accessible manner (Ali et al., 2014). The perceived value of public spending and state service delivery can contribute to tax compliance (Bodea & LeBas, 2014). This research built upon Fischer Model regarding attitude and perception, incorporating supplementary variables encompassing the distinct attributes of Indonesia's tax landscape, particularly during periods of crisis. In consideration of the preceding review of related literature, the present study has formulated the following hypotheses:

- H3:** Tax attitude and perception influence the willingness to pay taxes of COVID-19 survivors.
- H3a:** Tax morale positively influences the willingness to pay taxes.
- H3b:** Tax fairness positively influences the willingness to pay taxes.
- H3c:** Trust in government positively influences the willingness to pay taxes.
- H3d:** Perceived worth of COVID-19-related spending positively influences the willingness to pay taxes.

## **5. Research design**

### **5.1. Data collection methods**

The present study is cross-sectional in nature. It investigates the WTP of individuals who have survived COVID-19 in the Greater Jakarta Area, which includes Jakarta (the capital city of Indonesia), Bogor, Depok, Tangerang, and Bekasi, as this area was the initial epicentre of the virus in the country. The total population of COVID-19 survivors in this area was recorded as 1,282,046 individuals by the end of December 2021. To determine the appropriate sample size for data collection, the researcher employed the Slovin formula, which is suitable for situations where the population to be studied is known with certainty (Sevilla et al., 1993). As derived by Tejada and Punzalan (2012), the formula effectively estimates population proportions with a 95% confidence coefficient. Using the Slovin formula, the minimum required sample size for this study was calculated to be 399.8, rounded up to 400. Another commonly used sampling formula, the Cochran formula, may result in a smaller sample size than the Slovin formula with similar confidence levels (Tejada & Punzalan, 2012). Indeed, when utilising the Cochran formula, the resulting sample size was 159 respondents. Therefore, this study strives to achieve a larger sample size to obtain more reliable data (Black, 2010).

Convenience sampling, a form of non-probability sampling, was employed to gather data from participants for this study. This approach focuses on collecting information from easily accessible

individuals willing to participate. In this case, we collected data from COVID-19 survivors residing in Greater Jakarta Area who were infected between March 2020 and 31 December 2021, and confirmed to be cured at the time of the survey. The data collection process involved distributing printed questionnaires and online forms through social media platforms such as Instagram, WhatsApp, Facebook, and Telegram Messenger from March to May 2022. We personally sent over 1000 message templates through these channels. Additionally, we sought the assistance of colleagues who managed communities in the Greater Jakarta Area, with WhatsApp and Telegram groups consisting of thousands of members, to share the survey templates in their groups.

Those who agreed to participate in face-to-face surveys amounted to 70 individuals. The limited participation can be attributed to the ongoing pandemic, as the prospective respondents encountered in public places appeared to be busy and suspicious when approached by strangers. To address these cases, an online questionnaire option was also offered. Fortunately, 396 respondents participated online. In total, 466 responses were collected. Subsequently, data cleaning was conducted, leading to the exclusion of 21 responses from individuals outside the Greater Jakarta Area, 17 responses from participants who did not test positive for COVID-19 during the 2020/21 period, ten responses from individuals without a tax identification number, and seven responses with uniform and static answers. We also conducted checks to ensure the consistency of responses across related variables as another step for data validation procedure. For example, we examined the relationships between variables that should logically align with each other and addressed any discrepancies or inconsistencies. After the data-cleaning process, a total of 411 valid responses remained. Table 1 details the characteristics of the respondents who participated in the study.

## 5.2. Measurement

The willingness to pay taxes in this study was employed as the dependent variable (DV). A question, i.e., “After viewing the government’s actions during the pandemic, do you think those who refuse to pay taxes are wrong?” drawn from Taing and Chang (2020) and Ali et al. (2014) was used to determine the respondents’ willingness to pay taxes. The ordinal scale was used to measure the dependent variable. The current study employed the three response options introduced by Ali et al. (2014) instead of a binary yes/no format. Following the categorisation by Youde and Lim (2019), respondents’ willingness to pay taxes was classified as follows: those who answered “wrong and punishable” were assigned to the high group ( $y = 3$ ), “wrong but understandable” to the medium group ( $y = 2$ ), and “not wrong at all” to the low group of willingness to pay taxes ( $y = 1$ ). Night and Bananuka (2020) suggest that regulatory compliance with tax procedures is equally important to tax payment compliance. We conducted a robustness check to measure tax compliance using an alternative dependent variable that assesses taxpayers’ compliance with tax regulations adapted from previous studies (Night & Bananuka, 2020; Saptono et al., 2023). The following question represents the indicator’s function: “Do you think those who refuse to comply with tax laws are wrong?” Similar to the primary indicator, this question also elicits three response options.

To assess the independent variables (IV) of the study, we employed a 5-point Likert scale, encompassing responses that ranged from 1 (strongly disagree) to 5 (strongly agree). The measurement of IV in this study was derived and modified from previous research. Specifically, the predictors used by Taing and Chang (2020) and employed by Kaulu (2022) were utilised as a foundation. An important additional factor, the perceived worth of public expenditure adapted from Nkundabanyanga et al. (2017), was included to capture the unique context of willingness to pay taxes during the COVID-19 crisis. However, rather than fully adopting their TPB framework, the current study leans towards adapting the theoretical framework used by Vincent and Ntim (2021) and conceptualised by Alm et al. (2020). This framework is based on a behavioural perspective that aligns with the Fischer Model. The measurement items for the variables and their respective sources can be found in Table 2.

**Table 1. Respondent characteristics**

Respondent Information	Freq.	%	Respondent Information	Freq.	%
Gender			Education		
(0) Female	161	39,2	(1) High school level	16	3,9
(1) Male	250	60,8	(2) Vocational school	26	6,3
Place of domicile			(3) Bachelor	294	71,5
(0) Jakarta	245	59,6	(4) Master & PhD.	75	18,3
(1) Greater Jakarta area	166	40,4	Occupation status		
Age (year)			(1) Private employees	275	66,9
(1) 18–24	45	10,9	(2) Civil Servants	61	14,8
(2) 25–35	215	52,3	(3) Lecturer	21	5,1
(3) 36–45	74	18,0	(4) Health Workers	4	1,0
(4) 46–55	63	15,3	(5) Self-employed	26	6,3
(5) >55	14	3,4	(6) Unemployed*	24	5,8

**Note:** \*including students, job seekers, housewives, and retired.

Apart from measuring the psychological factors that drive willingness to pay taxes, we also consider the socioeconomic variables that have frequently been found to be significant in previous research. In previous studies, women have generally exhibited higher tax compliance than men (Torgler & Martinez-Vazquez, 2005), and older individuals have been found to have higher levels of tax compliance (Alm & Gomez, 2008). A firm-level study also indicates similar findings, whereby the age of top management shows lower engagement in corporate activities that drive earnings management and tax planning (Abdul Wahab et al., 2018). It also found that individuals with a higher willingness to pay additional taxes are those with tertiary education (Gugushvili, 2022). Moreover, we consider a set of variables that measure employment status and place of residence, which have varied in their significance in prior studies.

### 5.3. Data analysis

In our investigation of the drivers of willingness to pay taxes, we employed a straightforward approach that involved estimating models incorporating independent variables measuring social and psychological factors. However, this method can result in endogeneity issues since these factors may be contingent upon the same factors that impact willingness to pay taxes. To address this problem, this research employs an approach that endogenises the factor measures explicitly, inspired by the approach previously employed by Anderson (2017). Two-step ologit models are used to endogenise these factor measures and explain the willingness to pay taxes.

In the first step, ologit models are estimated to clarify how survey respondents' expressed factors are related to their characteristics, including gender, age, educational attainment, employment status, and place of domicile (Jakarta and Greater Jakarta Area). Once the likelihood of the identified factors is estimated in the first-step regression models, they are utilised as explanatory variables in the second-step ologit models, which aim to explain the willingness to pay taxes. The key benefit of this two-step modelling approach is that it considers the endogeneity issues and provides more precise estimates regarding the impact of the identified

**Table 2. Description of variables**

Variable	Full meaning	Definition	Source
<b>Dependent variable:</b>			
WTP	Willingness to pay taxes	Willingness and readiness to contribute financially to the government by paying taxes	Ali et al. (2014); Taing and Chang (2020)
<b>Independent variables:</b>			
TSS	Tax system/structure:	<i>The structure of the tax system's complexity and fairness and relevance measures taken by the tax authority to ensure compliance</i>	Fischer et al. (1992); Vincent and Ntim (2021)
	Tax penalties (TP)	The level of authority that tax officials have to enforce tax laws and regulations	Gangl et al. (2020); Inasius (2019)
	Tax complexity (TC)	The degree of difficulty that taxpayers face in complying with tax laws and regulations	Taing and Chang (2020); Vincent and Ntim (2021)
TL	Tax education:	<i>Understanding and awareness of tax-related information and knowledge and how government provide such matters</i>	Agusti and Rahman (2023); Vincent and Ntim (2021)
	Tax information (TI)	The extent to which the government provides accurate and up-to-date information about tax issues that are easily accessible and understandable	Taing and Chang (2020); Vincent and Ntim (2021)
	Tax knowledge (TK)	The quality of understanding, awareness, and knowledge that taxpayers possess regarding their tax-related obligations	Owusu et al. (2023); Taing and Chang (2020)
TAnP	Tax attitude and perception:	<i>This refers to the moral and ethical beliefs that taxpayers have regarding their tax obligations, their level of trust in the government, and their evaluation of the value and effectiveness of how tax revenue is spent</i>	Alm and Gomez (2008); Fischer et al. (1992); Vincent and Ntim (2021)
	Tax morale (TM)	The individual's personal values and beliefs about the importance of contributing to society through taxes	Luttmer and Singhal (2014); Taing and Chang (2020)
	Tax fairness (TF)	The perception of taxpayers regarding the fairness of the tax system	Mardhiah et al. (2023); Taing and Chang (2020)

(Continued)

**Table 2. (Continued)**

Variable	Full meaning	Definition	Source
	Trust in government (TG)	The level of confidence that taxpayers have in their government to effectively and efficiently manage public resources	Owusu et al. (2023); Taing and Chang (2020)
	Perceived worth of public spending (PW)	The extent to which taxpayers believe that public spending, particularly COVID-19-related spending, is justified and beneficial to society	Nkundabanyanga et al. (2017); Simmons and Cheng (1996)
<b>Control variables:</b>			
	gender	Gender of the respondent	Torgler and Martinez-Vazquez (2005)
	age	Age of the respondent	Alm and Gomez (2008)
	education	Education level of the respondent	Gugushvili (2022)
	employment	Respondent employment at the time of the survey	Andriani (2016)
	domicile	Place of residence of the respondent	

Source: Author

factors on WTP. Additionally, alternative models such as ordinary least squares and probit were also estimated to validate the results, but the findings were similar to those obtained from the logit models.

## 6. Empirical results and discussion

### 6.1. Validity and reliability analysis

Before conducting statistical analysis to examine the hypotheses, assessments were undertaken to assess the reliability of the measurement items to ensure their consistency. This study performed factor rotation, namely oblique promax, before running the ordered logit model to avoid multicollinearity. In behavioural research with intercorrelated independent variables, social scientists should employ the oblique method to factor rotation (Osborne, 2014). All items of each IV load into similar factors that indicate convergent validity, and the case of cross-loadings, where a single item loads into two or more variables by greater than 0.5, were not found; thus, the items have high discriminant validity. As a result, the outputs of the EFA analysis are entirely consistent, and the extracted variables are valid.

Typically, a Cronbach's alpha coefficient of less than 0.60 is regarded as a sign of weak reliability, while a value of 0.70 or higher is considered acceptable. A coefficient greater than 0.80 is indicative of good reliability (Hair et al., 2019). Table 3 shows these observed variables are satisfactory since they have factor loading coefficients above the threshold. Another test of instrument reliability that is recommended is composite reliability, which considers the factor loading of items (Hair et al., 2019). Our data indicates that the CR construct values range from 0.88 to 0.93, surpassing the threshold of 0.70, as suggested by Fornell and Larcker (1981). Therefore, the results demonstrate the reliability of the measures used.



**Table 3. Mean, factor loadings and reliability of IV**

Constructs	Measures	Mean	FL	CA	CR
<i>Independent variables (IV):</i>					
Tax knowledge (TK)	Awareness about the deadline for reporting annual tax return	3.72	0.88	0.84	0.90
	Awareness about any kind of taxes that must be paid	3.78	0.90		
	Awareness about the penalties and consequences for evading tax obligations	4.09	0.83		
Tax complexity (TC)	The tax reporting mechanism is still complicated.	3.29	0.94	0.88	0.90
	The existing tax regulations are still difficult to understand	3.13	0.89		
	It is still difficult to calculate the tax payable	3.45	0.76		
Tax fairness (TF)	The tax rate is fair based on each individual's income	3.35	0.89	0.89	0.93
	The existing tax system is fair	3.23	0.91		
	Tax authority implements a fair tax policy	2.77	0.92		
Tax information (TI)	Accurate information regarding tax issues is easily available	3.65	0.85	0.84	0.90
	The latest and relevant information regarding tax issues is easily accessible	3.51	0.90		
	The provided tax information is clear and understandable	3.41	0.85		

(Continued)

**Table 3. (Continued)**

Constructs	Measures	Mean	FL	CA	CR
Tax morale (TM)	Declaring all tax liabilities honestly	4.13	0.88	0.80	0.88
	Feel obliged to pay tax on income earned	3.95	0.79		
	Feel obliged to follow the applicable tax rules	4.06	0.87		
Tax penalties (TP)	Tax authority imposes severe penalties, such as sanctions and fines	3.54	0.79	0.84	0.90
	Tax authority are known to be strict when it comes to enforcing the law	3.50	0.92		
	Tax authority imposes heavy tax penalties on those who refuse to comply	3.51	0.89		
Perceived worth of public spending (PW)	The tax money that the government spends on handling COVID-19 are appropriate and responsible	3.72	0.84	0.81	0.89
	The government is spending a reasonable amount of tax money on handling COVID-19	3.78	0.89		
	The ease of obtaining basic services from the government (COVID-19 vaccine)	4.09	0.83		

(Continued)

Constructs	Measures	Mean	FL	CA	CR
Trust in government (TG)	The government is transparent in the use of tax money	3.05	0.92	0.87	0.92
	Tax revenues are spent wisely by the government on useful projects and infrastructure	3.46	0.92		
	Tax obligation is not burdensome considering the social benefits provided by the government	3.10	0.85		
Dependent variables (DV):					
WTP	Do you think those who refuse to pay taxes are wrong?	2.38			
WTP (alternative)	Do you think those who refuse to comply with tax laws are wrong?	2.25			

**Note:** FL – Factor Loading; CA – Cronbach's Alpha; CR – Composite Reliability.

## 6.2. Factors affecting willingness to pay taxes

As previously stated, we estimated two-stage ologit models that incorporate the measures of factors influencing WTP and provide an explanation for WTP. The results of the first-stage model estimates can be found in Table A1 in “Appendix”. In terms of the gender variable, it is only positively and significantly associated with the tax complexity equation, while the education variable is only positively and significantly associated with the tax morale equation. On the other hand, the age variable consistently shows high significance almost across all factor equations (except in tax morale), where it has a positive association with trust, power of authority, and awareness but a negative association with the remaining three-factor equations. Additionally, the domicile variable is negatively and significantly related to two of the WTP factor equations, while it is positively related to another factor equation.

Table 4 A1 reports the second-step ologit models explaining willingness to pay taxes in light of overall government actions to handle the COVID-19 pandemic. Model 1 provides results without control variables, while Model 2 includes control variables. The constructs analysed in the table are tax system/structure, tax education, tax attitude and perception, following the economic behaviour perspective by Fischer et al. (1992) and Vincent and Ntim (2021) with some adjustments to suit the current study's context. By incorporating control variables in Model 2, a more comprehensive analysis is facilitated, as it considers demographic and socioeconomic factors, ensuring a robust analysis similar to that conducted by Alm and Gomez (2008). The pseudo-R-squared values indicate that the models explain approximately 20% to 21% of the willingness to pay taxes variation.

**Table 4. Drivers of willingness to pay taxes of COVID-19 survivors**

Constructs	Model 1					Model 2				
	$\beta$	SE	z	Sig.		$\beta$	SE	z		Sig.
Tax system/structure:										
TP	0.22	0.15	1.45	0.148		0.25	0.16	1.61		0.108
TC	-0.29	0.11	-2.65	0.008		-0.31	0.11	-2.71		0.007
Tax education:										
TI	0.32	0.16	1.96	0.049		0.29	0.15	2.01		0.045
TK	0.04	0.15	0.26	0.794		0.00	0.15	0.02		0.988
Tax attitude and perception:										
TM	0.43	0.16	2.71	0.007		0.39	0.16	2.39		0.017
TF	0.28	0.15	1.95	0.052		0.29	0.16	1.75		0.080
TG	1.78	0.20	9.08	0.000		1.84	0.20	9.11		0.000
PW	0.71	0.17	4.25	0.000		0.72	0.17	4.11		0.000
Control variables:										
gender				NA		-0.37	0.23	-1.59		0.111
age				NA		-0.26	0.12	-2.12		0.034
education				NA		0.18	0.17	1.06		0.291
employment				NA		-0.03	0.08	-0.42		0.674
domicile				NA		-0.12	0.23	-0.53		0.593
Pseudo R2				0.20						0.21
N				411						411

**Note:** SE – standard error; TP – tax penalties; TC – tax system complexity; TI – tax information; TK – tax knowledge; TM – tax morale; TF – tax system fairness; TG – trust in government; PW – perceived worth of COVID-19-related public spending.

The results indicate that tax system/structure variables have mixed effects on participants' willingness to pay taxes among COVID-19 survivors. Tax penalties show a positive but statistically insignificant relationship with willingness to pay taxes, while tax system complexity exhibits a negative and statistically significant relationship. The insignificant result for tax penalties in this study contradicts the findings of previous studies (Alshira'h & Abdul-Jabbar, 2020; Sapiei et al., 2014; Vincent & Ntim, 2021; Ya'u et al., 2020). However, this can be attributed to the reduced audit efforts by authorities during the pandemic (OECD, 2021b), with a greater emphasis on supporting affected households. Due to this difference in priorities, it seems that the study participants did not consider the presence of tax penalties as significant, given their challenging economic situation. Instead of solely relying on monetary sanctions, especially when individuals may not have the capacity to bear any tax penalties due to their circumstances, authorities could consider implementing collateral sanctions, such as suspending driver's licenses, revoking passports, or even deportation, as suggested by Blank (2014).

Regarding Hypothesis 1 (H1b), the finding supports previous empirical evidence that shows an inverse relationship between tax complexity and tax compliance (Musimenta & Ntim, 2020; Owusu et al., 2023; Taing & Chang, 2020), meaning that people are less likely to comply with tax laws when the system is more complicated. When a system is complicated and grows complex, the inner workings and how its elements relate to one another become less predictable (Tanzi, 2018). Tax compliance costs, such as tax advisory fees, may also increase with tax complexity (Blaufus et al., 2019). Simplification is important in increasing tax compliance (Tanzi, 2018). The current results support the hypothesis that tax complexity has a negative and significant impact on tax compliance, and it was found to be the only factor considered under the tax system/structure that had sufficient evidence for behavioural economic theory (Fischer et al., 1992; Vincent & Ntim, 2021).

Tax education variables show a positive relationship, with tax information having a stronger effect than tax knowledge. Tax information positively and significantly impacts WTP, providing strong evidence to support H2a. These findings suggest that the accessibility and implementation of tax payment procedures have improved, providing better ease in fulfilling tax obligations for participants. Despite the pandemic situation, the Indonesian tax authorities have developed a robust electronic tax payment system and implemented it for the public, allowing tax payments to be made anytime and anywhere in real-time (Saptono et al., 2023). These results align with previous research emphasising the importance of providing easy access to tax information to promote taxpayer compliance (Vincent & Ntim, 2021).

Contrary to Hypothesis 2 (H2b), the findings of this study do not support a significant relationship between tax knowledge and WTP of COVID-19 survivors. The statistical analysis reveals that tax knowledge is not statistically significant at a p-value greater than 10% ( $p > 0.10$ ). Initially, a higher level of tax knowledge was expected to positively influence WTP among individuals (Abdu & Adem, 2023; Agusti & Rahman, 2023; Bornman & Ramutumbu, 2019). However, despite the lack of statistical significance, it should not undermine the importance of promoting tax education and increasing taxpayers' understanding of tax laws and regulations. Enhancing tax knowledge remains beneficial as it helps individuals make informed decisions and fosters a sense of fairness and equity in the taxation system (Eriksen & Fallan, 1996; Harris, 1989).

Among the tax attitude and perception variables, tax morale and trust in government show positive and statistically significant relationships, while tax system fairness has a positive but statistically insignificant relationship. The perceived worth of COVID-19-related public spending demonstrates a strong positive and statistically significant relationship with willingness to pay taxes. Our study confirms that the tax payment behaviour of COVID-19 survivors in the Greater Jakarta Area is influenced by their intrinsic motivation, specifically their tax morale. This supports hypothesis 3 (H3a) and is consistent with previous research that suggests a positive relationship between tax morale and tax compliance (Andriani, 2016; Halla, 2012; Taing & Chang, 2020). It also

highlights that individuals with negative attitudes towards taxes are more likely to engage in noncompliance, while higher tax morale is a deterrent against tax evasion (Grasmick & Bursick, 1990; Klepper & Nagin, 1989).

Surprisingly, the results of the second-step ologit models indicate that the tax fairness variable does not significantly impact willingness to pay (WTP), thus lacking evidence to support H3b. However, it is important to note that the coefficient in this aspect is positively aligned with the theory that perceiving a fair tax system leads to higher expectations of tax compliance. This brings into question why this relationship does not hold true for COVID-19 survivors in the current study, considering the previous literature highlighting the significance of tax fairness (Eriksen & Fallan, 1996; Kaulu, 2022; Taing & Chang, 2020). Drawing insights from Porcano (1984), these findings suggest that subjects may face challenges with their ability to pay, particularly amid the ongoing pandemic crisis. Another possible explanation could be the limited tax literacy of the respondents, as evidenced by the insignificant results in tax knowledge. Taking insights from prior findings (Alexander & Balavac-Orlic, 2022; Eriksen & Fallan, 1996), the perception of tax system fairness loses its significance among respondents with low tax literacy.

The strong support for the H3c that trust in government positively influences the WTP of COVID-19 survivors underscores the pivotal role of trust in government institutions. This highlights the significance of trust in shaping citizens' support for government initiatives. Extensive research has consistently demonstrated that individuals who trust the government are more inclined to support its policies and actions, including delivering public goods and services (Anderson, 2017; Jimenez & Iyer, 2016). Moreover, when citizens perceive effective economic management by the government, their trust levels increase, positively impacting their willingness to fulfil their tax obligations (Yang et al., 2021). Hence, governments must prioritise responsible and transparent financial management to cultivate trust, promote tax compliance, and ensure the effectiveness of government initiatives, including the handling of national projects and safeguarding against corrupt practices (Rosid et al., 2016; Sebele-Mpofu & Ntim, 2020).

H3d, which posits that the perceived value of COVID-19-related spending positively influences the willingness of COVID-19 survivors to pay taxes, also exhibit strong support. This implies the importance of taxpayers' perception regarding the benefits derived from their tax contributions, particularly within the context of the COVID-19 pandemic. During times of crisis where there is an increased demand for public services, it becomes crucial for the government to ensure that taxpayer funds are allocated efficiently and seen as valuable (Alm et al., 2020). By doing so, the government can positively impact taxpayers' willingness to fulfil their tax payment obligations. This necessitates the government's role in promoting compliance, especially during crises, by effectively delivering the necessary public goods and services (Bodea & LeBas, 2014; Palil & Mustapha, 2011). The perceived value of public spending and the quality of state service delivery are influential factors in fostering tax compliance. While it is acknowledged that tax payments do not directly provide individual benefits (Alem & Tewabe, 2022), the current crisis period presents an opportune moment for the government to demonstrate to the general public that their tax payments do indeed matter. From a fiscal contract perspective, which goes beyond mere exchanges, it encompasses loyalties and ties between citizens and the government (Feld & Frey, 2007), emphasising the importance of showcasing to citizens that their tax money is being utilised effectively for the collective well-being. The government can increase the perceived effectiveness of public spending by providing detailed information on allocating tax funds to ensure they align with public interests (Ali et al., 2014; Nkundabanyanga et al., 2017).

Finally, we observed that most control variables, except for education, deviate from the predicted patterns. Specifically, females, older participants, individuals residing in Jakarta, and those not employed in the private sector are more likely to resist tax payments. This could be attributed to the high risk faced by women in terms of potential job loss and income reduction during the pandemic (Asmoro, 2023). Older individuals might bear greater financial burdens in supporting



their families, while those living in Jakarta might face higher costs of basic necessities and limited substitutes. Additionally, individuals engaged in occupations other than private employment might be more vulnerable to income loss. These factors make individuals less willing to allocate a portion of their income towards tax contributions. However, despite the negative estimated coefficients for these control variables, none of them are statistically significant, except for the age variable. Therefore, no discernible differences in the level of willingness to pay can be observed. Additionally, higher levels of education align with indications from the literature, suggesting that individuals with more educational levels are less tolerant of tax noncompliance (Alm & Gomez, 2008). However, it should be noted that these results are not statistically significant.

### 6.3. Additional analyses

We conducted several additional analyses to test the robustness of our results. In addition to the specifications used by Alm and Gomez (2008) and the two-step ologit models employed by Anderson (2017), we also explored different ways of measuring the key dependent variable. As emphasised by Night and Bananuka (2020), another crucial aspect of tax compliance, apart from tax payment, is compliance with tax procedures (regulatory compliance). As previously mentioned, we have incorporated regulatory compliance as an alternative measure for the main dependent variable in this study. We present the results of these tests in Table A2 in “Appendix”.

The findings obtained using our alternative indicator of tax compliance largely support our main results, although there is a slight deviation from the main findings that demonstrated a significant influence of the tax information variable. The results for the alternative indicator do not yield a significant effect on that variable. However, to our surprise, the tax knowledge variable, which was previously found to be insignificant concerning the main dependent variable, now shows a significant result. This suggests that while ensuring compliance with tax payment primarily relies on tax-related information due to the already reliable and user-friendly of the current payment system (Saptono et al., 2023), regulatory compliance may require a basic understanding of more complex laws, policies, and rulings. Consequently, a certain level of tax knowledge is necessary to achieve compliance in such cases. Overall, the results from our conducted sensitivity analyses enhance the credibility of our study and contribute to a comprehensive understanding of the relationship between WTP and the variables under investigation.

## 7. Summary and conclusion

This study examines taxpayer compliance management by identifying the factors influencing the willingness to pay taxes among individuals in the Greater Jakarta Area of Indonesia who have experienced being infected with COVID-19. By employing the extended Fischer Model of taxpayer compliance, this research offers valuable insights into the factors that shape taxpayers' willingness to fulfil their tax payment obligations. The findings highlight the importance of government intervention in promoting tax compliance by implementing effective policy strategies.

This study holds substantial implications for policymakers and tax authorities. By acknowledging the nuanced impacts of tax system variables, particularly tax penalties and system complexity, policymakers can enhance tax structures to foster greater compliance. Furthermore, emphasising tax education and disseminating accurate tax information can empower taxpayers with the necessary knowledge to comprehend their tax obligations. Active engagement in tax education and a regularly updated curriculum are crucial for effectively managing complex tax-related tasks and procedures. Strong collaboration between the government, tax authorities, and educational institutions is imperative to provide comprehensive support. The positive correlations observed between tax morale, trust in government, and taxpayer compliance underscore the importance of cultivating trust and positive perceptions of the tax system and government through transparent and equitable practices. Additionally, the findings highlight the criticality of ensuring that public spending, particularly in times of crisis, is perceived as valuable and contributes to taxpayers' willingness to comply, thereby challenging the conventional notion of no direct benefits from tax contributions.

Despite these findings and contributions, it is important to emphasise the constraints of this work and potential future research areas. In addition to utilising convenience sampling due to the unavailability of a sampling frame, it is worth noting that this study specifically targeted COVID-19 survivors, which limits the opportunity to generalise the findings to the broader population. Future studies should aim to include a more diverse sample to augment the external validity of the results. Moreover, while the study concentrated on a specific context, it did not delve into other plausible factors that could impact taxpayer compliance, such as cultural differences or economic circumstances of participants, which were considered in the original Fischer Model. Further investigation into these factors can provide a more comprehensive understanding of taxpayer compliance behaviours.

Furthermore, future research would be advantageous to incorporate additional tax compliance categories that employ an ordinal response scale, expanding beyond the three compliance categories examined in recent and previous studies (Ali et al., 2014; Taing & Chang, 2020). For instance, Langham et al. (2012) categorised compliance into four levels, from highly non-compliant to highly compliant, encompassing deliberately non-compliant, accidentally compliant, accidentally non-compliant, and deliberately compliant behaviours. In addition, utilising an ordinal response scale can innovate by considering the five motivational postures developed by Braithwaite (2001).

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Appendix

Table A1. First-stage models

Variable	TP	TC	TF	TM	TG	PW	TI	TK
gender	0.04 (0.17)	0.52** (0.18)	0.22 (0.17)	-0.19 (0.18)	-0.29 (0.18)	0.22 (0.18)	0.16 (0.18)	-0.39* (0.18)
age	0.31** (0.09)	-0.28** (0.09)	-0.36** (0.09)	0.10 (0.09)	0.41** (0.09)	-0.50** (0.09)	-0.45** (0.09)	0.23* (0.09)
education	-0.12 (0.14)	0.21 (0.14)	-0.04 (0.14)	0.47** (0.14)	0.26 (0.14)	-0.03 (0.13)	0.21 (0.14)	0.16 (0.15)
employment	0.01 (0.06)	0.08 (0.06)	0.02 (0.06)	-0.08 (0.06)	0.03 (0.05)	0.01 (0.06)	0.02 (0.06)	-0.09 (0.06)
domicile	-0.50** (0.18)	-0.34 (0.18)	0.33 (0.18)	-0.40* (0.14)	-0.29 (0.18)	0.64** (0.18)	0.25 (0.18)	-0.15 (0.18)
Pseudo R <sup>2</sup>	0.011	0.010	0.013	0.015	0.20	0.026	0.014	0.011
Obs.	411	411	411	411	411	411	411	411

Note: \* and \*\* indicate significance with p values of 0.05 and 0.01, respectively. Standard errors are reported in parentheses



Table A2. Drivers of willingness to comply with tax procedures

Constructs	Model 1					Model 2				
	$\beta$	SE	z	Sig.	$\beta$	SE	z	Sig.		
Tax system/ structure:										
TP	0.10	0.15	0.63	0.528	0.12	0.15	0.77	0.442		
TC	-0.25	0.11	-2.31	0.021	-0.25	0.11	-2.23	0.026		
Tax education:										
TI	0.18	0.16	1.12	0.264	0.18	0.17	1.10	0.273		
TK	0.36	0.15	2.34	0.019	0.35	0.16	2.23	0.026		
Tax attitude and perception:										
TM	1.60	0.19	8.23	0.000	1.57	0.20	8.03	0.000		
TF	0.49	0.15	3.18	0.001	0.50	0.15	3.22	0.001		
TG	0.94	0.19	5.06	0.000	0.96	0.19	5.12	0.000		
PW	0.80	0.17	4.71	0.000	0.81	0.17	4.67	0.000		
gender					0.06	0.24	0.25	0.806		
age					0.00	0.13	-0.03	0.974		
education					0.11	0.19	0.60	0.547		
employment					-0.17	0.08	-2.08	0.037		
domicile					-0.02	0.24	-0.09	0.926		
Pseudo R2				0.25				0.26		
N				411				411		

**Note:** SE—standard error; TP—tax penalties; TC—tax system complexity; TI—tax information; TK—tax knowledge; TM—tax morale; TF—tax system fairness; TG—trust in government; PW—perceived worth of COVID-19-related public spending.