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TAX COMPLIANCE COSTS AND TAX COMPLIANCE AMONG MSMES IN CIREBON

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ABSTRACT

This study estimates the magnitude and composition of the tax compliance costs borne by micro, small and medium enterprises (MSMEs) in Cirebon City and Cirebon Regency, Indonesia, and examines whether these costs are associated with tax compliance. Transaction Cost Theory provides the explanatory lens, and the framework of Sandford et al. (1989) defines compliance cost through explicit, implicit (time) and psychological components. Survey data were collected from 106 registered MSME taxpayers for tax year 2025. For the descriptive analysis, interval answers were converted into rupiah, with psychological cost taken as a single self-assessed rupiah value of strain. For the association test, tax compliance cost was specified as a reflective-formative higher-order construct, with psychological cost measured as a frequency-based stress scale, and estimated with the embedded two-stage approach in PLS-SEM, controlling for business size, legal form, location and registration tenure. The non-directional hypothesis was tested two-tailed. The mean annual compliance cost was IDR 5.23 million (median IDR 2.81 million), of which 56.8% was the self-valued psychological component, 29.7% time and 13.5% cash outlays; 91.5% of respondents reported no cash outlay. Because the psychological share is sensitive to its valuation, the robust finding is that the burden is mainly non-monetary. Tax compliance cost was positively associated with self-reported compliance ($\beta = 0.274$, $p < 0.001$, 95% CI 0.162 to 0.438), but the effect was small ($f^2 = 0.092$), the model explained 26.9% of the variance, and the result held when Stage 1 was re-estimated in Mode B. The psychological dimension carried the largest weight, which does not imply that heavier strain improves compliance. As the data are cross-sectional, the association may reflect resources sacrificed in more intensive compliance rather than an effect of cost. The results support reducing compliance time and uncertainty, not raising compliance costs.

Keywords: Tax Compliance Cost, Tax Compliance, MSMEs, Cirebon, PLS-SEM

ABSTRAK

Penelitian ini mengestimasi besaran dan komposisi biaya kepatuhan pajak yang ditanggung usaha mikro, kecil, dan menengah (UMKM) di Kota dan Kabupaten Cirebon, serta menguji hubungan biaya tersebut dengan kepatuhan pajak. Transaction Cost Theory digunakan sebagai lensa penjelas, sedangkan kerangka Sandford et al. (1989) menjadi dasar definisi biaya eksplisit, implisit (waktu), dan psikologis. Data survei dikumpulkan dari 106 wajib pajak UMKM terdaftar untuk Tahun Pajak 2025. Ketiga komponen diukur dengan dua cara. Untuk analisis deskriptif, jawaban interval dikonversi ke rupiah, dengan biaya psikologis berupa satu nilai rupiah yang ditetapkan sendiri oleh responden. Untuk pengujian hubungan, biaya kepatuhan pajak dispesifikasikan sebagai konstruk tingkat tinggi reflektif-formatif, dengan biaya psikologis berupa skala frekuensi stres, dan diestimasi dengan pendekatan embedded two-stage dalam PLS-SEM dengan kontrol skala usaha, bentuk usaha, lokasi usaha, dan lama menjadi wajib pajak. Hipotesis tidak berarah diuji dua sisi. Rata-rata biaya kepatuhan sebesar IDR 5,23 juta per tahun (median IDR 2,81 juta), terdiri atas 56,8% komponen psikologis yang dinilai sendiri, 29,7% waktu, dan 13,5% pengeluaran tunai; 91,5% responden tidak mengeluarkan biaya tunai. Karena

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porsi komponen psikologis peka terhadap cara penilaiannya, temuan yang paling kokoh adalah bahwa beban didominasi komponen nonmoneter. Biaya kepatuhan pajak berhubungan positif dengan kepatuhan yang dilaporkan sendiri (β = 0,274; p < 0,001; CI 95% 0,162 hingga 0,438), tetapi ukuran efeknya kecil (f^2 = 0,092), model menjelaskan 26,9% varians, dan hasilnya tetap sama ketika Tahap 1 diestimasi ulang dengan Mode B. Dimensi psikologis memiliki bobot terbesar, tetapi hal ini tidak berarti tekanan yang lebih berat meningkatkan kepatuhan. Karena data bersifat cross-sectional, hubungan tersebut mungkin mencerminkan pengorbanan sumber daya dalam aktivitas kepatuhan yang lebih intensif, bukan pengaruh biaya. Hasil penelitian mendukung upaya mengurangi waktu dan ketidakpastian kepatuhan, bukan menaikkan biaya kepatuhan.
Kata Kunci: Biaya Kepatuhan Pajak, Kepatuhan Pajak, UMKM, Cirebon, PLS-SEM

I. INTRODUCTION

Taxes are the main source of state financing, and the revenue that reaches the treasury depends not only on policy design but also on how far taxpayers meet their obligations voluntarily (Abdu & Adem, 2023; Appiah et al., 2024; Hardiningsih et al., 2020). In Indonesia, the national tax ratio was 12.1% in 2022, far below the Asia-Pacific average of 19.3% (OECD, 2024; Pudjono & Rachmania, 2025), and since 2007 it has stayed near the lower end of the regional range, at 12.0% in 2023 (Figure 1; OECD, 2024). The low ratio is linked to the rate structure, a narrow tax base and economic activity that is not recorded in tax administration (Adam & Halim, 2026; Safuan et al., 2022; Setyari et al., 2025); the shadow economy alone is estimated at 8.3% to 10% of GDP (Liyanto & Purnomolastu, 2026; Samuda, 2016). Compliance is, however, also a problem among taxpayers who are already registered (Jihin et al., 2021; Lediga et al., 2025; Supriyati et al., 2025).

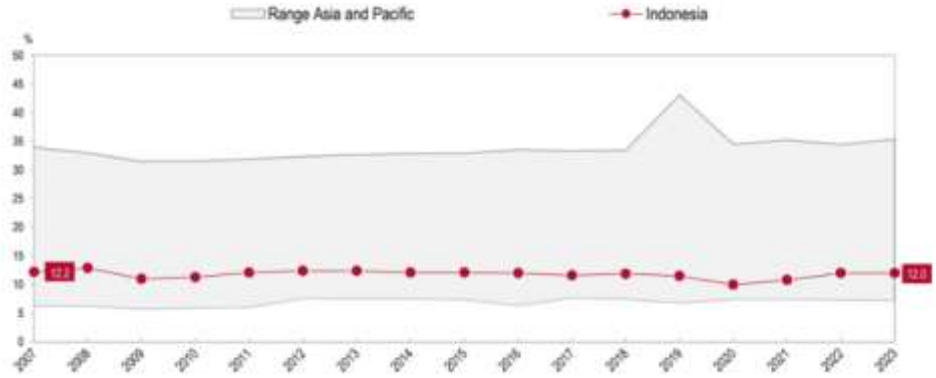


Figure 1. Tax – to - GDP Ratio of Indonesia and the Range of Asia-Pacific Economies, 2007 to 2023
Source: OECD (2024).

Micro, small and medium enterprises (MSMEs) are at the centre of this problem. The sector contributes about 60% of GDP and employs 97% of the national workforce (Aprilia et al., 2025; Delfira et al., 2025; Fauziah et al., 2024), yet it contributes less than 1% of national tax revenue (Dzulhijjah et al., 2025). Government Regulation 55/2022 exempts the first IDR 500 million of the annual gross turnover of individual taxpayers from final income tax and taxes turnover above that amount, up to IDR 4.8 billion, at 0.5% (Afkarini & Nurdiannova, 2024; Pemerintah Republik Indonesia, 2022; Yanto et al., 2025). The scheme simplifies administration for businesses that do not keep full books (Mas-Montserrat et al., 2023), and studies report favourable effects on registration and reporting when it is accompanied by outreach and service improvements (Herdyana & Situmorang, 2024; Hutagaol, 2025; Lumban Gaol & Lumban Gaol, 2023). Government Regulation 20/2026, in force since 22 April 2026, removed the time limit on the 0.5% rate for individuals and closed it to limited partnerships, firms and limited liability

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companies (Pemerintah Republik Indonesia, 2026). This study refers to tax year 2025, which was still governed by Government Regulation 55/2022.

A light rate does not by itself secure compliance. Many business owners still struggle to understand the rules, keep records, and calculate, pay and report correctly (Arfikayani et al., 2025; Budiarsa, 2024; Saputri & Nugraha, 2024). A case study of MSME taxpayers using the final income tax facility found that record keeping was irregular because of limited time and staff, and that some taxpayers relied on third parties for bookkeeping and annual returns (Silkapianis et al., 2023). The resources sacrificed solely to meet tax obligations, beyond the tax itself, are known as tax compliance cost (TCC) (Bruce-Twum, 2023; Musimenta, 2020; Sandford et al., 1989; Stark et al., 2024). Sandford et al. (1989) distinguish explicit cost (EXP), the direct financial outlay; implicit cost (IMP), the time and effort spent; and psychological cost (PSY), the mental strain of dealing with taxation. Compliance costs are regressive, weighing far more heavily on small businesses relative to turnover, because much of the work is fixed (Matarirano et al., 2019; Mutanda et al., 2026; Smulders et al., 2012). For Indonesia, Ferry et al. (2023) estimated mean annual compliance costs for individual MSME taxpayers in tax year 2019 of IDR 77.5 million under the final scheme and IDR 154.7 million under the general scheme; the final scheme was associated with significantly lower explicit costs, whereas differences in implicit and psychological costs were not significant after controls.

Evidence on how compliance costs relate to compliance is mixed. Some studies report a negative relationship (Mebratu, 2024; Obaid et al., 2024; Sandi & Trisnawati, 2023), others a positive one (Bruce-Twum, 2023; John et al., 2024; Maharani, 2025), and others no significant relationship (Silviyani & Margie, 2024; Siregar et al., 2025; Trayayudha et al., 2021). The research period adds context: the Directorate General of Taxes has operated Coretax as its core administration system since 1 January 2025, and its early phase was marked by service disruptions (Hidayat & Inayati, 2025).

Cirebon City and Cirebon Regency provide a relevant setting. Both have growing MSME sectors (Daiman et al., 2025; Fauzi et al., 2022); local records list about 100,000 micro enterprises in the regency and 5,353 MSMEs in the city, although the two counts have different coverage and cannot be compared directly (Dinas Koperasi UKM Perdagangan dan Perindustrian Kota Cirebon, 2026; Dinas Koperasi Usaha Kecil dan Menengah Kabupaten Cirebon, 2026). Both belong to the Rebana growth area of West Java (Pemerintah Republik Indonesia, 2021b), and in 2025 the regency economy grew by 6.23% and the city economy by 5.34% (Fadhlurrahman, 2026a, 2026b), faster than the national 5.11% (Badan Pusat Statistik, 2026). Internal data from KPP Pratama Cirebon Satu, whose jurisdiction covers Cirebon City only, show 31,597 registered MSME taxpayers as of 7 January 2026. Following internal memorandum ND-668/PJ.06/2022, non-effective taxpayers, taxpayers no longer meeting the final scheme criteria and individuals with turnover up to IDR 500 million were separated, leaving 1,133 active taxpayers whose compliance is assessed by payment frequency in the last tax year and annual return filing over three years. Only 54 of them (4.77%) were classified as compliant, 439 (38.75%) as less compliant and 640 (56.49%) as non-compliant. Comparable data for Cirebon Regency were not available to the authors, so these figures describe the administrative context of the city only and are not a measure of compliance in both areas or in the study sample.

Three gaps remain. Methodologically, compliance cost is measured in many ways, psychological cost is the hardest component to capture, and estimates are sensitive to question design (Eichfelder & Hechtner, 2018; Lopes & Martins, 2013; Muamarah & Marsono, 2024). Ferry et al. (2023) quantified all three components for Indonesian individual MSME taxpayers, but they estimated magnitudes, compared schemes and related components to one another rather than testing the link with compliance, while studies that do test that link mostly use general perception items, an experimentally fixed cost or scenario-based non-compliance (Table 1). Empirically, the direction and significance of the link are unsettled. Contextually, the Indonesian evidence on three-component costs refers to individual taxpayers in tax year 2019, before Government Regulation 55/2022 and Coretax.

This study addresses these gaps with one sample of individual and corporate MSME taxpayers in Cirebon City and Cirebon Regency for tax year 2025. It differs from Ferry et al. (2023) in three respects. In measurement, it uses the three Sandford components twice: as rupiah estimates to describe

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the burden and as a multidimensional construct to test the association. In analysis, it tests that association without presuming a direction, using a reflective-formative higher-order construct and two-tailed tests. In context, it covers corporate as well as individual taxpayers in the first year of Coretax. Two research questions (RQ) are addressed. RQ1 asks how large the compliance costs of MSME taxpayers are and what they consist of; RQ2 asks whether tax compliance cost is associated with tax compliance. The contribution is an updated respondent-level cost profile for small taxpayers and evidence on how that burden co-varies with self-reported compliance, offered as association rather than causal effect.

II. LITERATURE REVIEW

Transaction Cost Theory

Transaction Cost Theory (TCT) starts from the argument of Coase (1937) that using the price mechanism is costly, for example in finding information, negotiating and contracting. Williamson (1979, 1985) developed it into transaction cost economics, in which bounded rationality and opportunism are the behavioural assumptions, and asset specificity, uncertainty and frequency are the attributes that drive the cost of a transaction; governance structures that fit these attributes economise on these costs (Williamson, 1989). This study applies the theory by analogy to the relationship between taxpayers and the tax authority (Arsalim et al., 2025; Mebratu, 2024), a relationship whose character also shapes the compliance costs that small businesses bear (Dixon et al., 2025), and uses three of its concepts to explain how the forms of compliance cost arise. Under bounded rationality, MSME owners have limited capacity to obtain and process tax information and seldom employ administrative staff, so learning the rules and preparing documents take time (implicit cost), and when capacity is insufficient the taxpayer may buy it from a consultant (explicit cost). Under uncertainty, complex or changing rules, including a new filing system, make it hard to know whether an obligation has been met correctly, which adds checking time and worry about errors and sanctions (psychological cost). Under frequency, payment and reporting recur every month or year, so much of the cost is fixed and is borne again in each period, which explains the regressive pattern, while repetition may also lower the cost per transaction as taxpayers gain experience. Simplified regimes and electronic systems play the part of governance structures that aim to lower these costs.

The theory allows two links between compliance cost and compliance. If transaction costs are high relative to the taxpayer's resources, they can deter completion of the transaction, implying a negative association. Yet transaction costs are incurred only when a transaction is carried out, so a taxpayer who records, calculates, pays and files more completely spends more time, may pay for help and may feel more strain, implying a positive association. These are conceptual possibilities, not mechanisms demonstrated here, and both may operate in one sample.

Tax Compliance Cost and Tax Compliance

Whereas TCT supplies the explanatory logic, Sandford et al. (1989) supply the definition and measurement framework. Compliance cost is the cost borne by taxpayers in meeting tax requirements over and above the tax paid, as distinct from the administrative cost of the tax authority. Its components are labelled here as explicit cost (cash paid for compliance, such as consultant fees), implicit cost (time on tax tasks, valued as opportunity cost) and psychological cost (stress and anxiety that accompany tax obligations) (Pradina & Anggoro, 2024; Sandford et al., 1989). Psychological cost is part of the burden but has no natural monetary unit and is rarely valued in money (Dulleck et al., 2016; Lopes & Martins, 2013). Explicit and implicit costs can be expressed in rupiah and hours and analysed directly to estimate the size of the burden, but a single rupiah or hour value represents only one form of sacrifice. Prior studies therefore model compliance cost through several indicators: Musimenta (2020) measures internal and external costs with questionnaire items, Al Rasyid et al. (2026) model compliance cost in PLS-SEM through indicators of consultant fees, time and additional costs, and Saptono et al. (2026) treat perceived reductions in time, financial and procedural costs as a reflective construct. Following this logic, nominal values are used here to estimate magnitude (RQ1) and a multidimensional construct to test the association (RQ2).

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Tax compliance is the fulfilment of tax obligations, including calculation, payment and reporting, in accordance with the rules (Aidah et al., 2025; Novikasari et al., 2021). Following Musimenta et al. (2017), it is measured through reporting compliance and payment compliance, as self-assessed by the taxpayer. Four characteristics are included as controls and are not hypothesised: business size, which reflects financial and administrative capacity, and legal form, which separates individuals from business entities with different obligations (Smulders et al., 2016); business location, which captures differences in access to tax information and services (Soglo & Amedanou, 2023); and registration tenure, which captures administrative experience (Fauziati & Kassim, 2018).

Previous Evidence and Hypothesis Development

Table 1 maps studies that test the relationship between compliance cost and compliance. Mahangila (2017), Sandi and Trisnawati (2023), Mebratu (2024) and Obaid et al. (2024) report a negative relationship. Syafira (2021), John et al. (2024), Maharani (2025) and Ussholehah et al. (2025) report a positive one, and Bruce-Twum (2023) finds that higher compliance costs accompany lower scenario-based non-compliance, which is substantively a positive link. Trayayudha et al. (2021), Silviyani and Margie (2024) and Siregar et al. (2025) find no significant relationship.

Table 1. Previous Studies on Compliance Cost and Tax Compliance

Study	Respondents, setting and method	Measurement of compliance cost	Reported direction
Mahangila (2017)	75 SME owners, Tanzania; experiment	Cost level set as treatment	Non-compliance rises with cost (negative)
Sandi & Trisnawati (2023)	MSME taxpayers, Indonesia; survey	Questionnaire items	Negative, significant
Mebratu (2024)	1,550 large taxpayers, Ethiopia; logit	One of several determinants	Negative, significant
Obaid et al. (2024)	Manufacturing SMEs, Yemen; PLS-SEM	Compliance cost as mediator	Negative ($\beta = -0.201$)
Syafira (2021)	100 individuals, KPP Badung Utara; regression	Questionnaire items	Positive (0.255)
John et al. (2024)	552 SMEs, Benue, Nigeria; PLS-SEM	Compliance cost and tax burden	Positive, significant
Maharani (2025)	100 MSMEs, KPP Gresik; PLS	Money and time, no psychological cost	Positive ($\beta = 0.184$)
Ussholehah et al. (2025)	104 e-filing users; regression	Questionnaire items	Positive, significant
Bruce-Twum (2023)	116 SMEs, Ghana; regression	Internal, external, incidental; scenario-based outcome	Negative on non-compliance ($\beta = -0.52$)
Trayayudha et al. (2021)	100 individuals, KPP Jayapura; regression	Questionnaire items	Not significant
Silviyani & Margie (2024)	100 taxpayers, KPP Serpong; regression	Questionnaire items	Not significant
Siregar et al. (2025)	145 corporate taxpayers, Banjarmasin; regression	Questionnaire items	Not significant

Source: Compiled by the authors from the cited studies (2026).

These studies differ in ways that limit comparison: Mahangila (2017) fixes cost experimentally, Bruce-Twum (2023) uses scenario-based non-compliance as the outcome, Mebratu (2024) studies large taxpayers, and Obaid et al. (2024) treat cost as a mediator, while most others use general items that do not reveal whether respondents report costs incurred or burden perceived. The mixed results may therefore reflect measurement and setting as much as any underlying relationship. Together with the two possibilities derived from TCT, and because the instrument used here records costs incurred during one tax year and cannot separate costs that hinder compliance from costs that accompany it, the evidence

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does not justify a directional expectation. The hypothesis is therefore non-directional and tested two-tailed.

H1: Tax compliance cost is associated with the tax compliance of MSMEs in Cirebon City and Cirebon Regency

Conceptual Framework

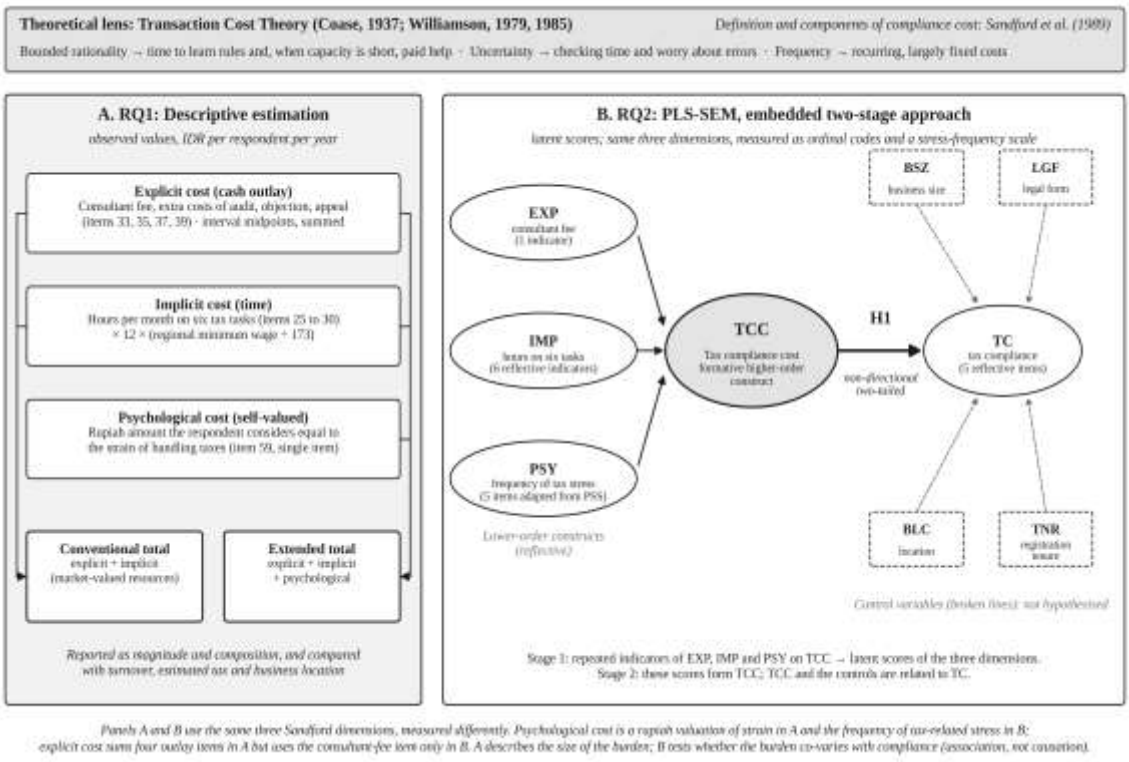


Figure 2. Conceptual Framework
Source: Processed by the authors (2026).

Figure 2 summarises the framework. TCT frames both research questions and Sandford et al. (1989) define the components, but the two questions use different measurements. Panel A (RQ1) is descriptive: each component is converted into rupiah per respondent per year from observed answers and summed into a conventional total (explicit plus implicit, the resources with a market value) and an extended total (adding the self-valued psychological cost); nothing in Panel A is a latent variable. Panel B (RQ2) is inferential: the same dimensions are lower-order constructs measured by ordinal codes and, for psychological cost, by a stress-frequency scale; their latent scores form TCC as a higher-order construct, and H1 links TCC to tax compliance (TC) without a sign. Business size (BSZ), legal form (LGF), business location (BLC) and registration tenure (TNR) are controls.

The dimensions are formative components of TCC, giving a reflective-formative higher-order construct (Becker et al., 2012; Jarvis et al., 2003; Sarstedt et al., 2019), for three reasons. First, by definition compliance cost is the sum of resources sacrificed in cash, time and strain (Sandford et al., 1989), so the dimensions define the construct rather than reflect it. Second, the dimensions need not co-vary: a taxpayer who pays a consultant may spend little time, and one who files alone may spend much time without any cash outlay. Third, dropping a dimension would change the meaning of the construct (Jarvis et al., 2003). Within each dimension, by contrast, the items reflect the same experience, for example the stress items of psychological cost. The low correlations among the dimensions in the data (HTMT 0.227 between IMP and PSY in Stage 1) are consistent with this specification.

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III. RESEARCH METHOD

Design, Population and Sample

The study is quantitative, cross-sectional and explanatory. The population is registered MSME taxpayers, individuals and business entities, with gross turnover of at most IDR 4.8 billion in tax year 2025, operating in Cirebon City (KPP Pratama Cirebon Satu) or Cirebon Regency (KPP Pratama Cirebon Dua). Its size could not be determined because the available aggregate data do not separate taxpayers by activity status and turnover, so non-probability purposive sampling was used. The criteria were registration at one of the two offices, turnover within the limit, a taxpayer number (NPWP) used for the business in 2025, a business located in the city or regency, and consent. Data were collected through Google Form between 13 July and 12 September 2026, after the 2025 annual return deadline. Respondents were reached at the tax offices, through personal networks and, for the regency, door to door; of 134 responses, 28 were incomplete or did not meet the criteria, leaving 106 (50 city, 56 regency). The first 30 responses served as a pilot test, a size adequate for initial scale assessment (Johanson & Brooks, 2010); Cronbach's alpha was 0.757 for the ten stress items and 0.926 for the five compliance items, and as the instrument was not changed these responses were retained.

By the inverse square root method, 106 observations allow path coefficients of about 0.24 or larger to be detected at the 5% level with 80% power (Kock & Hadaya, 2018); the post-hoc power of the TCC to TC path is 0.880. The sample is dominated by individual taxpayers (94 of 106) and by businesses with turnover of at most IDR 500 million (92 of 106), reflecting the predominance of individual micro businesses in the sector and the recruitment channels available without a sampling frame. Three consequences follow: the cost estimates mainly describe individual micro businesses; the 14 respondents above the threshold and the 12 business entities are too few for separate estimates, so turnover comparisons are indicative only; and business size varies little as a control. The findings describe this sample and are not generalised to all MSME taxpayers in the two areas, in particular not to larger MSMEs or business entities.

Instruments and Operational Definitions

The cost items were adapted from Ferry et al. (2023): time (items 25 to 30), the respondent's own rupiah value of time (item 31), explicit cost (items 32 to 39) and psychological cost (items 40 to 59). The ten stress-frequency items adapt the Perceived Stress Scale (Cohen et al., 1983) to taxation, and item 59 asks for a rupiah value of psychological strain. Time and money were asked in six equal intervals (5 hours per month and IDR 10 million per year), because most MSME owners do not record these amounts precisely, and scored 1 to 6; these scores express the order of the reported amount and are not Likert agreement scores. Ordinal indicators with five or more categories can be treated as continuous with little bias (Rhemtulla et al., 2012). The compliance items follow Musimenta et al. (2017) on a six-point scale. Items on tax system quality and perceived burden belong to the broader study and are outside the scope of this article. Table 2 defines the monetary measures and Table 3 the latent constructs and controls.

Table 2. Monetary Measurement of Compliance Cost (IDR per Year)

Component	Questionnaire items	Conversion and formula
Explicit cost	Consultant fee (33) and additional costs of audit (35), objection (37) and appeal (39); categories IDR 0, >0 to 10 m, ..., >40 m per year	Midpoints IDR 0, 5, 15, 25, 35 and 45 m (open category: lower bound plus half the interval width); sum of four items (Celeste & Bastos, 2013; Ferry et al., 2023)
Implicit cost (time)	Hours per month to learn rules (25), collect documents (26), pay (27), file the annual return (28), communicate with tax officers (29) and with consultants or others (30); categories none, >0 to 5, ..., >20 hours	Midpoints 0 to 22.5 hours; hours × 12 × (2025 minimum wage ÷ 173); hourly IDR 15,593.55 (city) and IDR 15,499.32 (regency) (Pemerintah Republik Indonesia, 2021a)
Psychological cost	Rupiah amount the respondent considers equivalent to the strain of handling taxes in 2025 (59)	Midpoint; a subjective valuation, not an observed expenditure

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Own time value	Rupiah value the respondent assigns to all tax time in 2025 (31)	Midpoint; comparison only, not added to any total
Totals		Conventional = explicit + implicit; extended = explicit + implicit + psychological (Sandford et al., 1989)

Source: Processed by the authors from the research questionnaire (2026). m = million

Table 3. Latent Constructs, Indicators and Control Variables

Variable	Code	Indicators (items) and scale
Tax compliance cost, reflective-formative higher-order construct	TCC	Stage 1 latent scores of EXP, IMP and PSY, estimated in Mode B in Stage 2 (Sandford et al., 1989; Sarstedt et al., 2019)
Explicit cost, single indicator	EXP	EXP 1 consultant fee (33); 1 = IDR 0 to 6 = >IDR 40 m per year. Items 35, 37 and 39 hardly vary and were not modelled
Implicit cost, reflective	IMP	IMP 1 to IMP 6 (items 25 to 30); 1 = none to 6 = >20 hours per month
Psychological cost, reflective	PSY	Frequency of feeling upset by unexpected tax information (PSY 1), burdened (PSY 2), pressured (PSY 3), angry about problems beyond control (PSY 9) and overwhelmed (PSY 10); 1 = never to 6 = always (Cohen et al., 1983). PSY 4 to PSY 8 removed (Section IV)
Tax compliance, reflective	TC	Return filed on time (TC 1), all business income reported (TC 2), return matches actual condition (TC 3), tax paid on time (TC 4), no arrears (TC 5); 1 = strongly disagree to 6 = strongly agree (Musimenta et al., 2017)
Business size; legal form; location; registration tenure (controls)	BSZ; LGF; BLC; TNR	Turnover group 1 to 4; 0 = individual, 1 = entity; 0 = city, 1 = regency; tenure group 1 (<1 year) to 5 (>10 years)

Source: Processed by the authors from the research questionnaire (2026). m = million.

Two Measurements of the Same Dimensions

Tables 2 and 3 measure the same dimensions differently. Monetary explicit cost sums four items, whereas latent EXP uses the consultant fee only. Time enters both as hours valued at the minimum wage and as ordinal codes. The largest difference concerns psychological cost: in the monetary measure it is a single rupiah amount that respondents consider equivalent to their strain, a subjective valuation rather than an expenditure; in the latent measure it is how often stress is experienced, measured by five items. The two can diverge for the same respondent, who may report frequent stress yet put no rupiah value on it, so they cannot be converted into each other. Two implications follow. The psychological share in RQ1 rests on one subjective item and is the least robust part of the cost profile; and the association in RQ2 concerns the frequency of strain, not its rupiah value, so the two results should not be combined into a claim that higher psychological cost in rupiah accompanies higher compliance.

Monetary Calculation and PLS-SEM Analysis

For RQ1, interval answers were converted to midpoints (Celeste & Bastos, 2013). Monthly hours were summed over six activities, multiplied by 12 and valued at 1/173 of the 2025 minimum wage, following Article 32(2) of Government Regulation 35/2021 (Pemerintah Republik Indonesia, 2021a). The extended total is the main measure; the conventional total is also reported because most studies do not monetise strain. Costs were related to turnover group midpoints and to an approximate final income tax of 0.5% of the midpoint after deducting IDR 500 million for individuals. Group differences are described without significance tests.

For RQ2, the model $TC = \beta_1 TCC + \beta_2 BSZ + \beta_3 LGF + \beta_4 BLC + \beta_5 TNR + \zeta$ was estimated in SmartPLS 4 with the embedded two-stage approach (Sarstedt et al., 2019). Stage 1 estimates the full model with the indicators of EXP, IMP and PSY repeated on TCC, using path weighting, and Stage 2

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uses the resulting EXP, IMP and PSY scores as formative indicators of TCC. This approach was preferred to repeated indicators alone because TCC is formative and its dimensions have unequal numbers of indicators (one, six and five): with repeated indicators alone the dimensions explain TCC fully (R^2 = 1.000 in Stage 1), leaving no variance for other antecedents, and dimensions with more indicators receive more weight (Becker et al., 2012; Sarstedt et al., 2019). Stages and estimation modes are distinct. Mode A (correlation weights) and Mode B (regression weights) are ways of estimating indicator weights, whereas bootstrapping is the procedure for testing significance. In both stages the reflective lower-order constructs are estimated in Mode A, and in Stage 2 the formative TCC is estimated in Mode B. In Stage 1 of the main estimation, however, the repeated indicators of TCC were drawn reflectively and thus estimated in Mode A, the software default, whereas Sarstedt et al. (2019), building on Becker et al. (2012), recommend Mode B for this step. Because this choice can affect the lower-order scores indirectly through the inner proxies, Stage 1 was re-estimated with TCC in Mode B and Stage 2, including bootstrapping, was repeated with the new scores as a sensitivity check; the original specification is kept as the main model, consistent with the underlying thesis.

Reflective measures were assessed through loadings (0.708 or higher; loadings between 0.40 and 0.708 retained if removal does not raise reliability or AVE above the threshold), Cronbach's alpha, ρA and ρC, AVE (0.50 or higher) and HTMT (below 0.85; Henseler et al., 2015). Formative TCC was assessed through VIF and the significance of weights and loadings (Hair et al., 2022). Significance was tested with percentile bootstrapping (5,000 subsamples, two-tailed, $\alpha = 0.05$); f^2 of 0.02, 0.15 and 0.35 denotes small, medium and large effects (Cohen, 1988). Out-of-sample predictive power was assessed with PLSpredict and CVPAT (Liengaard et al., 2021; Shmueli et al., 2019). The arrows express the hypothesised specification, not a demonstrated causal order: a causal reading rests on assumptions the data cannot confirm (Bollen & Pearl, 2013), and with cross-sectional survey data reverse causality, omitted variables and measurement error are the main threats (Antonakis et al., 2010). The estimate of H1 is therefore interpreted as a conditional association.

IV. RESULTS

Respondent Characteristics

Most respondents are individual taxpayers (88.7%) with 2025 turnover of at most IDR 500 million (86.8%), and more than half have been registered for over ten years (Table 4). Nearly half (48.1%) report never having paid business income tax. Table 5 shows that all 51 of them are individuals with turnover of at most IDR 500 million, and nine wrote on their own that they are not yet liable or that their business is micro; every business entity pays under either the final or the general scheme. Because Government Regulation 55/2022 exempts the first IDR 500 million of an individual's turnover from final income tax, and this exemption does not apply to business entities, never having paid in this sample coincides with not yet owing final income tax rather than with arrears or evasion. Two qualifications apply: turnover was reported in bands and not verified, so non-liability is inferred, and the data do not show whether these respondents filed the annual return that remains mandatory.

Table 4. Respondent Characteristics (n = 106)

Characteristic	Category (n; %)
Business location	Cirebon City (50; 47.2); Cirebon Regency (56; 52.8)
Legal form	Individual or sole proprietorship (94; 88.7); business entity (12; 11.3)
2025 turnover	≤ IDR 500 m (92; 86.8); > 500 m to 1 b (9; 8.5); > 1 to 2 b (2; 1.9); > 2 to 4.8 b (3; 2.8)
Registration tenure	< 1 year (12; 11.3); 1 to 2 (13; 12.3); 3 to 5 (10; 9.4); 6 to 10 (13; 12.3); > 10 years (58; 54.7)
Education	Primary to senior secondary (53; 50.0); diploma or higher (53; 50.0)
Keeps business records	Yes (53; 50.0)
2025 income tax scheme	Final 0.5% (47; 44.3); general rate (8; 7.5); never paid business income tax (51; 48.1)
Annual return filing	At the tax office (54; 50.9); electronically (31; 29.2); through a consultant or other person (12; 11.3); other or not filed (9; 8.5)

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Source: Research data processed by the authors (2026). m = million, b = billion.

Table 5. Reported Tax Scheme by Legal Form and Turnover (n = 106)

Legal form	Turnover 2025	Final 0.5%	General rate	Never paid	Total
Individual	≤ IDR 500 m	29	4	51	84
Individual	> IDR 500 m	10	0	0	10
Business entity	≤ IDR 500 m	6	2	0	8
Business entity	> IDR 500 m	2	2	0	4
Total		47	8	51	106

Source: Research data processed by the authors (2026). Free-text answers indicating no payment of business income tax are classified as never paid. m = million.

RQ1: Magnitude and Composition of Compliance Cost

The mean extended compliance cost is IDR 5,233,156 per respondent per year and the median IDR 2,806,840 (Table 6). The distribution is strongly right-skewed (maximum IDR 56,227,360), so the median better summarises the typical burden. By mean composition, the self-valued psychological component accounts for 56.8%, time for 29.7% and cash outlay for 13.5%. Cash outlay is rare: 97 respondents (91.5%) report none. Time is the most widespread component, reported by 89 respondents (84.0%), with a mean of 8.3 hours per month. The conventional cost has a mean of IDR 2,261,458, of which time is 68.7% and cash 31.3%. The two totals are complementary: the conventional total counts resources with a market value and is comparable with studies that do not monetise strain, whereas the extended total adds the value respondents place on their strain. The psychological component is a subjective valuation, and 59 respondents (55.7%) set it at zero. Its share is also sensitive to the valuation: if it is halved, the share falls from 56.8% to 39.7%, and time (41.5%) becomes the largest component, with cash at 18.9%. The robust finding is therefore that the burden is mainly non-monetary.

Table 6. Estimated Tax Compliance Cost per Respondent (IDR per Year)

Component	Median	Maximum	Mean	n = 0	Share of extended mean
Compliance time (hours per month)	5.0	75.0	8.3	17	
Explicit cost	0	25,000,000	707,547	97	13.5%
Implicit cost (time at minimum wage)	929,959	14,034,199	1,553,910	17	29.7%
Psychological cost (self-valued)	0	45,000,000	2,971,698	59	56.8%
Conventional total (explicit + implicit)			2,261,458		43.2%
Extended total	2,806,840	56,227,360	5,233,156	14	100.0%
Respondents' own time value (comparison)	5,000,000	35,000,000	3,726,415	39	not included

Source: Research data processed by the authors (2026). Minimum of every component is 0. The conventional total is the sum of component means.

Valuing time at the minimum wage is conservative: respondents' own time valuation averages IDR 3,726,415, 2.40 times the minimum-wage value, and 65 respondents value their time above it, so the minimum-wage estimate is better read as a lower bound of implicit cost. Annualising monthly hours also applies to the annual return, which may overstate it, and most non-zero answers fall in the lowest interval and are valued at its midpoint, so the estimates are orders of magnitude under stated assumptions. Table 7 shows that city respondents have a higher mean cost but regency respondents a higher median, so no location difference is established. Mean extended cost falls from 1.81% of turnover in the lowest group to 0.29% in the highest, and in the IDR 500 million to 1 billion group cost is almost six times the approximate final income tax (587%), consistent with the regressivity reported in the literature (Matarirano et al., 2019; Smulders et al., 2012), although the upper groups contain only 14 respondents. Self-reported compliance is high: item means range from 4.78 to 5.27 on the six-point scale and 80.2% to 90.6% of respondents agree with each item, a ceiling pattern that limits the variance to be explained.

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Table 7. Mean Compliance Cost by Location and Turnover Group (IDR per Year)

Group	n	Explicit	Implicit	Psychological	Extended (median)	Cost/turnover	Cost/est. tax
Cirebon City	50	1,100,000	1,908,651	3,200,000	6,208,651 (2,806,840)		
Cirebon Regency	56	357,143	1,237,178	2,767,857	4,362,178 (4,127,428)		
Turnover ≤ IDR 500 m	92				4,512,967 (2,324,898)	1.81%	
> 500 m to 1 b	9				10,596,641 (7,324,898)	1.41%	587%
> 1 to 2 b	2				7,324,898 (7,324,898)	0.49%	117%
> 2 to 4.8 b	3				9,834,002 (7,339,033)	0.29%	64%

Source: Research data processed by the authors (2026). Ratios use group mean cost and turnover midpoints (IDR 250 m, 750 m, 1.5 b and 3.4 b). Estimated tax = 0.5% of the midpoint after deducting IDR 500 m for individuals. m = million, b = billion.

RQ2: Measurement Model

In the initial Stage 1 estimation with all ten stress items, PSY did not reach convergent validity (AVE = 0.396). The positively worded, reverse-scored items PSY 4, 5, 7 and 8 loaded negatively and weakly (−0.196 to −0.307) and PSY 6 loaded at 0.601, so these five items were removed. The five remaining items load at 0.768 to 0.873 and AVE rises to 0.702 (Table 8). IMP 4, IMP 6 and TC 5 (0.59 to 0.64) were retained because AVE and reliability exceed their thresholds. All loadings are significant in the Stage 1 bootstrap (IMP $p \leq 0.004$; PSY $p < 0.001$) and the Stage 2 bootstrap (TC $p < 0.001$). Discriminant validity is met: the highest HTMT is 0.493 (IMP and LGF) in Stage 1 and 0.427 (TNR and TC) in Stage 2.

Table 8. Reflective Measurement Model

Construct	Loadings (bootstrap t)	α	ρA	ρC	AVE
PSY (Stage 1)	PSY 1 0.856 (12.83); PSY 2 0.873 (12.20); PSY 3 0.817 (10.20); PSY 9 0.768 (8.28); PSY 10 0.871 (12.38)	0.893	0.900	0.922	0.702
IMP (Stage 1)	IMP 1 0.770 (3.82); IMP 2 0.859 (3.99); IMP 3 0.921 (4.06); IMP 4 0.593 (4.35); IMP 5 0.725 (3.52); IMP 6 0.642 (2.85)	0.847	0.863	0.889	0.578
EXP (Stage 1)	EXP 1 1.000 (single indicator)				
TC (Stage 2)	TC 1 0.833 (16.32); TC 2 0.897 (27.48); TC 3 0.891 (19.87); TC 4 0.855 (14.54); TC 5 0.602 (4.17)	0.874	0.874	0.912	0.678

Source: SmartPLS 4 output (algorithm and bootstrap, 5,000 subsamples, percentile, two-tailed), processed by the authors (2026).

Collinearity among the formative dimensions is negligible (VIF ≤ 1.075; Table 9). PSY has the largest weight (0.826) and EXP a smaller significant weight (0.463), while the weight of IMP is close to zero (0.056) and its loading (0.311) is not significant. The EXP weight rests on a single indicator with few non-zero answers. The near-zero IMP weight means that, given PSY and EXP, time adds little to the composite in this sample; it does not mean that time is unimportant, since time is the most widespread cost in RQ1. IMP was therefore retained, because time is a defining component of compliance cost and a non-significant formative weight indicates a small relative contribution rather than irrelevance (Cenfetelli & Bassellier, 2009; Hair et al., 2022).

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Table 9. Formative Measurement of TCC (Stage 2)

Dimension	Weight	p	95% CI (weight)	Loading	p	VIF
EXP to TCC	0.463	0.024	0.032 to 0.866	0.551	0.003	1.040
IMP to TCC	0.056	0.873	−0.658 to 0.681	0.311	0.368	1.075
PSY to TCC	0.826	< 0.001	0.200 to 0.980	0.880	< 0.001	1.046

Source: SmartPLS 4 bootstrap output (5,000 subsamples, percentile, two-tailed), processed by the authors (2026).

RQ2: Structural Model and Hypothesis Test

Structural collinearity is low (VIF 1.106 to 1.164). TCC is positively and significantly associated with TC (β = 0.274, t = 3.823, p < 0.001, 95% CI 0.162 to 0.438), so H1 is supported (Table 10; Figure 3). Among the controls, registration tenure is associated with compliance (β = 0.374, p < 0.001), while legal form, location and business size are not. Holding the controls constant, respondents whose TCC score is one standard deviation higher report compliance about 0.27 standard deviations higher. The effect is small (f^2 = 0.092): removing TCC would lower R^2 by about 0.067, roughly a quarter of the explained variance. The model explains 26.9% of the variance in compliance (adjusted 23.2%), which is weak by conventional benchmarks (Hair et al., 2022), and tenure has a larger effect (f^2 = 0.173); most of the variation in compliance lies outside the model, where factors such as tax knowledge, sanctions and social norms are likely to operate.

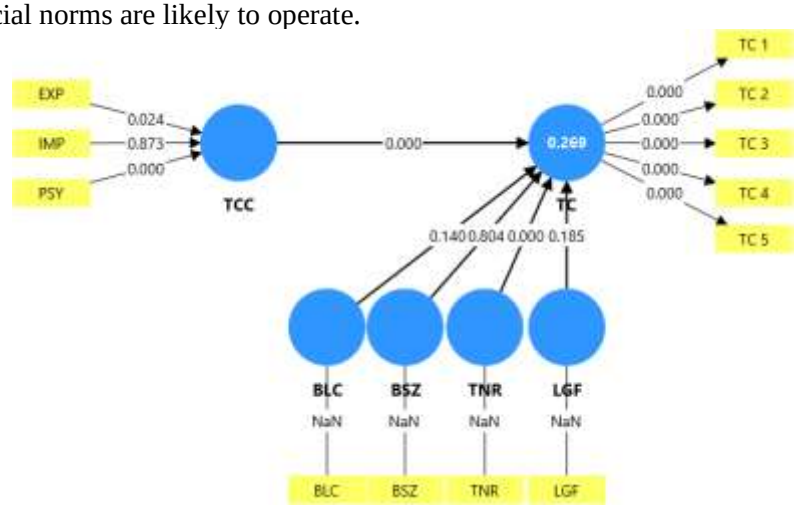


Figure 3. Stage 2 Model with Bootstrap p-Values and R^2

Source: SmartPLS 4 Stage 2 bootstrap output (5,000 subsamples, percentile, two-tailed), processed by the authors (2026). Numbers on the arrows are two-tailed p-values, the number inside TC is R^2, and NaN marks single-indicator constructs.

Table 10. Structural Model Results

Path	β	t	p	95% CI	f^2	Decision
TCC to TC (H1)	0.274	3.823	< 0.001	0.162 to 0.438	0.092	Supported
BSZ to TC	0.015	0.248	0.804	−0.116 to 0.122	0.000	Control
LGF to TC	0.292	1.325	0.185	−0.164 to 0.695	0.010	Control
BLC to TC	0.256	1.475	0.140	−0.087 to 0.593	0.019	Control
TNR to TC	0.374	3.855	< 0.001	0.171 to 0.555	0.173	Control
R^2 (adjusted R^2)	0.269 (0.232)					

Source: SmartPLS 4 bootstrap output (5,000 subsamples, percentile, two-tailed), processed by the authors (2026). LGF and BLC coefficients are differences in TC, in standard deviations, between dummy categories.

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Two robustness checks leave the conclusion unchanged. Removing IMP from TCC gives β = 0.272 (t = 4.120, p < 0.001, 95% CI 0.147 to 0.405; R^2 = 0.269), with PSY again carrying the larger weight. Re-estimating Stage 1 with TCC in Mode B leaves the EXP scores unchanged and yields IMP and PSY scores that correlate at 0.995 and 0.999 with the original ones; in Stage 2 the coefficient becomes 0.288, R^2 0.272 and f^2 0.098, and the pattern of weights is the same (Table 11). Out of sample, Q^2predict is positive but small for the TC indicators (0.078 to 0.120); the PLS-SEM prediction errors (MAE) are lower than those of the linear benchmark for all five indicators, but CVPAT shows no significant advantage over the indicator average (p = 0.184) or the linear model (p = 0.925). Predictive power is therefore weak.

Table 11. Sensitivity of Stage 2 Results to the Stage 1 Estimation Mode of TCC

Result	Main model (Stage 1 Mode A)	Sensitivity check (Stage 1 Mode B)
Correlation with main-model scores (EXP; IMP; PSY)		1.000; 0.995; 0.999
TCC to TC: β (t; p)	0.274 (3.823; < 0.001)	0.288 (3.873; < 0.001)
TCC to TC: 95% CI	0.162 to 0.438	0.174 to 0.464
f^2; R^2 (adjusted)	0.092; 0.269 (0.232)	0.098; 0.272 (0.235)
Weights EXP; IMP; PSY (p)	0.463 (0.024); 0.056 (0.873); 0.826 (< 0.001)	0.409 (0.035); 0.194 (0.562); 0.793 (< 0.001)
Highest VIF among dimensions	1.075	1.081

Source: SmartPLS 4 output (Stage 1 and Stage 2 algorithms; Stage 2 bootstrap, 5,000 subsamples, percentile, two-tailed), processed by the authors (2026). Only the Stage 1 mode of the repeated indicators of TCC differs.

DISCUSSION

The Compliance Burden of MSMEs

The compliance burden of MSMEs in Cirebon is mainly non-monetary. The mean of IDR 5.23 million per year is far below the IDR 77.5 million and IDR 154.7 million reported by Ferry et al. (2023) for tax year 2019, and at least three differences explain much of the gap: 86.8% of respondents have turnover of at most IDR 500 million and 48.1% have never paid business income tax, so their tax transactions are fewer and simpler; time is valued here at the minimum wage, which respondents themselves consider 2.40 times too low; and 55.7% value their strain at zero. The comparison is therefore more meaningful for composition, the predominance of non-monetary components, than for nominal magnitude. Read through TCT, the predominance of time and strain fits costs that arise from searching for information and handling administration under bounded rationality and uncertainty (Coase, 1937; Williamson, 1985). These costs are largely fixed, which is consistent with the falling ratio of cost to turnover, and the finding of Silkapianis et al. (2023) that small taxpayers record transactions irregularly because of limited time and staff, and only some use paid help, matches a profile dominated by time with rare cash outlays.

Low explicit cost is consistent with the aim of Government Regulation 55/2022 to reduce the monetary burden, but a low rate does not remove the administrative work. Monitoring the IDR 500 million threshold, creating payment codes and filing electronically, particularly during the transition to Coretax in 2025 (Hidayat & Inayati, 2025), take time and can cause worry even when no money changes hands. Half of the respondents still filed in person and fewer than a third filed electronically, in line with evidence that individual taxpayers with limited technological literacy continue to file manually (Qadri & Darmawan, 2021). This study describes the resulting cost profile but does not test whether the transition raised costs.

Interpreting the Association between Compliance Cost and Compliance

What the estimates show is limited. Tax compliance cost and self-reported compliance are positively associated, the association is small (f^2 = 0.092), and it holds when time is removed from the construct and when Stage 1 is estimated in Mode B. Because TCC is dominated by the psychological dimension (weight 0.826), the association mainly reflects how often respondents experience tax-related stress; cash outlay contributes less and time hardly at all.

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Several explanations are possible but were not tested. The positive sign is consistent with the second TCT reading: compliance costs arise only when obligations are carried out, so taxpayers who record, pay and file more completely may bear more time, cost and stress and also report higher compliance. The association may thus reflect resources sacrificed in more intensive compliance activity, and strain may mark engagement with the obligation more than a barrier to it. The instrument cannot confirm this mechanism, and the result does not mean that raising costs, time or stress would raise compliance. Three alternatives cannot be ruled out. First, the causal order may run from compliance to cost (Antonakis et al., 2010; Bollen & Pearl, 2013). Second, omitted variables may drive both: payment status, because paying adds tasks and some compliance items concern payment, and tax knowledge, which is associated with compliance (Cendekiawan et al., 2024) and may also shape the time spent on tax matters, as well as record keeping and business complexity; none of these was in the model. Third, respondents reached at tax offices and through networks may be more engaged than the population. In addition, compliance is self-reported and shows a ceiling pattern, so part of the co-variation may stem from a common response tendency.

The sign agrees with Syafira (2021), John et al. (2024), Maharani (2025), Ussholehah et al. (2025) and, substantively, Bruce-Twum (2023), and differs from Mahangila (2017), Sandi and Trisnawati (2023), Mebratu (2024) and Obaid et al. (2024). The difference is interpretable in terms of design. The negative findings include an experiment in which cost is imposed, so cost cannot be a by-product of compliance, a study of large taxpayers and a model in which cost is a mediator; the positive findings come from surveys of individual and small business taxpayers, and Maharani (2025), whose measure is closest to the present one, measured money and time without psychological cost. The non-significant findings rest on general questionnaire measures. Because the psychological scale used here is itself perceptual, the contrast between incurred and perceived cost is not clean, and the sign is not settled even when the components are measured separately. Finally, compliance here is self-reported, whereas the tax office data in the introduction rely on administrative records, so the two describe different things.

V. CONCLUSION

For RQ1, MSME taxpayers in Cirebon City and Cirebon Regency bear a mean annual compliance cost of IDR 5.23 million (median IDR 2.81 million) when self-valued psychological cost is included, and IDR 2.26 million when only time and cash are counted. Psychological cost (56.8%) and time (29.7%) dominate and cash outlay is rare, but the psychological share rests on one subjective valuation; if it were halved, time would be the largest component. The firm conclusion is that the burden is mainly non-monetary and, relative to turnover, heaviest for the smallest businesses. For RQ2, tax compliance cost, modelled as a higher-order construct of explicit, implicit and psychological dimensions, is positively associated with self-reported compliance ($\beta = 0.274$, $p < 0.001$) with a small effect, mainly through the psychological dimension; the result is robust to removing time and to the Stage 1 estimation mode, but the model explains 26.9% of the variance and predicts weakly. This is an association, not an effect of cost on compliance.

The theoretical contribution is modest. The findings are consistent with the TCT premise that compliance costs arise when obligations are carried out, but they cannot discriminate between cost as a barrier and cost as a by-product of compliance. The study adds a clear separation of TCT as the explanatory lens from the Sandford framework as the basis of measurement, and evidence that under a simplified regime the remaining burden of small taxpayers is mainly time and strain. Practically, the cost profile points to measures that reduce time and uncertainty: plain-language, step-by-step guidance; assistance during the filing season, including help in moving from in-person to electronic filing (Qadri & Darmawan, 2021); clear information on the IDR 500 million threshold and the reporting obligations that remain below it; and periodic measurement of MSME compliance costs. These recommendations follow from the cost profile, not from the association, and the study does not show that they would raise compliance. The positive association is not a reason to maintain or increase compliance costs; given their regressivity, the aim of policy should be equal or higher compliance at lower cost.

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The findings have limitations. The cross-sectional design rules out a causal direction, so longitudinal designs that record cost and compliance in successive periods are needed. The non-random sample is dominated by individual micro businesses and partly recruited through tax offices, so it may overstate engagement and does not generalise to larger MSMEs. Compliance is self-reported with a ceiling effect, and cost and compliance come from the same questionnaire, so linkage with tax authority records would strengthen the evidence. Nearly half of the respondents appear to owe no final income tax, for whom the payment items are less demanding, so future work should analyse payers and non-payers separately or control for payment status and tax knowledge. Costs were measured in wide intervals, monetary psychological cost rests on one item, explicit cost rests on one indicator with few non-zero answers, and no global item was available for redundancy analysis; recording costs per obligation and adding indicators per dimension would address these issues. Finally, the weak predictive power means that the model should not be used to predict the compliance of individual taxpayers.

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