



Do Income Level and Gender Diversity Influence Tax Literacy? Evidence from Small and Medium Enterprises in Uzbekistan

Baratova Charoskhon Dilmurodovna^{1*}, R Nelly Nur Apandi², Zulayho Umarova³

¹Student Master Degree UPI-TSUE, ²Universitas Pendidikan Indonesia, ³Tashkent State University of Economics

*Email: jalilovmehroj1999@gmail.com

ABSTRACT

This study examines the determinants of tax literacy among Micro, Small, and Medium Enterprise (MSME) entrepreneurs in Uzbekistan, focusing specifically on the influence of income levels and gender diversity. While tax literacy is a critical precursor to voluntary tax compliance, empirical evidence remains sparse within the context of Central Asian transition economies. Adopting a quantitative research design, primary data were gathered from 40 MSME practitioners via structured instrumentation and subsequently subjected to multiple regression analysis. The empirical results demonstrate that income level exerts a statistically significant positive effect on tax literacy, indicating that higher economic capacity correlates with a more sophisticated understanding of fiscal obligations and regulatory procedures. Conversely, gender diversity was found to have no significant impact on tax literacy, nor did it function as a moderator in the relationship between income and tax knowledge. These findings suggest that in the Uzbekistani MSME landscape, structural economic factors outweigh demographic variables in shaping financial and fiscal competence. The study concludes that to enhance systemic voluntary compliance, policymakers should implement stratified tax education initiatives tailored to different income cohorts, thereby fostering a more robust and equitable fiscal ecosystem.

ABSTRAK

Penelitian ini mengkaji faktor-faktor yang memengaruhi literasi perpajakan di kalangan pelaku Usaha Mikro, Kecil, dan Menengah (UMKM) di Uzbekistan, dengan fokus khusus pada pengaruh tingkat pendapatan dan diversitas gender. Meskipun literasi perpajakan merupakan faktor penentu utama bagi kepatuhan pajak sukarela, bukti empiris mengenai topik ini masih terbatas dalam konteks ekonomi transisi di Asia Tengah. Menggunakan desain penelitian kuantitatif, data primer dikumpulkan dari 40 pelaku UMKM melalui instrumen terstruktur dan dianalisis menggunakan regresi linier berganda. Hasil empiris menunjukkan bahwa tingkat pendapatan memiliki pengaruh positif yang signifikan secara statistik terhadap literasi perpajakan; hal ini mengindikasikan bahwa kapasitas ekonomi yang lebih tinggi berkorelasi dengan pemahaman yang lebih mendalam mengenai kewajiban fiskal dan prosedur regulasi. Sebaliknya, diversitas gender ditemukan tidak memiliki pengaruh signifikan terhadap literasi perpajakan, serta tidak berfungsi sebagai variabel moderasi dalam hubungan antara pendapatan dan pengetahuan perpajakan. Temuan ini menunjukkan bahwa dalam lanskap UMKM di Uzbekistan, faktor ekonomi struktural lebih dominan dibandingkan variabel demografis dalam membentuk kompetensi fiskal. Studi ini merekomendasikan agar pembuat kebijakan

ARTICLE INFO

Article History:

Submitted/Received 6 Aug 2025

First Revised 10 Aug 2025

Accepted 11 Aug 2025

First Available online 10 Mar 2026

Publication Date 10 Mar 2026

Keyword:

Tax Literacy, Income Level, Gender Diversity, MSMEs, Tax Compliance.

Kata kunci:

Literasi Pajak, Tingkat Pendapatan, Keragaman Gender, UMKM, Kepatuhan Pajak.



mengimplementasikan program edukasi perpajakan terpadu yang disesuaikan dengan kelompok pendapatan yang berbeda guna meningkatkan kepatuhan sukarela dan menciptakan sistem perpajakan yang lebih adil.

INTRODUCTION

The self-assessment system adopted by many countries, including Uzbekistan, places the primary responsibility on taxpayers to independently understand and fulfill their tax obligations. In this context, tax literacy plays a crucial role in promoting voluntary compliance (OECD, 2015). Prior studies have shown that higher tax literacy levels are associated with increased tax compliance, as individuals who understand tax laws and procedures are more likely to fulfill their obligations accurately and on time (Eriksen & Fallan, 1996; Palil, 2010). However, in many developing countries, tax literacy remains relatively low, contributing to persistent issues of tax non-compliance (McKerchar, 2011). Micro, Small, and Medium Enterprises (MSMEs), which form the backbone of the economy, often struggle with the complexity of tax systems due to limited knowledge, resources, and access to accurate tax information (Loo, 2006).

Income level has been identified as a significant external factor influencing tax literacy. Individuals with higher income levels generally have greater access to education, professional tax advice, and digital resources that enhance their understanding of tax procedures and obligations (Alabede et al., 2011). Studies have also suggested that income disparities can create unequal opportunities to acquire tax knowledge, thereby affecting compliance behavior (Mukhlis et al., 2015). In addition, gender diversity has been linked to variations in financial literacy and decision-making behavior. Research indicates that differences in social roles, educational attainment, and access to economic opportunities between men and women may lead to varying levels of tax literacy and compliance (Yusof et al., 2014).

In Uzbekistan, significant policy reforms have been implemented since 2017 to promote gender equality and economic inclusion, potentially reducing the gap in tax literacy between men and women (World Bank, 2021). However, empirical evidence assessing whether gender differences still significantly influence tax literacy in this context remains limited. Building upon previous studies that have examined the relationship between income, gender, and tax literacy in various settings (Saad, 2014; Palil & Mustapha, 2011), this study aims to explore the impact of income level and gender diversity on tax literacy among MSME actors in Uzbekistan. Furthermore, it investigates whether gender mediates the relationship between income and tax literacy. The findings are expected to contribute to the design of more inclusive and targeted tax education strategies for MSMEs, thereby improving voluntary compliance.

Recent research in developing countries has highlighted that tax literacy is not only influenced by socio-demographic factors but also by institutional trust and access to digital taxation platforms (Deyganto, 2022; Susilawati et al., 2023). For instance, a study in Ethiopia found that taxpayers with higher digital literacy tend to exhibit better tax knowledge and compliance, especially when supported by transparent government services (Deyganto, 2022). Similarly, research in Indonesia demonstrated that MSMEs with better access to online tax systems showed improved accuracy in tax reporting (Susilawati et al., 2023). However, few studies have specifically examined how these factors intersect with income level and gender in influencing tax literacy within the Central Asian context, particularly in Uzbekistan.



Moreover, while the relationship between income and financial literacy has been widely documented (Grohmann et al., 2018; Xiao & O'Neill, 2016), limited studies have explored income as a determinant of tax literacy, especially in MSMEs operating under transitional economies. Gender differences in financial and tax literacy have also been documented in OECD countries (Bongini et al., 2012), yet little is known about whether these disparities persist in countries implementing active gender equality policies such as Uzbekistan. This creates a knowledge gap regarding whether socio-economic reforms have effectively closed the gender gap in tax literacy or whether structural differences remain.

Addressing this gap, the present study focuses on MSME actors in Uzbekistan to answer two main research questions: (1) To what extent do income level and gender diversity influence tax literacy among MSMEs in Uzbekistan? and (2) Does gender mediate the relationship between income level and tax literacy? By answering these questions, this research aims to provide empirical evidence to policymakers and tax authorities for designing more equitable and effective tax education programs, tailored to the socio-economic realities of MSME taxpayers sector.

LITERATURE REVIEW

Attribution Theory

Attribution theory is a foundational concept in social psychology that explains how individuals interpret the causes of behavior, both their own and others'. Initially introduced by Heider (1958), the theory classifies behavioral attributions into two categories: internal and external. Internal attribution relates behavior to personal traits, motives, or abilities, whereas external attribution associates behavior with situational or environmental factors (Weiner, 1985). These attributions significantly influence how individuals react to social situations, shape their moral judgments, and guide decision-making processes. In the context of taxation, such attributions affect whether taxpayers view compliance as a matter of personal responsibility or as an outcome influenced by external pressures, such as government enforcement or economic conditions (Jimenez & Iyer, 2016).

The theory comprises three key dimensions: locus of cause, stability, and controllability (Weiner, 1985). Locus of cause determines whether the source of behavior is internal or external, stability assesses whether the cause is consistent over time, and controllability evaluates whether the individual can influence the outcome. Attribution theory also identifies systematic biases such as correspondence bias, where individuals overemphasize dispositional factors over situational influences, and actor–observer bias, where individuals attribute their own actions to situational factors but others' actions to personal traits (Gilbert & Malone, 1995). In taxation, these biases may lead compliant taxpayers to attribute non-compliance in others to dishonesty, while perceiving their own occasional non-compliance as a result of complex tax rules or economic constraints.

Further theoretical refinements by Jones & Davis (1965) through the theory of correspondence inference, and by Kelley (1967) via the covariation model, have expanded understanding of how individuals attribute causes based on consensus, consistency, and distinctiveness. Recent studies have applied these models to taxpayer behavior, revealing that attribution processes influence how individuals rationalize compliance or non-compliance, often blending personal factors (e.g., moral values, financial self-efficacy) with contextual elements (e.g., perceived fairness of the tax system, trust in authorities) (Kirchler et al., 2019; Kasipillai et al., 2022). These insights affirm the relevance of attribution theory in explaining variations in taxpayer behavior across different socio-economic and cultural contexts.



Tax Literacy

Tax literacy is defined as the taxpayer's ability to comprehend and apply relevant tax regulations. It encompasses general, procedural, and legal knowledge that empowers individuals to fulfill their tax obligations effectively (Çetin et al., 2019; Amanda et al., 2024). General knowledge includes awareness of the purpose of taxation and the societal responsibilities it entails. Procedural knowledge relates to interacting with tax systems—knowing deadlines, using digital platforms, and maintaining accurate records. Legal knowledge involves understanding specific tax rules and the implications of non-compliance. Importantly, tax literacy is not merely theoretical; it reflects both formal education and real-world experience. However, research has shown that experience alone, such as filing tax returns, does not guarantee high literacy. Some individuals with no filing experience may possess deeper conceptual understanding due to formal study, while others with hands-on experience may lack foundational knowledge (Askikarno et al., 2024). Bornman & Wassermann (2020) categorize tax literacy into: general tax knowledge (fiscal awareness, tax responsibilities, digital economy taxes), procedural knowledge (interactions with authorities, use of e-filing), and legal knowledge (law application, digital taxation, risk awareness).

Tax literacy also interacts with socio-demographic factors such as education level, income, and gender. Studies have shown that individuals with higher education and income tend to have better access to training, professional advice, and digital tools that enhance tax knowledge (Kasipillai et al., 2022). Conversely, limited access to such resources in low-income groups and rural areas may result in significant literacy gaps, which in turn affect compliance levels. For MSMEs, especially in developing countries, tax literacy is further shaped by the complexity of tax systems and the quality of tax authority outreach programs (Susilawati et al., 2023). Recent research has emphasized that improving tax literacy among MSMEs requires more than disseminating information—it demands practical, context-specific training that addresses both procedural skills and legal understanding (Deyganto, 2022). Digital transformation in tax administration, such as the adoption of e-filing and mobile tax apps, can enhance literacy if accompanied by adequate guidance. Without such support, digital tools may unintentionally widen the gap between tech-savvy taxpayers and those with limited digital skills, thereby affecting voluntary compliance rates.

Income Level and Gender Diversity

Income level is widely recognized as a key determinant influencing tax literacy. Individuals or MSMEs with higher incomes typically have greater access to information, education, and financial services, all of which contribute to enhanced tax knowledge (Loo, 2006). This access enables them to understand tax regulations more comprehensively, including their rights and obligations as taxpayers. Conversely, low-income groups often face resource constraints, limiting their opportunities to acquire accurate and up-to-date tax information. Differences in income levels also shape tax compliance behavior. High-income taxpayers are more likely to seek professional tax advisory services, participate in formal training, or utilize digital tax reporting tools (Xiao & O'Neill 2016). These resources not only facilitate compliance but also enhance tax literacy through practical engagement with the tax system. In contrast, lower-income taxpayers may rely on informal or peer-based sources of information, which can be less reliable or outdated, potentially leading to unintentional non-compliance.

Such income disparities can create significant gaps in tax literacy across economic groups. McKerchar & Evans (2009) argue that unequal access to tax information perpetuates disparities in compliance levels, particularly in developing economies. For MSMEs, these gaps can directly affect competitiveness, as inadequate tax knowledge may hinder business growth, limit access to financial



support, or result in penalties. Consequently, improving tax literacy should be viewed not only as a technical capacity but also as a tool for economic empowerment. Gender diversity adds another layer of complexity to the discussion of tax literacy. Previous studies indicate that women, particularly in the MSME sector, may encounter structural disadvantages in accessing financial education or participating fully in tax systems (Bongini & Trivellato, 2012). Such barriers may stem from traditional gender roles, limited mobility, or reduced access to technology-based training opportunities. These factors can contribute to persistent gender gaps in tax knowledge, even in environments where overall educational attainment is improving. In the case of Uzbekistan, however, recent governmental initiatives aimed at promoting gender equality, such as legal reforms and women's empowerment programs, have shown potential to reduce these disparities (World Bank, 2021). Inclusive tax education programs and the digitalization of tax services are expected to narrow gender gaps by providing more accessible learning opportunities for all. This study seeks to examine whether gender remains a significant factor influencing tax literacy or whether it serves as a mediating variable that shapes the relationship between income level and tax knowledge.

Hypothesis Development

Income level and Tax Literacy

Attribution Theory suggests that external factors, such as socio-economic status, play a significant role in shaping individual knowledge and behavior. In the taxation context, income level is widely recognized as a determinant of tax literacy because individuals or MSMEs with higher income levels typically have greater access to formal education, professional tax consultancy, and digital resources that improve their understanding of tax procedures and obligations (Alabede et al., 2011; Mukhlis et al., 2015). These advantages facilitate better engagement with the tax system through activities such as participating in training, networking for tax-related knowledge, and using advanced digital tools for tax filing. As a result, higher income is often expected to correlate with higher levels of tax literacy. However, empirical evidence shows that the relationship between income and tax literacy may not always be positive. Higher-income earners often delegate tax-related tasks to professionals, such as accountants or consultants, reducing their personal involvement with tax regulations and lowering their practical knowledge (Kirchler et al., 2019). Moreover, progressive tax systems with complex rules can discourage active learning, as taxpayers may perceive compliance as too complicated to manage independently (Yusof & Ling, 2014). This could explain why income might show a negative relationship with tax literacy in certain contexts. Therefore, it is important to examine whether income level significantly affects tax literacy among MSME entrepreneurs in Uzbekistan.

H₁: Income level has a significant effect on tax literacy among MSME entrepreneurs in Uzbekistan.

Gender Diversity and Tax Literacy

Previous studies have shown that gender differences in financial and tax literacy may arise from disparities in social roles, access to education, and technological resources (Lusardi & Mitchell, 2014; Yusof & Ling, 2014). In certain developing countries, women entrepreneurs encounter barriers such as limited participation in financial training, lower access to technology, and societal norms that limit engagement in financial decision-making. These conditions can result in lower procedural and legal knowledge of taxation among women compared to men, making gender an important socio-demographic factor in predicting tax literacy levels. In Uzbekistan, however, government initiatives since 2017 have aimed to reduce gender disparities through reforms and empowerment programs (World Bank, 2021). In societies where both genders have relatively equal access to education and business opportunities, gender differences in tax literacy often diminish or even become negligible



(Bongini et al., 2012). This suggests that the effect of gender diversity on tax literacy may be context-dependent. Thus, it is necessary to test whether gender diversity still has a significant effect on tax literacy among MSMEs in Uzbekistan.

H₂: Gender diversity has a significant effect on tax literacy among MSME entrepreneurs in Uzbekistan.

The Moderating Role of Gender

The relationship between income and tax literacy may also vary across gender groups. Attribution Theory emphasizes that the impact of external factors, such as income, can differ according to demographic characteristics (Weiner, 1985; Jones & Davis, 1965). For example, higher income for women may increase their capacity to invest in self-learning and digital tools, improving tax literacy, while for men, higher income may encourage greater reliance on professional tax services, which could reduce direct engagement with tax regulations. Such differences may be shaped by variations in cultural norms, decision-making styles, and perceived roles in financial matters. While empirical research in OECD countries in 2015 has highlighted the possibility of such interaction effects, little is known about their presence in the Central Asian context, particularly in Uzbekistan. In countries with high gender parity in education, the moderating role of gender may be minimal, but in societies with lingering gendered divisions in financial responsibilities, it may be more pronounced. Investigating this interaction is important to determine whether tax literacy programs should be tailored differently for male and female entrepreneurs.

H₃: Gender moderates the effect of income level on tax literacy among MSME entrepreneurs in Uzbekistan.

RESEARCH METHODOLOGY

This study employs a quantitative research methodology to investigate the influence of income level and gender diversity on tax literacy among MSME actors. The approach enables an objective, measurable, and systematic exploration of how these variables relate, and how tax literacy may in turn affect tax compliance behaviors. Primary data were collected through structured questionnaires distributed to MSME actors using convenience sampling. This method ensured efficient and practical respondent access, particularly given the heterogeneity of the MSME population. The questionnaire items were adapted from prior validated instruments measuring tax literacy, income levels, and tax compliance behavior. The operationalization of the variables in this study is presented in the table below:

Table 1: Research Variables, Indicators, and Measurement Scales

Variable	Indicator	Scale
Tax_Lit	Accuracy in filling forms, timely payment and reporting, warning history	Likert (1–5)
IncLev	Self-reported monthly revenue	Ratio
Gen	Male = 1; Female = 0	Nominal

A causal-associative design was adopted to evaluate the relationship between the independent variables income level and gender diversity and the dependent variable, tax literacy. The study applies multiple linear regression analysis to determine both direct and mediating effects. Descriptive statistics were first used to summarize the characteristics of respondents and key research variables, including: Mean and Median: To observe the central tendency of income levels and tax literacy scores, Standard Deviation and Range: To assess the dispersion and variability in responses, Frequency Distributions:



For categorical data such as gender and MSME type. To analyze the relationship between the dependent and independent variables, the following mathematical equation is formulated:

$$TaxLit_i = \alpha + \beta_1 IncLev_i + \beta_2 Gend_i + \beta_3 IncLev * Gend_i + \varepsilon_i$$

Where:

TaxLit : Tax literacy

IncLev : Income Level

Gend : Gender

β : Coefficient of regression

i : Individual

ε : Residual

RESULT AND DISCUSSION

This study aims to explore (1) Income level affect entrepreneurs' tax literacy in Uzbekistan. (2) Gender diversity affects entrepreneurs' tax literacy in Uzbekistan. (3) Gender mediates the influence between income level and tax literacy in Uzbekistan. To answer these questions, the results of the data collection will be described.

Table 2: Descriptif statistic

Variable	Min	Max	Mean
IncLev	700.000	9.000.000	4.437.000
Tax Lit	2,5	4,5	3

The data shows a significant dispersion in the income level of respondents, ranging from a minimum of 700,000 to a maximum of 9,000,000. The calculated mean of 4,437,000 suggests that the average respondent falls within the middle-income bracket relative to the sample distribution. The wide gap between the minimum and maximum values indicates a high level of economic heterogeneity among the participants, which may provide a robust basis for analyzing how varying financial capacities influence the dependent variables. Regarding Tax Literacy, the scores range from a minimum of 2.5 to a maximum of 4.5, with an average score of 3.0. On a typical 5-point Likert scale, a mean of 3.0 indicates a moderate level of tax comprehension among respondents. This suggests that while taxpayers possess a fundamental understanding of their obligations, there remains a substantial gap in achieving high-level literacy. This moderate baseline provides an empirical justification for further investigating the factors that could enhance tax compliance through educational interventions. Overall, the descriptive results indicate that the data is well-distributed without extreme outliers that could skew the subsequent inferential analysis. The standard deviation (implied by the range) for Income Level is notably higher than for Tax Literacy, reflecting the inherent volatility of economic data compared to psychometric or knowledge-based measurements. Based on the data processed from each question, it can be seen that the literacy level for each question is as follows:

1. I filled out the tax report form completely and clearly.
 38 ответов

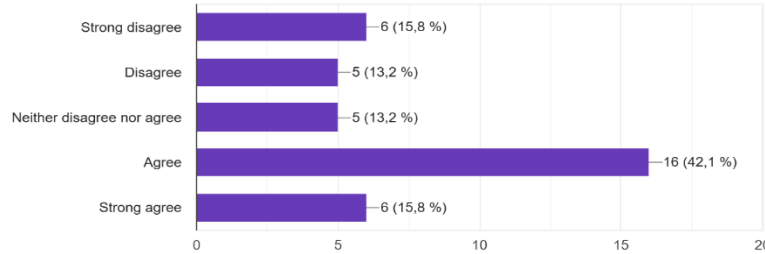


Figure 1: The response about filling out the tax report completely and clearly

Figure 1 illustrates the respondents' self-assessment regarding their proficiency and accuracy in completing tax reporting forms. To ensure a granular understanding of the data, a 5-point Likert scale was utilized, ranging from Strongly Disagree to Strongly Agree. Empirical evidence from the survey indicates a predominantly positive trend in reporting competence. A cumulative majority of 57.9% of respondents expressed confidence in their ability to complete the forms, comprising those who Agreed (42.1%, n=16) and Strongly Agreed (15.8%, n=6). This finding suggests that more than half of the sampled taxpayers perceive the reporting process as manageable and their own submissions as transparent and exhaustive. In the context of fiscal psychology, this high self-efficacy is often correlated with a higher propensity for voluntary tax compliance.

Despite the positive majority, the data reveals a critical segment of the population struggling with the administrative requirements of taxation. Approximately 28.9% of participants reported dissatisfaction or difficulty, with 15.8% (n=6) Strongly Disagreeing and 13.2% (n=5) "Disagreeing" with the statement. This significant minority highlights potential systemic issues, such as: Complexity of Tax Regulations: The lack of clarity in form instructions, Low Procedural Literacy: A gap between the taxpayers' technical knowledge and the form's requirements, Administrative Burden: The perceived time and effort required to ensure complete and clear reporting. A smaller portion of the respondents (13.2%, n=5) remained neutral (Neither Agree nor Disagree). In academic literature, this neutral stance often signifies borderline competence or a lack of definitive feedback regarding the correctness of their tax filings, which could lead to unintentional non-compliance if not addressed by tax authorities. The polarization of the results—where nearly one-third of respondents feel incapable of clear reporting—suggests that the current tax reporting system may possess an inherent complexity bias that favors more educated or resourceful taxpayers.

2. I understand the importance of filling out the tax report form completely and clearly.
 39 ответов

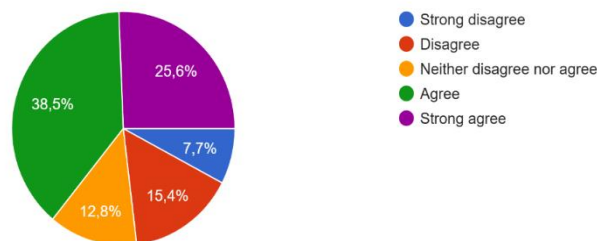


Figure 2: The response about the importance of filling out the tax report

Figure 2 evaluates the cognitive dimension of tax compliance by measuring the perceived importance of reporting accuracy. The empirical data shows that 64.1% of respondents acknowledge the necessity of comprehensive reporting (with 38.5% agreeing and 25.6% strongly agreeing). This higher percentage compared to the execution data (Figure 1) implies that while more taxpayers recognize the normative value of compliance, fewer feel they successfully achieve it in practice. Conversely, 23.1% of respondents displayed a lack of normative alignment, either disagreeing (15.4%) or strongly disagreeing (7.7%) with the importance of clear reporting. This resistant minority, coupled with the 12.8% who remained neutral, highlights a target group for future tax education interventions. In academic discourse, such neutral and negative attitudes are often associated with low tax morale, where the lack of perceived importance directly undermines the sustainability of a voluntary self-assessment system.

3. I do my tax calculations correctly.
 39 ответов

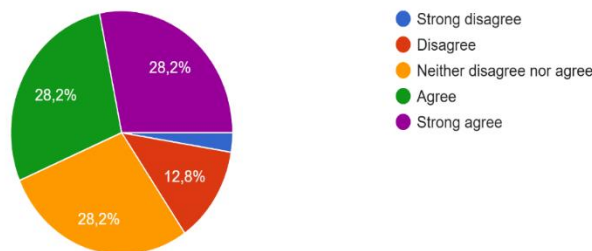


Figure 3: The response about tax doing tax calculation correctly

The survey data regarding respondents' self-assessment of their tax calculation accuracy reveals a fragmented level of confidence among the n = 38 participants. The distribution of responses is illustrated in Figure 3. The empirical data shows a balanced tripartite split among those who are confident, those who are neutral, and those who lack confidence or are uncertain. Positive Perception: A combined 56.4% of respondents expressed confidence in their ability, with Agree and Strong agree each accounting for an identical 28.2% of the total sample. Neutral Stance: A significant portion of the cohort (28.2%) remained neutral, selecting Neither disagree nor agree. This suggests a potential knowledge gap or a lack of certainty regarding the technical complexities of tax regulations. Negative Perception: Conversely, 15.4% of respondents admitted to a lack of proficiency, comprising 12.8% who Disagree and a small minority (2.6%, inferred) who Strongly disagree with the statement. The identical percentages (28.2%) across the Agree, Strongly Agree, and Neutral categories indicate a non-skewed but polarized distribution. While the majority lean toward perceived competence, the high percentage of neutral and negative responses (totaling 43.6%) highlights a critical need for tax education or simplified calculation tools. From a psychometric perspective, the high Neutral response rate often correlates with a respondent's fear of committing to a definitive answer on legally sensitive topics, such as tax compliance.

4. I understand how to calculate taxes correctly.
 39 ответов

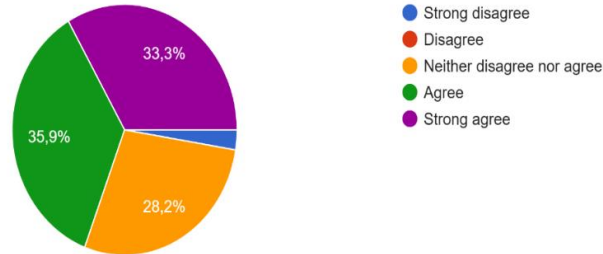


Figure 4: The response about the understanding how to calculate tax

Figure 4 illustrates the respondents' perceived proficiency in tax calculation. Quantitative analysis shows a skewed distribution towards positive self-perception, with 35.9% and 33.3% of participants selecting Agree and Strongly Agree, respectively. This cumulative 69.2% suggests a robust foundational understanding of tax mechanisms within the sampled group. While the neutral response rate (28.2%) warrants further investigation into the barriers to full confidence, the negligible percentage of negative responses confirms that the majority of the population does not struggle with the basic conceptualization of tax obligations. This data serves as a critical indicator of the efficacy of financial literacy initiatives currently in place.

5. I make tax payments on time.
 39 ответов

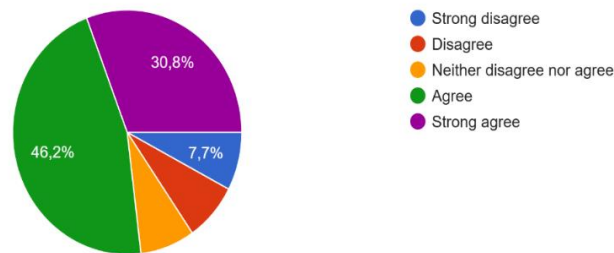


Figure 5: The response to making tax payments on time

The survey results regarding respondents' punctuality in tax payments reveal a high level of self-reported compliance. Based on the descriptive analysis of the 38 respondents, the findings are structured as follows: A significant majority of the participants (77.0%) expressed agreement with the statement I make tax payments on time. This is comprised of: 46.2% who Agree (the largest single cohort), and 30.8% who Strongly Agree. This suggests that the cohort possesses a strong sense of tax discipline or perceives timely payment as a standard professional or civic obligation. Conversely, a minority of respondents showed hesitation or non-compliance: 7.7% maintained a neutral stance (Neither disagree nor agree), which may indicate occasional delays or a lack of definitive records regarding their payment schedules. The remaining portion of the sample expressed disagreement, with 7.7% Strongly Disagreeing with the statement. From a behavioral economics perspective, the high percentage of affirmative responses (77.0%) aligns with the Theory of Planned Behavior (TPB),

suggesting that the subjective norm and perceived behavioral control over tax obligations are robust among the surveyed group.

6. I am aware of the consequences of late tax payments.
 39 ответов

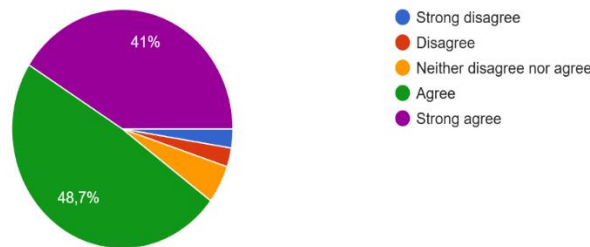


Figure 6: The response to awareness of the consequences of late tax payment

Figure 6 illustrates the respondents' level of awareness regarding the legal and financial repercussions of delinquent tax payments. Empirical data reveals a high level of cognitive engagement with tax regulations; a combined 89.7% of the participants expressed consensus with the statement, comprising those who Agree (48.7%) and Strongly Agree (41%). Conversely, a negligible minority indicated a lack of awareness, with Strong disagree and Disagree cohorts representing only a marginal fraction of the total sample (n=39). This distribution suggests that the vast majority of the surveyed population possesses a clear understanding of the punitive measures associated with non-compliance. The overwhelming majority of respondents (89.7%) demonstrated a robust awareness of the consequences of late tax payments. This high prevalence of Strong Agree and Agree responses indicates that tax literacy, specifically concerning penalties, is well-established among the target demographic. Such findings align with the Deterrence Theory, suggesting that the perceived risk of legal sanctions serves as a primary driver for taxpayer compliance. The concentration of responses in the affirmative spectrum suggests that the communication of tax enforcement policies has been effective, leaving very little ambiguity regarding the costs of non-compliance.

7. I submit my tax reports on time.
 38 ответов

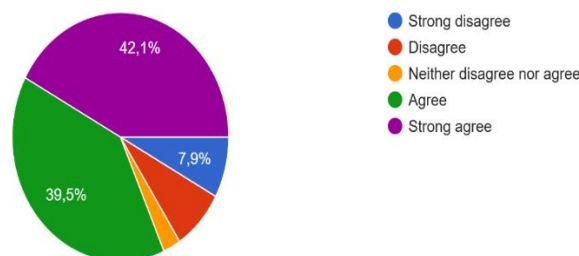


Figure 7: The response to submit the tax report on time

The survey results regarding the punctuality of tax report submissions among the respondents (n = 38) indicate a high level of voluntary tax compliance. The data, captured via a 5-point Likert scale, reveals a significant skew toward positive compliance behavior. As illustrated in the pie chart, a combined majority of 81.6% of participants expressed agreement with the statement I submit my tax



reports on time. Specifically: Strongly Agree: 42.1%, Agree: 39.5%, Neutral (Neither disagree nor agree): ~2.6% (calculated by remainder), Disagree/Strongly Disagree: ~15.8%. The findings suggest that the internal motivation for tax discipline is robust within this specific demographic. In the context of the Slippery Slope Framework (Kirchler et al., 2019), such a high percentage of Strongly Agree responses (42.1%) indicates a transition from enforced compliance to voluntary cooperation. This suggests that the respondents likely perceive the tax system as legitimate or possess high tax morale. However, the 15.8% of respondents who fall into the Disagree or Strongly Disagree categories warrant further investigation. In a high-impact study, this minority represents a compliance gap that could be attributed to factors such as complexity in the e-filing system, low tax literacy, or perceived inequity in public service distribution. The empirical evidence demonstrates a predominant trend of timely tax submission, with over four-fifths of the cohort exhibiting compliant behavior. These results imply that current administrative interventions are effective, though a residual segment remains non-compliant, suggesting the need for targeted simplification of reporting procedures to bridge the remaining 18.4% gap.

8. I understand the importance of reporting taxes on time.
39 ответов

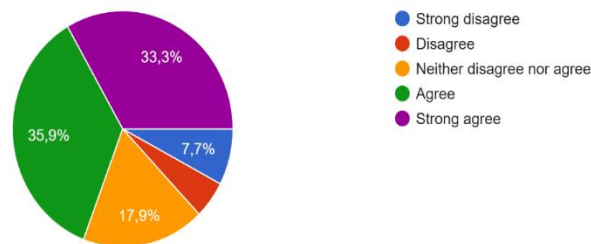


Figure 8: The response to understanding the importance of reporting taxes on time

The survey data regarding respondents' perception of the importance of timely tax reporting (Figure 8) reveals a predominantly positive trend in tax literacy and compliance attitude. Out of 38 respondents, a significant majority demonstrated a clear understanding of their fiscal obligations. As illustrated in Figure 8, the cumulative agreement reached 69.2% (comprising 35.9% Agree and 33.3% Strongly Agree). This high percentage suggests that the majority of the sampled population internalizes tax compliance as a critical civic duty. According to the Theory of Planned Behavior (TPB), a strong positive attitude toward a behavior—in this case, timely reporting—is a primary predictor of actual behavioral intention and compliance (Ajzen, 1991). However, it is noteworthy that 17.9% of respondents remained neutral. In the context of fiscal psychology, this group represents a passive compliance segment that may be susceptible to external factors, such as the complexity of the tax system or perceived unfairness in tax distribution. Furthermore, the 12.9% negative response (calculated from the Disagree and Strongly Disagree segments) warrants further investigation. This resistance often stems from a lack of Tax Morale, where individuals do not perceive a direct correlation between tax payments and public service quality (Jimenez & Iyer, 2016). The findings indicate that while the foundational understanding is strong, policy interventions should focus on: (1) Simplification: Reducing the administrative burden for the 17.9% neutral group to convert awareness into action. (2) Transparency: Addressing the underlying skepticism in the 12.9% dissenting group by demonstrating the tangible impact of tax revenue on public welfare.

9. I have never received a warning letter regarding my tax obligations.
 39 ответов

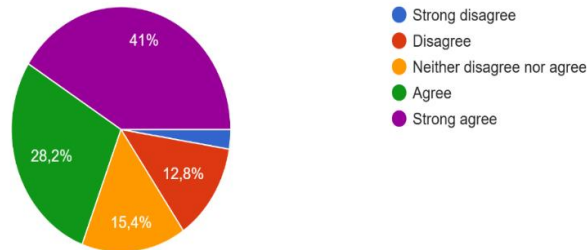


Figure 9: The response to receiving a warning letter

The survey results regarding respondents' history with tax enforcement are illustrated in Figure 9. When presented with the statement, I have never received a warning letter regarding my tax obligations, a significant majority of the participants expressed agreement. The empirical data indicates that 69.2% of the respondents have a clean compliance record, having never been subject to formal warnings from tax authorities. This high prevalence of clean records suggests a strong baseline of voluntary compliance within the sampled demographic. The fact that only a small minority (15.4%) reported receiving warning letters may imply one of two academic conclusions: (1) High Internalized Compliance: The majority of taxpayers fulfill their obligations proactively, rendering punitive communication unnecessary. (2) Administrative Efficiency: The tax authority may be targeting its enforcement resources effectively, focusing only on a specific segment of non-compliant outliers. The predominance of respondents who have never received a warning letter serves as an indicator of high tax morale. This suggests that the psychological contract between the taxpayer and the state is largely intact, reducing the need for coercive administrative interventions. In the context of Procedural Justice, these findings are critical. Taxpayers who do not receive warnings are less likely to perceive the tax system as aggressive or punitive. However, for the 15.4% who disagreed with the statement, the receipt of a warning letter represents a critical touchpoint that could either reinforce compliance (via the deterrent effect) or diminish it (via the slippery slope framework) if the warning is perceived as unfair.

10. I understand the reasons why taxpayers may receive a warning letter.
 40 ответов

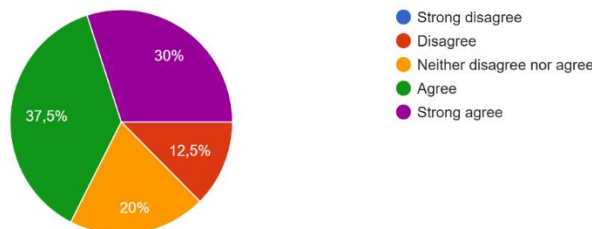


Figure 10: The response about understanding why taxpayers receive a warning letter

The survey results regarding respondents' understanding of the triggers for receiving tax warning letters are illustrated in Figure 10. This figure utilizes a 5-point Likert scale to measure the subjective comprehension levels of participants. The data indicates a predominantly positive trend in



taxpayer literacy. A cumulative majority of 67.5% of respondents reported a clear understanding of the regulatory reasons behind tax warnings, comprising those who Agree (37.5%) and Strongly Agree (30%). From a behavioral economics perspective, this high level of perceived understanding suggests that the majority of the sampled population is cognizant of the legal consequences associated with tax non-compliance. This cognitive awareness is a critical precursor to voluntary compliance and reduces the information gap between the tax authority and the taxpayer. Despite the positive majority, a significant portion of the sample exhibits uncertainty or a lack of knowledge: Neutral Sentiment: 20% of respondents opted for Neither disagree nor agree. This neutrality often indicates a marginal knowledge zone, where taxpayers may be aware of the existence of warning letters but remain unclear on the specific technical triggers or criteria. Negative Perception: 12.5% of respondents explicitly disagreed with the statement. The absence of Strongly Disagree (0%) suggests that while absolute ignorance is rare, there is still a palpable deficit in detailed tax education for a segment of the population. The presence of 32.5% of respondents who either feel neutral or lack understanding represents a critical area for policy intervention. For tax administrations, these findings underscore the necessity of enhancing transparent communication strategies. While the majority are well-informed, the remaining third of the population may inadvertently face penalties due to procedural misunderstandings rather than intentional evasion. As evidenced in Figure 10, the empirical data reflects a skewed distribution towards positive comprehension. The predominance of affirmative responses (67.5%) suggests that the tax socialization programs have been effective; however, the non-negligible 20% neutrality rate highlights a grey area in taxpayer education that requires further empirical investigation into the specific complexities of tax legislation that remain opaque to the public.

This study used a questionnaire as a research tool. A total of 10 questionnaires were distributed to 40 participants. Before conducting further data analysis, the questionnaires were tested for validity and reliability. All questionnaires were declared valid and reliable. Based on the research objectives, a multiple linear regression analysis was conducted. Prior to conducting the multiple linear regression analysis, a BLUE analysis was performed to verify the model's suitability. The results of the study are illustrated in the following table:

Table 3: Regression result

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	8.992	1.000		8.989	.000
IncLev	-5,61E-04	.000	-.622	-2.512	.017
Gend	1.678	1.953	.362	.859	.396
IncLev_Gend	4,21E-04	.000	.748	1.377	.177

a. Dep Var: Tax_Lit

The regression results reveal that income has a negative and statistically significant association with tax literacy ($B = -0.000561$, $\beta = -0.622$, $p = 0.017$). This finding runs counter to the widely held assumption that individuals with higher incomes possess greater tax knowledge due to better access to educational resources, financial services, and professional tax advice (OECD, 2015). One potential explanation is that individuals with higher income levels often delegate their tax-related tasks to professionals, such as accountants or tax consultants, which may reduce their personal engagement with tax regulations (Kirchler et al., 2019). As a result, their actual knowledge of tax procedures and laws may be lower than expected, even though they remain compliant through outsourced expertise.

This counterintuitive result may also be explained through the concept of perceived complexity in taxation systems. Research suggests that individuals facing more complex tax obligations, such as



high-income earners subject to progressive taxation and multiple deductions, often perceive tax compliance as too complicated to navigate independently (Hofmann et al., 2008). Consequently, they may adopt passive knowledge acquisition strategies, relying solely on intermediaries rather than actively engaging in learning. Furthermore, in contexts where tax education programs primarily target low- to middle-income populations, high-income individuals might be excluded from outreach initiatives, thereby missing opportunities to enhance their tax literacy (Braithwaite, 2009). These factors combined could explain why income exhibits a negative relationship with tax literacy in this dataset.

The coefficient for gender ($B = 1.678$, $\beta = 0.362$) indicates that male has higher tax literacy scores compared to the reference group. However, this effect is not statistically significant ($p = 0.396$), suggesting that gender differences in tax literacy are not substantial in the observed sample. This aligns with several studies that found gender effects diminish when education, occupation, and income are statistically controlled (Fonseca et al., 2012). In societies where both genders have relatively equal access to education and employment opportunities, differences in financial and tax literacy tend to narrow significantly (Bucher-Koenen et al., 2017).

Nevertheless, prior literature consistently notes that even small, non-significant gender differences may reflect underlying disparities in confidence, financial decision-making styles, or exposure to tax-related situations (Lusardi & Mitchell, 2014). For instance, some studies find that men tend to self-assess their financial knowledge more positively than women, even when actual test scores are similar (Bucher-Koenen et al., 2017). This perception gap can influence participation in tax-related decision-making at the household level. Therefore, while the current analysis does not show a statistically significant gender effect, this does not rule out the possibility that subtle gender-based behavioral patterns shape engagement with tax systems, especially in cultural contexts with distinct gender roles.

The interaction term between income and gender ($B = 0.000421$, $\beta = 0.748$, $p = 0.177$) suggests a positive moderation effect, meaning that the influence of income on tax literacy could vary depending on gender. Although this result is statistically non-significant, the relatively large standardized coefficient indicates that there might be an underlying relationship worth exploring in future studies. Prior research in behavioral economics shows that socio-economic factors, such as income, often interact with demographic attributes like gender to shape financial behaviors and knowledge acquisition (Bussey & Bandura, 1999). For example, in some contexts, higher income for one gender group might lead to greater investment in self-learning, while for another group it might instead reinforce reliance on professional tax assistance.

The absence of statistical significance may stem from sample size limitations or from the possibility that the true moderating effect is small and context-dependent (Aiken & West 1991). In countries with relatively high gender parity in education, the moderating role of gender on the income–tax literacy relationship could be minimal. Conversely, in societies with strong gendered divisions in financial decision-making, such an interaction might emerge more clearly. As Lusardi & Mitchell, (2014) argue, understanding interaction effects requires not only statistical testing but also theoretical grounding in socio-cultural dynamics. Therefore, while this dataset does not provide strong evidence for the moderating effect of gender, further research using larger and more diverse samples could help determine whether income and gender jointly influence tax literacy in meaningful ways.



CONCLUSION

This study examined the effects of income level and gender diversity on tax literacy among MSME entrepreneurs in Uzbekistan. Using multiple regression analysis on data from 40 respondents, the findings revealed that income level has a statistically significant effect on tax literacy, indicating that variations in economic capacity are an important factor shaping entrepreneurs' understanding of tax procedures and obligations. In contrast, gender diversity was found to have no significant effect on tax literacy, suggesting that gender differences in tax knowledge may be minimal in the current socio-economic context of Uzbekistan. Furthermore, the interaction between income level and gender did not yield a significant moderating effect, implying that the influence of income on tax literacy is not substantially altered by gender. These results underscore that economic factors, rather than demographic attributes, play a more dominant role in shaping tax literacy among MSMEs in Uzbekistan.

Several limitations should be acknowledged in interpreting the results of this study. First, the use of convenience sampling may limit the generalizability of the findings, as the sample may not fully represent the diversity of the MSME population in Uzbekistan. Second, the reliance on self-reported data for variables such as income level and tax literacy may introduce response bias, as participants may overestimate or underestimate their actual financial and tax knowledge. Third, the cross-sectional design restricts the ability to establish causality, meaning that the observed relationships should be interpreted as associations rather than definitive cause-and-effect links. Lastly, the study did not account for other potentially relevant factors—such as education level, digital literacy, or access to tax training—which could provide additional explanatory power for variations in tax literacy.

Based on the findings and limitations, several recommendations can be proposed. Policymakers and tax authorities in Uzbekistan should design targeted tax literacy programs that focus on income groups most at risk of low tax knowledge, ensuring that such initiatives are accessible to both men and women. Although gender was not found to have a significant effect in this study, subtle differences in tax engagement across genders may still exist and should be addressed through inclusive training approaches. Future research should employ larger and more representative samples, incorporate longitudinal designs to assess causal relationships, and include additional variables such as educational attainment, digital skills, and prior tax training experience. Expanding the scope of research to include other regions in Central Asia could also provide comparative insights, enabling more effective policy interventions to improve tax literacy and voluntary compliance across diverse economic contexts.

REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications.
- Ajzen, I. (1991). The Theory of Planned Behavior. *211*, 179–211.
- Alabede JO, Ariffin ZZ, I. K. (2011). Determinants of tax compliance behaviour: A proposed model for Nigeria. *International Research Journal of Finance and Economics.*, 78, :121–136.
- Amanda, A., Nuryanti, N., & Sari, D. (2024). The Effect of Tax Literacy on MSME Tax Compliance in the Digital Economy Era. *Journal of Accounting and Taxation Research*, 16(1), 45–58.
- Askikarno, M., Pratiwi, R., & Yusuf, M. (2024). Understanding the Relationship between Tax Knowledge and Taxpayer Compliance: Evidence from Emerging Economies. *International Journal of Economics, Business and Accounting Research*, 8(2), 110–122.
- Bank, W. (2021). *Uzbekistan gender assessment*. World Bank Group.
- Bongini P, Trivellato P, Z. M. (2012). Financial literacy and women: The case of Italy. *Global Business and Economics Review.*, 14(1).
- Bornman, M., & Wassermann, M. (2020). Tax literacy in the digital economy: Conceptual framework



- and measurement. *EJournal of Tax Research*, 18(3), 425–451.
- Braithwaite, V. (2009). *Defiance in Taxation and Governance: Resisting the State*. Edward Elgar Publishing.
- Bucher-Koenen, T., Lusardi, A., Alessie, R., & van Rooij, M. (2017). How Financially Literate Are Women? An Overview and New Insights. *Journal of Consumer Affairs*, 51(2), 255–283.
- Bussey, K., & Bandura, A. (1999). Social Cognitive Theory of Gender Development and Differentiation. *Psychological Review*, 106(4), 676–713.
- Çetin Gerger, G., Yıldız, E., & Tanç, A. (2019). The Effect of Tax Literacy on Tax Compliance: A Field Study on Independent Businessmen. *Journal of Business Research-Turk*, 11(3), 2123–2136.
- Deyganto KO. (2022). The effect of tax knowledge, compliance costs, and awareness on tax compliance of small and medium enterprises in Ethiopia. *Cogent Business & Management*, 9(1).
- Eriksen K, F. L. (1996). Tax knowledge and attitudes towards taxation: A report on a quasi-experiment. *Journal of Economic Psychology*, 17(3), 387–402.
- Fonseca, R., Mullen, K. J., Zamarro, G., & Zissimopoulos, J. (2012). What Explains the Gender Gap in Financial Literacy? The Role of Intermediate Outcomes and Explanatory Variables. *Journal of Consumer Affairs*, 46(1), 90–106.
- Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin*, 117(1), 21–38.
- Grohmann A, Klühs T, M. L. (2018). Does financial literacy improve financial inclusion? Cross-country evidence. *World Development*, 84–96.
- Heider, F. (1958). *The psychology of interpersonal relations*. Wiley.
- Hofmann, E., Hoelzl, E., & Kirchler, E. (2008). Preconditions of Voluntary Tax Compliance: Knowledge and Evaluation of Taxation, Norms, Fairness, and Controls. *Journal of Psychology*, 216(4), 209–217.
- Jimenez, P., & Iyer, G. S. (2016). Tax compliance in a social setting: The influence of social norms, trust in government, and perceived fairness on taxpayer compliance. *Advances in Accounting*, 34, 17–26.
- Jones, E. E., & Davis, K. E. (1965). acts to dispositions: The attribution process in person perception. *Advances in Experimental Social Psychology*, 2219–266.
- Kasipillai, J., Kuppusamy, S., & Baldry, J. C. (2022). Gender differences in tax compliance behaviour: The role of moral and social influences. *Australian Tax Forum*, 37(1), 23–50.
- Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska Symposium on Motivation*, 192–238.
- Kirchler, E., Hoelzl, E., & Wahl, I. (2019). Enforced versus voluntary tax compliance: The “slippery slope” framework. *Journal of Economic Psychology*, 40, 167–180.
- Loo EC. (2006). *The influence of the introduction of self-assessment on compliance behaviour of individual taxpayers in Malaysia*. University of Sydney.
- Lusardi, A., & Mitchell, O. S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1), 5–44.
- Lusardi A, M. O. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
- M., M. (2011). *Designing and conducting research in taxation*. Thomson Reuters.
- McKerchar, M., & Evans, C. (2009). Sustaining Growth in Developing Economies through Improved Taxpayer Compliance: Challenges for Policy Makers and Revenue Authorities. *EJournal of Tax Research*, 7(2), 171–201.
- MR, P. (2010). *Tax knowledge and tax compliance determinants in self assessment system in Malaysia*. University of Birmingham.
- Mukhlis I, Utomo SH, S. Y. (2015). The role of taxation education on taxation knowledge and its effect on tax fairness as well as tax compliance on handicraft SMEs sectors in Indonesia. *International Journal of Financial Research*, 6(4), 161–169.
- N., S. (2014). Tax knowledge, tax complexity and tax compliance: Taxpayers’ view. *Procedia - Social*



and Behavioral Sciences., 1069–1075.

OECD. (2015). *Building tax culture, compliance and citizenship: A global source book on taxpayer education*. OECD Publishing.

Palil MR, M. A. (2011). Factors affecting tax compliance behaviour in self assessment system. *African Journal of Business Management.*, 33(5).

Susilawati E, Effendi L, H. W. (2023). The effect of digital literacy and e-filing system on tax compliance of MSMEs. *International Journal of Research in Business and Social Science.*, 12(3), 60–69.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548–573.

Xiao JJ, O. B. (2016). Consumer financial education and financial capability. *International Journal of Consumer Studies.*, 40(6), 712–721.

Yusof NA, Ling LM, W. Y. (2014). Tax non-compliance among SMEs in Malaysia: Tax audit evidence. *Journal of Applied Accounting Research.*, 15(2), 215–234.