



Article

# Tax Compliance Pattern Analysis: A Survey-Based Approach

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**Abstract:** This study investigates tax compliance patterns among individuals in Romania through a survey-based approach, aiming to comprehend factors influencing taxpayers' behavior, including perception towards taxation, ethics, evasion, and public awareness. The insights garnered can inform policy decisions to enhance compliance rates. Additionally, it contributes to the tax compliance literature by examining unique Romanian context factors. The study delves into taxpayers' opinions to discern specific views and behaviors within broader societal and economic transformations. A questionnaire was developed and administered online from April to June 2023, with a sample size of 185 respondents. A logistic regression model was constructed using the collected data to analyze the effects on tax compliance. The findings suggest that individuals comply with tax obligations when they perceive their contributions enhance public services and when the tax system aligns with their preferences. Surprisingly, a higher education level correlates with lower tax compliance, emphasizing the importance of targeted interventions and educational campaigns. This underscores the necessity for effective communication about the societal benefits of paying taxes. Policymakers should tailor awareness campaigns to inform higher-educated individuals about the significance of tax compliance and its impact on public goods. This ensures a more informed populace and promotes voluntary compliance with tax regulations.

**Keywords:** tax compliance; Romania; survey-based approach; logistic regression



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## 1. Introduction

Tax compliance behavior refers to the taxpayer's obligation to pay taxes. Taxpayers adopt compliance behavior for various reasons: tax ethics (they believe paying taxes is the right way), to avoid legal consequences (legal sanctions), and to contribute to the development of society.

This behavior can be easily influenced by the relationship between the taxpayer and the authorities (through corruption, evasion, or digitization). In the literature, expressions such as "unethical tax behavior" and "tax evasion" are used interchangeably (Bagus et al., 2011; McGee, 2012; Majid et al., 2017; Kemme et al., 2020; Saragih & Putra, 2021; Alver & Alver, 2022). In addition, tax evasion and tax avoidance are significant phenomena that have

an impact on nations, potentially resulting in substantial revenue losses for the government (Mohamad & Ali, 2017; Crnogorac & Lago-Peñas, 2020; Ghazo et al., 2021; Paleka et al., 2022).

Increasing awareness of ethical behavior can lead to increased tax compliance. This concept refers to the correct calculation, reporting, and complete and timely payment of tax liability by the taxpayer voluntarily. Thus, the degree to which the taxpayer complies with the tax laws is emphasized by correctly declaring income, submitting declarations and paying taxes due on time according to the legislation's deadlines to avoid penalties. To increase the collection of budget revenues, it is essential to stimulate tax compliance, and thus, all taxpayers participate correctly and equitably in the financing of public goods and services (Alm & McClellan, 2012; Bruno, 2019; Enachescu et al., 2019; Alstadsæter et al., 2022). Tax revenues provide various public goods, support public expenditures, and finance public services (Youde & Lim, 2019).

This study aims to investigate tax compliance patterns among Romanian individuals using a survey-based approach. The definition of tax compliance provided to the respondents was as follows: tax compliance emphasizes the degree of fulfillment of all tax obligations specified by law. To ensure respondents clearly understood the concept of tax compliance, its definition was included directly in the questionnaire when asking for their views on whether tax compliance is a moral obligation. This approach ensured consistency in participants' understanding of the concept before responding.

This study seeks to understand the factors influencing taxpayers' compliance behavior, including attitudes towards taxation, tax ethics, perceptions of evasion and avoidance, public awareness about paying taxes, etc. By employing this analysis, some insights are provided that can inform policy decisions aimed at improving tax compliance rates in Romania. Additionally, the study may contribute to the existing literature on tax compliance by offering a specific analysis within the Romanian context, potentially highlighting unique factors or trends that influence taxpayer behavior in this particular setting.

The questionnaire was developed and applied online between April and June 2023, and 185 respondents represented the sample. Within it, open-ended, dichotomous, and close-ended questions were created (some of which were on a five-point Likert scale). The questionnaire also included socio-demographic questions related to education, occupation, and income. The link to the online form was shared with respondents, and the authors offered in-person assistance to help them complete it. This study considered different indicators influencing tax compliance, such as the degree of awareness about paying taxes, the necessity of public investments, the propensity towards tax evasion, etc. The study also highlights the results obtained by applying a logistic regression model to capture the effects on tax compliance.

This study is part of the scientific concerns related to the social and economic transformations that intervene during society's evolution. Thus, taxpayers' opinions regarding tax compliance will be highlighted to identify specific views and behaviors. In the literature, various models of the relationships between the chosen indicators are presented, and the study will start from the elements identified by multiple authors and try to input some clarifications using survey-based analysis.

Following the Section 1, Section 2 synthesizes existing research findings related to the topic. Section 3 details the approach and methods employed to conduct the study, including data collection, analysis techniques, and any relevant procedures. Subsequently, the analysis and discussion of results delves into the interpretation of the findings, providing insights into the implications and significance of the results in the context of the research objective. Finally, the paper concludes with a summary of key findings.

## 2. Literature Review

The paper by [Jackson and Milliron \(1986\)](#) provides a framework for understanding the complexities of tax noncompliance. The paper outlines key variables linked to non-compliance, synthesizes existing research findings, and highlights unresolved issues. It also addresses methodological challenges in prior studies and suggests improvements to advance research in this field. Furthermore, the authors explore theoretical foundations to build a basis for future studies. They underscore the significance of tax compliance research not only in raising government revenues but also in its broader societal implications, advocating for focused academic efforts to address these critical challenges.

[Richardson and Sawyer \(2001\)](#) build upon the work of [Jackson and Milliron \(1986\)](#) by reviewing and synthesizing tax compliance literature published since 1985. Their study addresses four key areas: updates on the variables identified by [Jackson and Milliron \(1986\)](#), methodological issues arising in tax compliance research, developments in the theoretical frameworks examined by [Jackson and Milliron \(1986\)](#), and the emergence of new research areas. While significant progress has been made, such as identifying interactions between variables and introducing new ones, the authors highlight the need to resolve conflicting findings and address methodological inconsistencies. They also emphasize the growing opportunities for cross-cultural research but caution governments and revenue authorities against generalizing findings across jurisdictions due to contextual differences.

[Yong et al. \(2019\)](#) build upon the work of [Jackson and Milliron \(1986\)](#) and [Richardson and Sawyer \(2001\)](#) by extending the analysis of tax compliance research from 1998 to 2017. The study focuses on identifying variables influencing tax compliance over two decades. This research highlights the evolution of tax compliance understanding, following a similar methodological approach to earlier studies. The authors provide valuable insights into the progression of tax compliance literature, offering a basis for further investigation.

Many works from the literature analyze the link between tax compliance and tax morale, thus indicating taxpayers' beliefs about the necessity of paying taxes ([Luttmer & Singhal, 2014](#)). According to [Fochmann et al. \(2021\)](#), tax compliance is significantly higher when tax returns are correctly prefilled. [Christian and Alm \(2014\)](#) investigated the impact of two emotions, sympathy and empathy, on compliance behavior, concluding that high levels of empathy and sympathy lead to lower tax evasion. Also, various works can be found in the literature in which ethical tax behavior is analyzed with the help of survey-based research. Thus, [Muhumed and Wafula \(2023\)](#) sought to determine the factors affecting tax compliance and concluded that tax knowledge, fines, and penalties affect tax compliance, though not significantly, while tax rate and tax accountability are statistically significant. [Tabakan and Avci \(2021\)](#) tried to determine the factors that affect taxpayers' voluntary tax compliance, and according to the results, tax amnesty, tax rates, remorse, tax audit, religious sensitivity, and tax information have statistically significant effects on taxpayers' voluntary tax compliance. Still, tax penalties, efficiency, fairness of tax administration, and income variables do not have a statistically significant effect. [Mammadli and Zeynalova \(2021\)](#) discuss and analyze the importance of tax ethics, as well as the impact of tax education on it. [Holkova et al. \(2023\)](#) focus on analyzing taxpayers' behavior and their propensity towards tax evasion, confirming that 78% of respondents are prone to tax evasion and only 22% have never evaded paying taxes and would not do this knowingly. The authors show that women are less prone to tax evasion and that the propensity to tax evasion depends on education, age, income source, and experience.

[McGee et al. \(2012\)](#) examine perceptions of tax ethics, and the results show that tax evasion does not violate ethical principles under certain circumstances. Most respondents agreed that tax evasion defies ethical principles. [Visockaitė and Birškytė \(2013\)](#) analyze the perception of ethics in tax administration from the point of view of both taxpayers

and tax administration workers. According to the results, taxpayers are not very critical in evaluating the ethical behavior of tax administration workers compared to their self-assessment results. Tax administration workers judge their colleagues and their ethical behavior harshly.

[Drogalas et al. \(2018\)](#) analyze tax ethics and, according to them, taxpayers do not evade taxes due to potential personal gains but instead because the state cannot correctly allocate public money and because the political and tax systems are inefficient or corrupt. The authors show that the state needs to gain the trust of its citizens to increase compliance and lower tax evasion by efficiently allocating resources and promoting transparency. [Robbins and Kiser \(2020\)](#) discuss tax compliance, suggesting that moral attitudes influence this behavior. The authors refer to income tax evasion, and the results show the importance of moral attitudes and the coercion exercised by the state.

[Dewi and Sylviana \(2021\)](#) examine the factors influencing perceptions about the ethics of tax evasion. The results showed that the fairness factor significantly affects the perception of ethics on tax evasion. [Daza and Segura \(2020\)](#) analyzed the ethics of accounting specialists, and the results show that less than half of the respondents knew the principles of ethics, but more than half of the respondents knew about tax avoidance/evasion practices in the companies where they were employed.

When people change their consumption and saving habits to reduce their tax obligations, this is called tax avoidance. These behavioral responses lead to diminished allocative efficiency or the loss of economic transactions that would raise living standards ([Fichtner & Feldman, 2013](#)).

[Bătrâncea et al. \(2012\)](#) suggest that there are two types of non-compliance behavior: tax avoidance and tax evasion. While tax avoidance is a legal action of taxpayers, tax evasion is a law violation. Since tax avoidance presumes using legislative exceptions to minimize taxes through inventive accounting, it is not illegal ([Simon & Clinton, 2002](#)).

Tax avoidance also involves exploiting legal loopholes to lower one's tax obligation. The taxpayer does not need to fear being discovered if they avoid taxes ([Bătrâncea et al., 2012](#)). [Sour \(2004\)](#) points out that tax avoidance refers to methods of lowering tax obligations that may or may not be legal. Tax avoidance implies a risk-taking behavior, meaning that individuals want to get away with not paying their taxes and not getting caught. They use unclear or poorly interpreted legal provisions to reduce tax liability ([Silvani, 1992](#)).

Therefore, while tax evasion involves using illegal measures to decrease one's tax liability, tax avoidance involves using legal means ([Alleyne & Harris, 2017](#)). Tax avoidance is the practice of those who underreport their taxes by taking advantage of legal loopholes ([Silvani, 1992](#)).

Tax evasion and avoidance have become the primary goals of taxpayers, pushing tax compliance to the background ([Kassa, 2021](#)). [Alstadsæter et al. \(2022\)](#) suggest that "opportunities" for tax avoidance may be concentrated among the wealthiest people. Their findings also underline that evasion and avoidance are distinct choices with little overlap.

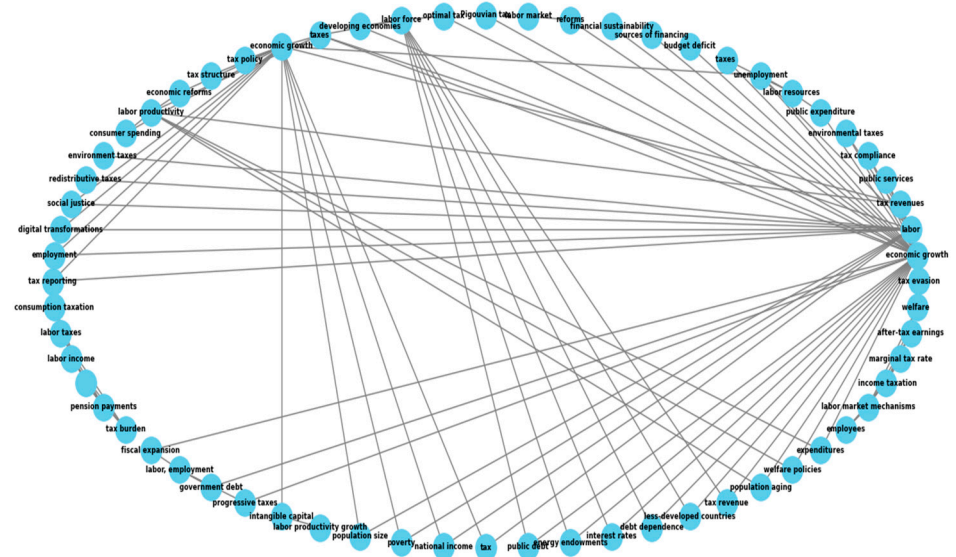
Tax ethics shape attitudes towards tax compliance, encouraging voluntary compliance and contributing to an equitable tax system. Also, tax compliance supports economic growth by ensuring stable government revenue, reducing tax evasion, fostering investor confidence, and facilitating productive government spending. Considering these aspects, an analysis of the literature on the Google Scholar platform is developed to identify articles written in the period 2020–2024 using the following primary keywords:

1. "Tax ethics"—approximately 25,100 results;
2. "Tax ethics and economic growth"—approximately 17,000 results;
3. "Labor taxation and economic growth"—approximately 15,400 results.





- Consumption and fiscal responsibilities: consumption taxation, pension payments, tax burden, fiscal expansion, and government debt;
- Social and demographic factors: intangible capital, population size, poverty, and national income;
- Debt and interest rates: public debt, interest rates, and debt dependence;
- Welfare and social policies: population ageing, less developed countries, welfare, welfare policies, expenditures, employees, marginal tax rate, and after-tax earnings;



**Figure 2.** Bibliometric analysis of the first 20 works from Google Scholar in 2024 on the topic “labor taxation and economic growth.” Source: analysis based on data extracted from Google Scholar.

This brief bibliometric analysis concludes that the paper’s topic is of great interest to specialists and contributes significantly to the existing literature. Visually representing the connections between keywords provides valuable insights into the relationships between primary and secondary keywords. This analysis improves the understanding of the research context and highlights the interconnection of critical concepts, thus strengthening the significance of the chosen topic within the literature.

### 3. Methodology

The logistic regression model is used in various survey-based studies (Tabakan & Avcı, 2021; Muhumed & Wafula, 2023) to check the relationships between dependent (tax compliance) and independent variables. A logistic regression model analyzes the relationship between a dichotomous (binary) dependent variable and one or more independent variables. Such a dependent variable can belong to only two classes/categories: presence/absence, yes/no, etc. The main objective of developing such a model is to estimate the probability that the dependent variable belongs to a category.

Logistic regression is more adaptable and more suitable for modelling most scenarios. Logistic regression does not presuppose that the independent variables are regularly distributed. The particular type of logistic regression model employed is (Hosmer et al., 2013):

$$p(x) = \frac{e^{\beta_0 + \beta_1 x_1 + \dots + \beta_n x_n}}{1 + e^{\beta_0 + \beta_1 x_1 + \dots + \beta_n x_n}} \tag{1}$$

In the above equation,  $p$  is the probability that the dependent variable “Y” will take the value of 1, given the value of “X,” and  $x_i$  are the independent variables. In logistic regression,

the probability of Y happening is estimated as P(Y) from known (log-transformed) values of X1 (or Xs), rather than the value of a variable Y from many predictor variables (Xs).

Using the IBM SPSS Statistics 29.0 software, a binary logistic regression model was created for analyzing the influences on tax compliance (TC) as determined by the subsequent equation:

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) \quad (2)$$

In the above equation,  $p$  is the probability of TC behavior, and logit is the natural logarithm of the odds between a dependent variable Y that is TC ( $Y = 1$ ) and non-TC ( $Y = 0$ ). The link function, called the logit function, is the natural log of  $p/(1 - p)$ .

The coefficient  $\beta$  indicates whether the dependent variable and its predictors have a positive or negative relationship. If the independent variable rises, the odds of the dependent variable also rise, according to odds ratios greater than 1. However, if the odds ratios are lower than 1, the independent variable increases and the odds of the dependent variable decrease (Field, 2013).

After consulting the literature review, eleven independent variables were chosen to explain TC behavior. Table 1 contains the TC predictors.

**Table 1.** The predictors of the TC \*.

Predictors **	Coding
When taxes are burdensome, do you avoid earning income, accept the risks of tax non-compliance, or keep paying your taxes? Tax Avoidance	TAXBR_BH
Suppose you have a payment obligation (a tax to be paid to the state budget). In that case, will you pay it from your initiative even if there are no financial sanctions, pay it because there are financial sanctions, or pay as little as possible within the limits of the law? Tax Ethics	TAX_BH
Do digital facilities help you easily pay your tax obligations on time? (To a very small extent/To a small extent/Regardless/To a large extent/To a very large extent) Digital Information Services	TAX_DIGITAL
Will paying taxes increase the supply of public goods and services (education, health system, public safety, schools, kindergartens, hospitals, highways, etc.)? (Strongly disagree/Partially disagree/Regardless/Partially agree/Strongly agree) Public Awareness about Paying Taxes	TAX_GOODS_EDH
Which tax system do you think would be the most suitable for you? (Flat taxation, proportional to the income obtained/Flat taxation, with higher deductibility for low income/Progressive tax, without deductibility/Progressive tax, with deductibility) Tax System—Individual	TAX_SYSTEM_INDIVID
Which type of income tax system (including labour income) do you consider more suitable for the Romanian economy? (Flat taxation/Progressive taxation) Tax System—Romania	TAX_SYSTEM_RO
Is tax evasion a reaction of taxpayers to the inefficiency of spending tax revenues? (Strongly disagree/Partially disagree/Regardless/Partially agree/Strongly agree) Tax Evasion	EVS_TAX_REACTION
Is it necessary to rethink the allocation of budget expenditures by sectors of the economy to support public investments? (Strongly disagree/Partially disagree/Regardless/Partially agree/Strongly agree) Public Investment	PUBLIC_INV_RELOCATION

Table 1. Cont.

Predictors **	Coding
Gender	G
Age	A
Education	Ed

\* Tax compliance (this variable was considered based on the following question in the applied questionnaire: Do you consider tax compliance to be among the moral obligations of every citizen? Yes/No). \*\* These predictors were considered based on different questions in the applied questionnaire.

The respondents mainly represent Generation Z, aged between 18 and 25 (64.3%,  $n = 119$ ), and the Millennial generation, aged between 26 and 41 (23.2%,  $n = 43$ ). The respondents also included people aged between 42 and 57 (9.7%,  $n = 18$ ) and over 58 (2.8%,  $n = 5$ ). The majority of respondents were women (70.3%,  $n = 130$ ), while men represented 29.7% of the entire sample ( $n = 55$ ) (see Table 2).

Table 2. Statistics of respondent profile.

Measure	Item	Frequency (%) N = 185
Gender	Men	55 (29.7%)
	Women	130 (70.3%)
Age	18–25	119 (64.3%)
	26–41	43 (23.2%)
	42–57	18 (9.7%)
	58 or above	5 (2.8%)
Average monthly income	RON 3000 or less	64 (34.6%)
	More than RON 3000	121 (65.4%)
Education	High school/professional studies	64 (34.6%)
	Post-secondary studies	7 (3.8%)
	Bachelor's degree	87 (47.0%)
	Master's degree	17 (9.2%)
Occupation	Doctoral studies	10 (5.4%)
	Employee	102 (55.1%)
	Entrepreneur	8 (4.4%)
	Student	75 (40.5%)

Regarding income, 65.4% had more than RON 3000 (approximately EUR 600), while 34.6% had less than RON 3000. Regarding education, 34.6% had completed high school or professional studies, 3.8% had completed post-secondary coursework, 47% had earned a bachelor's degree, 9.2% had earned a master's degree, and 5.4% had earned a PhD degree. As for occupation, 40.5% were students, 55.1% were employees, and 4.4% were entrepreneurs.

The convenience sampling technique was applied to select respondents conveniently (Edgar & Manz, 2017). This sampling method aims to select respondents from a convenient population subset (Baxter et al., 2015). Although this technique can be considered one of the weakest non-probability sampling methods, it is frequently used to obtain a range of attitudes and opinions, which can be tested in future research (Albert et al., 2010).



The imbalanced sample is a consequence of using the convenience sampling method, which selects participants who are readily available and willing to respond. This approach often over-represents groups that are easier to reach, such as those that are more engaged with the topic.

While convenience sampling limits the representativeness of the findings, it was chosen to uncover patterns and generate insights that can be tested in more representative samples in future research. However, this method restricts the broader applicability of the results, as the sample may not fully capture the diversity of taxpayers' perspectives. Certain subgroups, such as older generations, may be underrepresented.

As a result, the findings of this study cannot be generalized to the entire Romanian taxpayer population. Instead, they provide an initial understanding of tax compliance behavior within the sampled demographic. These results should be interpreted with caution and within the specific context of this study.

#### 4. Analysis and Discussion of the Results

The first question in the questionnaire was created to identify the source of income obtained by the respondents, and it was found that the most significant part of income is from wages, followed by the part from self-employment. A high percentage of respondents (95.1%) considered tax compliance a moral obligation, with taxpayers continuing to pay taxes in a high percentage (54.1%) even if no financial sanctions are provided for non-payment. Respondents believed to a large extent (83.2%) that they will continue to pay taxes even if they consider them burdensome.

One important question was related to the perception of the investments made by the state to stimulate economic growth. The most important sectors of the economy indicated by the respondents were "education," "health and social assistance," "production and supply of electricity and thermal energy, gas, hot water, and air conditioning," "agriculture, forestry and fishing," "professional, scientific, and technical activities," and "information and communications."

The focus on economic growth is grounded in its role in generating the fiscal capacity needed to fund welfare-enhancing initiatives. Stable government revenue enables investments in essential sectors such as education, health, and social assistance, which respondents identified as priorities. These investments are crucial for improving quality of life, reducing inequalities, and fostering welfare.

The findings align with Adam Smith's principles on the use of public revenues to fund public goods and services that enhance the welfare of all citizens (Smith, 2022; Arevuo, 2023). By identifying sectors like education and health as key priorities, the results underscore the importance of public investments in balancing economic growth and welfare. They also demonstrate that the respondents value initiatives that directly improve welfare and reduce disparities. Investments in education and healthcare reflect these principles by addressing social needs while supporting economic growth. Policymakers should ensure that tax revenues fund initiatives that balance economic growth with social welfare.

When presenting various types/categories of income, a significant number of respondents (71) considered that the level of taxation is high for income from salaries. Still, for other categories, this level of taxation was considered to be on average by a significant number of respondents (between 65 and 79). Some of the income categories considered were:

- Income from self-employment;
- Income from intellectual property rights;
- Income from agricultural activities;
- Income from forestry;
- Income from fish farming.

Even if the overall tax-to-GDP ratio (the sum of taxes and net social contributions as a percentage of gross domestic product) was 27.5% in Romania in 2022, compared to the EU27 average of 41.2%, with the maximum reached in France (48.0%) and the lowest in Ireland (21.7%) (Eurostat, 2024), a significant number of respondents (60%) believe that in Romania, from the point of view of the taxpayer, the level of taxation is burdensome. However, digital facilities can help easily meet tax obligations on time (according to 76.2% of respondents).

There was a significant number of respondents who agreed with the following:

- Paying taxes helps increase the public goods and services (107 respondents).
- Tax evasion is a reaction of taxpayers to the inefficiency of tax revenue spending (85).
- It is essential for taxpayers to know the destination of tax revenues (130).
- A rethinking of the allocation of budget expenditures by sectors of the economy is necessary to support public investments (129).

Also, according to the respondents, the main measures that the policymakers can adopt to increase the degree of tax compliance are:

- Developing a transparent relationship with taxpayers regarding the spending of the amounts obtained from taxes (67%);
- Increasing the degree of digitization of institutions (tax administrations) (49.7%);
- Eliminating some existing taxes (37.8%);
- Adopting stricter penalties for tax evasion (35.1%);
- Increasing the number of controls carried out by state institutions (32.4%).

Surprisingly, despite Romania's individual income tax system having a single tax rate of 10%, a majority of respondents (51.4%) indicated that a progressive income tax system is better suited to the Romanian economy, compared to 48.6% who supported the current flat tax rate system. Also, 58.9% agreed that high-income earners should contribute more to the state budget through taxes.

A significant percentage of respondents (76.2%) believed the minimum salary should be tax-free.

According to the respondents, among the activities of the National Agency for Fiscal Administration that stimulate tax compliance are:

- Combating fraud (by promoting quality tax control oriented towards sectors with a high risk of fraud) (57.3%);
- Efficient collection of taxes and social contributions to guarantee the necessary budget revenues (49.7%);
- Increasing the quality of services offered (40%);
- Ensuring simplified procedures (37.8%);
- Diversification of offered services (23.8%).

When respondents were asked to choose the tax system most suitable for them (options provided were a flat tax rate proportional to earned income, a flat tax rate with higher deductibility for low incomes, progressive tax rates without deductibility, and progressive tax rates with deductibility), a significant percentage (36.6%) favored maintaining the single tax rate proportional to income. This was followed by the option of progressive tax rates with deductibility, chosen by 29.6% of respondents.

This is an exciting result because high-income earners want to maintain flat taxation. This is a problem of subjective assessment of fairness in taxation, because low-income earners consider that the high-income earners should pay more, and the high-income earners believe that the flat tax system is appropriate, considering that progressive taxation should not punish the personal effort to obtain higher incomes. After all, flat taxation or progressive taxation is a political decision regarding social solidarity through taxation and social efficiency (how to use the income from taxes to provide public goods).

Fairness is a key focus of equity-based theories, which emphasize principles such as horizontal equity—equal treatment of individuals with the same ability to pay—and vertical equity—greater contributions from those with higher incomes. These principles provide a framework for evaluating tax systems, particularly in terms of perceived fairness and compliance. A tax system that aligns with these principles is more likely to be seen as fair, fostering voluntary compliance. However, social norms and politics will shape tax systems, making the application of equity-based theories dependent on context.

Respondents believe that they can influence the change in tax rates (59%), emphasizing the following ways:

- As an employee, according to the opinion of the union (58.2%);
- As a citizen, through the mass media (42.7%);
- As an entrepreneur, through professional associations/organizations (34.5%).

Additionally, 41% of respondents did not believe they can influence changes in tax rates. They identified the following aspects that deserve future analysis (as answers to this open-ended question: “What is the reason for your negative response to the question, ‘Do you believe you can influence a change in tax rates?’”):

- The impossibility of influencing, as a simple citizen, a change in tax rates because only the policymakers have the methods for their change;
- Policymakers acting to restore the balance of the state budget through various means, regardless of the citizens’ decisions;
- Policymakers not considering citizens’ opinions, the actions of the mass media, or the trade unions.

The responses highlight a lack of relationship between citizens and policymakers. Respondents believed that they cannot influence changes in tax rates, as these decisions are made solely by policymakers. Additionally, respondents expressed skepticism about their inclusion in the decision-making process, noting that policymakers often disregard public opinion, media advocacy, and trade union actions when implementing tax policies. This underscores a significant issue that could erode taxpayers’ trust in the government and, consequently, impact tax compliance levels. Therefore, policymakers should prioritize improving their relationship with citizens by fostering transparent communication, actively engaging the public in decision-making, providing clear and accessible information about tax policies and their benefits, and addressing concerns raised by trade unions, media, and citizens.

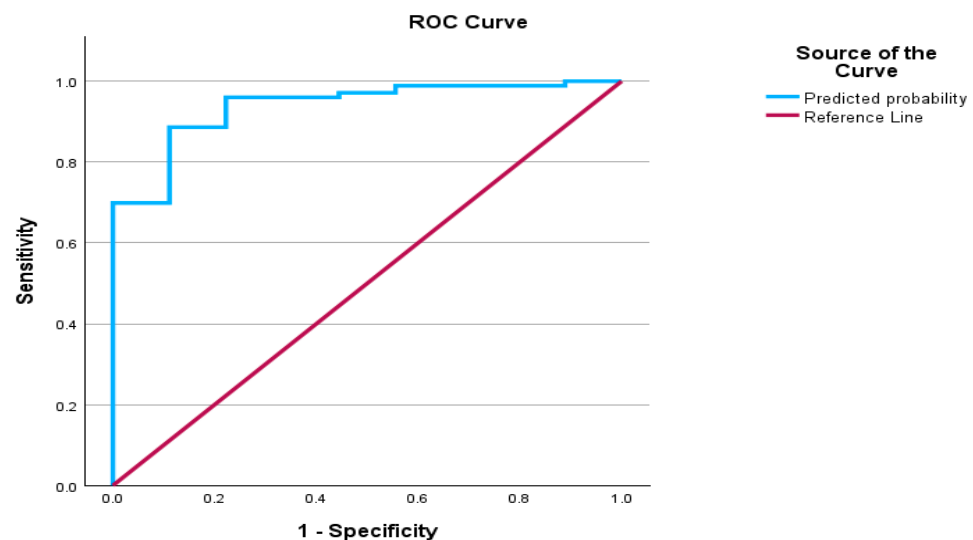
Another open-ended question was, “What other aspects do you consider important for tax compliance?” The respondents highlighted the following factors:

- Absolute fiscal transparency of the public administration system;
- A genuine dialogue between the National Agency for Fiscal Administration and taxpayers;
- Policymakers providing examples of good practice to see how they act efficiently and in favor of citizens;
- The importance of changing the mentality for voluntary compliance;
- Increasing the frequency of controls;
- Penalties;
- Awareness of financial risks and paying taxes on time.

The responses emphasize the need for improvements to foster tax compliance. Respondents highlighted the importance of various factors, including promoting examples of good practices in policymaker actions related to taxation that benefit citizens and encouraging voluntary compliance. Considering these factors, the policymakers should aim to build trust—an essential determinant of tax compliance—by prioritizing strategies that promote

voluntary compliance through positive incentives and transparent communication, rather than relying solely on enforcement measures.

To examine how each of the eleven predictor factors contributed to the variability of the dependent variable, the Nagelkerke R2 indicator was used. TC variation is explained by the mentioned predictor variables for 40.6% of the variance, meaning that this is a good model with a substantial ability to explain and predict the variation in the outcome. The validation of the model encompassed an analysis of the receiver operating characteristic curve (ROC curve), with the assessment of the area under the ROC curve (AUC) (see Figure 3). The independent variables jointly projected the TC with an AUC of 0.938. According to Hosmer et al. (2013), if the AUC of the ROC curve is  $>0.9$ , there is excellent discrimination. The model can very well discriminate between the positive and negative classes. This indicates that the model effectively ranks and distinguishes between instances of the two classes, and it is a strong argument for the model's accuracy and precision.



**Figure 3.** ROC curve. Note: area under the ROC curve: 0.938.

For the model (see Table 3), Chi-square ( $df:11$ ) = 25.969 was statistically significant, with a  $p$ -value  $< 0.05$  (0.007) showing that the model has a considerable prediction performance. For the model fit, we also evaluated the Hosmer and Lemeshow test, with a Chi-square ( $df:8$ ) = 10.361,  $df = 8$ , and  $p$ -value  $> 0.05$  (0.241), which showed that the model fitted the data.

The omnibus tests were used for the model coefficients to evaluate the model fit and see whether there was a significant difference from the null model. According to the Chi-square test, grouping the variables improved classification. The Hosmer and Lemeshow test also evaluated the discrepancy between the observed and predicted models (Field, 2013).

The findings revealed three statistically significant factors. Those factors were TAX\_GOODS\_EDH (public awareness on paying taxes), TAX\_SYSTEM\_INDIVID (tax system suitable for individuals), and Ed (education).

The results for the variable TAX\_GOODS\_EDH indicated that the odds of individuals displaying tax compliance behavior increase by 3.337 for each one-unit increase in their perception of contributing to the supply of public goods and services. In other words, individuals are 3.337 times more likely to exhibit tax compliance behavior when they perceive that they contribute to enhancing public goods and services (education, health system, public safety, schools, kindergartens, hospitals, highways, etc.). Possible explanations could be related to the following:

- Individuals could be more willing to comply with taxes if they believe their contribution directly translates to improved public goods and services they value. This suggests a sense of reciprocity, where fulfilling tax obligations is seen as an investment in their community and well-being.
- The perception of contributing to the public good could reflect an individual's sense of civic duty and social responsibility. Individuals with stronger prosocial values and a desire to contribute to society might be more inclined to comply with tax regulations to fulfill their perceived duty.
- The variable could capture broader trust in government and its ability to use tax revenue effectively. People who trust the government to manage finances responsibly and deliver on its promises might be more likely to comply with taxes, believing their contribution will be used effectively.

**Table 3.** Multivariate binary logistic regression model, dependent variable: tax compliance (TC).

Variables	B	S.E.	Wald	Sig.	Exp(B)	95% C.I. for Exp(B)
TAXBR_BH	−0.355	0.875	0.165	0.684	0.701	0.126–3.892
TAX_BH	−0.320	0.602	0.283	0.595	0.726	0.223–2.363
TAX_DIGITAL	0.517	0.389	1.765	0.184	1.677	0.782–3.593
TAX_GOODS_EDH	1.205	0.463	6.766	0.009 ***	3.337	1.346–8.272
TAX_SYSTEM_INDIVID	1.165	0.620	3.528	0.060 *	3.205	0.951–10.804
TAX_SYSTEM_RO	0.439	1.008	0.189	0.663	1.551	0.215–11.191
EVS_TAX_REACTION	−0.313	0.503	0.385	0.535	0.732	0.273–1.963
PUBLIC_INV_RELOCATION	−0.765	0.527	2.107	0.147	0.466	0.166–1.307
G	−0.192	1.109	0.030	0.863	0.825	0.094–7.254
A	−0.684	0.650	1.108	0.293	0.505	0.141–1.804
Ed	−1.095	0.485	5.109	0.024 **	0.334	0.129–0.865
Constant	5.574	3.973	1.969	0.161	263.616	

Model summary:  $n = 185$ ;  $-2\text{Log likelihood} = 46.003$ , Cox and Snell R-square = 0.131, Nagelkerke R-square = 0.406; Step 0: predicted percentage correct 95.1%; Step 1: predicted percentage correct: 95.7%; omnibus test: Chi-square = 25.969,  $df = 11$ ,  $p\text{-value} = 0.007$ ; Hosmer and Lemeshow test: Chi-square = 10.361,  $df = 8$ ,  $p\text{-value} = 0.241$ ; \*\*\* significance at the 1% level (0.01), \*\* at the 5% level (0.05), and \* at the 10% level (0.10).

For the variable TAX\_SYSTEM\_INDIVID, the results indicate that the odds of individuals exhibiting tax compliance behavior increase by 3.205 for each one-unit increase in their perception of a more suitable tax system. In other words, individuals are 3.205 times more likely to display tax compliance behavior when they perceive the tax system as more suited to their preferences. Possible explanations could be related to the following:

- Perceiving a tax system as suitable could increase trust and confidence in the system, leading to greater compliance. Individuals who believe the system fairly represents their interests might be more willing to follow the rules.
- The perception of suitability could reflect an individual's understanding of the system and ability to comply. Those who believe they understand the system well and can easily comply might be more likely to do so.
- The variable could capture broader attitudes towards authority and following rules. People with positive attitudes towards following rules might also be more likely to comply with tax regulations, regardless of their specific perception of the tax system.

The gender imbalance in the sample, with 70.3% of respondents being women, could have influenced the observed trends in tax compliance perceptions, given that prior re-



search suggests women tend to exhibit higher tax compliance than men (Hasseldine, 1999; Kastlunger et al., 2010; Holkova et al., 2023; Komatsu et al., 2024). This predominance of women in the sample could potentially have biased the responses toward higher reported levels of tax compliance, influencing the findings.

The results for the variable “education” indicate that the odds of individuals exhibiting tax compliance behavior decrease by 0.334 for each one-unit increase in their education level. In other words, individuals with higher education levels are 0.334 times less likely to display tax compliance behavior than those with lower education levels. One possible explanation could be that individuals with higher education might have more complex financial situations or be self-employed, making tax compliance more challenging. People with higher education should be more knowledgeable about tax strategies and optimize their tax situation legally (this being perceived as tax avoidance). Thus, these individuals may pay heightened attention to detail regarding tax deductions, investments, and other financial matters. Also, other factors associated with higher education (e.g., income level) influence tax compliance, and the model might capture this indirect relationship.

## 5. Conclusions

Tax compliance pertains to a taxpayer’s duty to fulfill tax obligations, which is easily affected by the relationship with authorities (corruption, evasion, digitalization). Enhancing awareness of ethical behavior promotes tax compliance, emphasizing adherence to legal obligations. Boosting tax compliance is crucial for augmenting budget revenues and ensuring fair participation in funding public goods and services by all taxpayers.

The conclusions that emerged from the analysis of the respondents’ answers are the following:

- Salaries and income from self-employment are the main sources of income for employees, so the tax wedge is more significant for them than other taxes (on property, etc.). Thus, income taxes on labor income have a significant impact on employees’ financial situations compared to other types of taxes. A higher tax wedge means less disposable income, reducing the purchasing power. It can discourage workforce participation, especially among low-income earners. Possible ways to enhance work incentives include lowering personal income tax rates and social security contributions for them. However, implementing such tax cuts may pose challenges due to their fiscal impact (OECD, 2011).
- Respondents view complying with tax obligations as a moral duty, reflecting their trust in the tax system and policymakers/tax authority and good education regarding moral responsibilities towards society/appropriate ethical behavior. This highlights individuals’ willingness to comply with tax obligations based on ethical norms rather than fear of penalties or enforcement. They view paying taxes as a way to contribute to society and support public goods such as healthcare, education, and infrastructure. This willingness is also linked to citizens’ trust in the government to use tax revenues effectively. Individuals with greater trust in the government tend to have higher tax morale (OECD, 2019).
- A significant percentage of respondents will continue to pay taxes voluntarily, even if there are no financial sanctions for non-payment, thus emphasizing high tax compliance and a voluntary engagement in complying with tax obligations. Respondents indicated several measures that policymakers should adopt to increase the degree of tax compliance, such as developing a transparent relationship with taxpayers regarding public spending and increasing the degree of digitization of institutions. When trust in authorities exists, citizens are more likely to pay their taxes voluntarily (Kirchler, 2007).

- The majority of respondents will continue to pay taxes, even if they consider them burdensome, reflecting the confidence in the benefits brought by taxes and, in general, the willingness to contribute to financing public services, even if this entails a financial burden. A significant number of respondents recognized that, from the taxpayer's perspective, the taxation level in Romania is burdensome, and this aspect may indicate the dissatisfaction of taxpayers with the social/societal value added from the current level of taxation. People often criticize the tax system, yet they continue to comply because they understand the necessity of taxes in providing public goods and services. They acknowledge that the provision of these services can foster compliance, even when dissatisfaction with the tax burden persists (Al-Hamadeen et al., 2024). A significant number of respondents considered the level of taxation to be high for income from wages. In contrast, for other income categories, the opinions showed that the level of taxation is on average, thus bringing into question the tax system's fairness.
- A significant percentage of respondents considered that digital facilities can help them easily fulfill tax obligations on time, suggesting an openness to technology in paying taxes. Technologies like electronic invoicing and pre-filled tax returns can significantly reduce administration costs, thereby simplifying the tax process for taxpayers (Hesami et al., 2024).
- Most respondents agreed that paying taxes increases the supply of public goods and services. Tax evasion is a reaction to inefficiency in public spending, reflecting the importance of efficient and transparent tax system management. Countries with efficient tax administrations tend to have smaller grey economies and systems within which tax evasion is penalized (Savić et al., 2015).

According to the binary logistic regression model results, individuals are more likely to exhibit tax compliance behavior when they perceive that they contribute to enhancing public goods and services and perceive the tax system as more suitable to their individual preferences. Also, individuals with higher education levels are less likely to display tax compliance behavior than those with lower education levels. Various studies show that education has a positive impact on tax compliance (Kołodziej, 2011; Ogoun & Ekpulu, 2020; Santoso & Wardani, 2021). The inverse relationship between education and tax compliance raises essential concerns for targeted interventions and educational campaigns but also underlines the need for fiscal transparency, mainly regarding effectiveness. Policymakers may need to tailor outreach efforts to ensure that individuals with higher education levels are adequately informed about the societal impacts of tax compliance and the benefits of funding public goods and services.

Understanding these factors is essential for policymakers and authorities aiming to foster tax compliance and enhance the effectiveness of public revenue collection. The positive association between perceived contribution to public goods and tax compliance suggests that strategies emphasizing the societal benefits derived from taxes could potentially boost compliance rates. Moreover, recognizing and addressing concerns related to the perceived suitability of the tax system for individual preferences can contribute to a more responsive and taxpayer-friendly fiscal environment.

Policymakers can design targeted interventions and communication strategies by understanding the specific factors that motivate or hinder tax compliance in different population segments. This could involve highlighting how tax revenue translates to improved public goods and services that individuals directly benefit from. Also, measures can be adopted to simplify the tax system, reduce the complexity and burden, and increase compliance, especially for individuals with lower education levels.

Building trust with taxpayers is essential. The importance of perceived fairness and trust in the tax system is evident. Policymakers can focus on combating corruption and

ensuring efficient use of tax revenue. This demonstrates that taxes are used responsibly and for the public good.

By understanding the various factors influencing tax compliance and implementing strategic interventions that address those factors, policymakers can create a more efficient and sustainable system for public revenue collection, ultimately benefiting society. The findings emphasize the importance of authorities enacting measures that enhance awareness of the tax system and encourage ethical conduct among taxpayers. Formulating effective strategies that promote tax compliance is crucial, ultimately impacting the tax revenues directed to the budget. Emphasis should be placed on raising awareness about the positive aspects of tax payment. The increase in revenues directed to the budget is also attributed to enhancing ethical behavior among taxpayers. Another significant factor is taxpayers' trust in the tax authority, underscoring the necessity to establish a trustworthy relationship.

This research has certain constraints. The data utilized in the examination originate from a quantitative questionnaire, suggesting that the analysis limited the respondents' ability to articulate their thoughts and ideas thoroughly. Moreover, due to the sensitive nature of the study's topic, individuals might respond somewhat differently than usual (Alshira'j & Abdul-Jabbar, 2020), potentially resulting in biased responses.

The respondents' general attitudes toward taxation—such as viewing taxation as unjust (e.g., perceiving taxes as a form of theft)—may have influenced their responses. These pre-existing attitudes could have affected their answers, potentially shaping the overall findings. Future research should explore these underlying attitudes in greater depth to better understand their impact on perceptions of tax compliance. The use of convenience sampling in this study limits the representativeness of the findings, as the sample may not fully reflect the diversity of the Romanian taxpayer population, with certain subgroups, such as older generations, potentially underrepresented. The results provide preliminary insights into tax compliance behavior but should be interpreted with caution and within the context of the sampled demographic, as they cannot be generalized to the broader population.

Although the analyzed sample is not representative of the population, we consider that the answers indicate a more significant concern of people regarding the usefulness of paying taxes and the benefits offered by the state for (honest) taxpayers. The fairness of taxation and voluntary compliance issues requires more in-depth studies and a broader sample of respondents. Another problem that deserves to be studied with the variables used in the analysis is the efficiency of tax authority/good governance associated with taxpayers' trust in the sound management of state budget revenues for sustainable benefits to all contributors. These aspects represent future research intentions supported by the results obtained from the analysis presented in this paper.

The high percentage of women in the sample likely influenced the results, given their higher propensity for tax compliance, as documented in prior studies. This gender imbalance may limit the generalizability of the findings, as the interpretations could potentially be biased toward the tax compliance behaviors of women, failing to fully capture the perspectives of men.

Future research should aim to address these limitations by expanding the sample size and including participants from diverse cultural, economic, and demographic backgrounds. A more inclusive sampling strategy would enhance the generalizability of the findings and offer a comprehensive understanding of taxpayers' perspectives.

A future examination could seek to juxtapose non-compliance behavior (Murphy, 2008) with tax compliance, incorporating variables like the tax system's structure, attitudes, perceptions, and opportunities for non-compliance (Fischer et al., 1992; Vincent, 2021). Additional aspects to consider might include the extent of tax return submissions, actual

tax payments, occurrences of amounts exceeding tax obligations (overpayment) (Abdul & Wang'ombe, 2018), tax knowledge (Al-Ttaffi et al., 2020), and citizens' desire for adequate compensation for paid taxes (Alhempfi et al., 2020). Lastly, one could integrate factors like an individual's likability or patriotism, revealing the influence of emotions (Alm, 2019) or religious beliefs (Carsamer & Abbam, 2020) on decisions related to tax compliance. Future research also could use a broader perspective, examining the link between ethics and economic growth in an international setting. However, such a comparison could present challenges in reporting behavior related to a country's tax system.

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