

Identify and prioritize effective factors for reducing tax evasion from tax affairs organization experts' opinions using an analytical hierarchy process by drawing a decision tree

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Abstract

Tax collection has always been one of the main problems of governments for a long ago because companies evade paying taxes and deceive governments for several factors. Therefore, this paper identifies and prioritizes the effective factors in reducing tax evasion in the tax affairs organization. This is qualitative and quantitative research. This article identifies and prioritizes effective factors in preventing tax evasion through the content analysis method, Delphi survey method, and Analytical Hierarchy Process (AHP) by drawing a decision tree. Moreover, data was collected using a researcher-made questionnaire, as well as examining the conceptual relationship between the indicators and the questionnaire pairwise comparisons. The sample includes 25 experts working for the Tax Affairs Organization in 2022. The hierarchical analysis results have identified five main factors affecting tax evasion, including managerial, economic, political, social, and rules and regulations factors. Also, 19 effective factors in reducing tax evasion were identified and agreed upon by experts. The findings showed that the factor of rules and regulations with a relative weight of 0.381 and political and managerial factors with weights of 0.228 and 0.204, respectively have the highest degree of importance in reducing tax evasion from the Tax Affairs Organization experts' opinions. Governments strive to maximize tax revenue to meet rapid growth and economic development; therefore, governments always seek a solution to prevent tax evasion to achieve a stable level of tax revenue. Therefore, accurate identification of the effective factors in this field helps governments to take steps towards the realization of their goals. The research findings show that this article can be a good start to address the effective factors and priorities in reducing tax evasion for the government.

Keywords: reducing tax evasion, law and regulation factor, political factors, managerial factors
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1 Introduction

Today, tax evasion is a trans-organizational category that heavily involves governments, and solving this problem requires national determination and interaction among all institutions [29]. The global experience regarding tax evasion and its share in the gross national product of countries shows that this problem exists more or less in all countries, but

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the share of developing countries is higher so that according to the latest available statistics, the ratio of tax revenues to GDP is about 15% for developing countries and over 40% in developed countries [19].

Accordingly, studies show that the role of taxes in the economy is an allocation and distribution of financial lever; therefore, the tax evasion issue as an anti-value can be a serious threat to the continuation of social life and the realization of social welfare [23]. Thus, the presence of honorary politicians in companies to lower taxes, increase the total price of sold goods [5].

Thus, this article strives to find a solution to this problem. Also, the foreign literature review shows that, so far a significant number of researchers have addressed the identification of factors affecting tax evasion with presented identified components and models [2, 7]. However, no research has addressed the effective factors to reduce tax evasion by Iran, taking into account tax organization experts' opinions. Therefore, this organization's experts' experience and expertise in taxation necessitate conducting such research [18].

On the other hand, considering the implementation of almost 20 periods (each period of 3 months) of the tax system in the country, it seems necessary to conduct research in the field of evaluating the tax system's efficiency to reduce tax evasion. In this context, the main question is "What are the effective factors to reduce tax evasion? Accordingly, this article first is to identify the effective factors in reducing tax evasion utilizing a questionnaire based on the expert's opinion and the research's theoretical foundations [27]. Then, After determining the most important factors affecting the reduction of tax evasion Delphi and hierarchical techniques have been used to structure the experts' opinions of the complex relationships between elements and to determine the intensity of the factors' influence and their significance and weight [11].

1.1 Tax compliance concept

Academic literature presents various definitions and classifications of tax compliance [8]. According to the United States Internal Revenue Service (IRS), tax compliance includes four major groups of tasks and obligations of taxpayers, including registration in the tax system, preparation and timely submission of declarations, maintaining and presenting documents required by tax authorities, as well as timely payment of taxes, and if a taxpayer does not comply with any of these obligations and duties, his behavior will be considered a form of tax non-compliance [12].

According to the definitions, the tax compliance categories can be classified into two categories of administrative compliance, such as behavior according to administrative rules in the field of recognition and timely payment, and technical compliance, such as calculating tax based on the technical requirements of tax laws or paying it by taxpayers. classified according to what is foreseen in the tax laws [2].

1.2 Tax compliance theories

There are two general categories of tax compliance theories. The first category is the Inhibition theory, which emphasizes the taxpayer's motivations and believes that taxpayers seek to maximize unethical profits, and in this way, they analyze alternative compliance methods, measure the probability of detecting evasion to see if they can avoid paying taxes? This theory believes that the increase in the amount of tax penalties leads to an increase in compliance and vice versa [21]. According to the Inhibition theory, when a taxpayer commits tax evasion, he knowingly or intentionally uses illegal means to evade the tax law. This practice can include non-reporting of income by taxpayers or fictitious tax deductions, or the fraudulent use of other illegal means to reduce or eliminate tax liability [26]. This theory application in Taxation law is generally based on the two pillars of the probability of discovering tax evasion of taxpayers and the severity of the punishment considered for them [9].

However, the second category of theories focuses on Behavioral theory or behaviorism, it is assumed that taxpayers are influenced by psychological and behavioral components to fulfill their tax obligations, and attention should be paid to the temperaments of taxpayers and their tax ethics. According to this theory, even when the probability of discovering tax evasion is low taxpayers may pay taxes. Contrary to the Inhibition theory, which emphasizes the increase of punishment as a solution to improve tax compliance, the Behavioral theory emphasizes the change of individual tendencies toward the tax system [21]. On the other side of the spectrum of the behavior of taxpayers, there is tax non-compliance, which includes a wide range of tax evasion; Although tax evasion is one of the examples of tax non-compliance, tax evasion is illegal non-compliance through the use of illegal means such as concealing income, accounts manipulations, etc. to avoid paying taxes [32].

Accordingly, so far models have been designed by economists to identify the effective factors of tax evasion, including the Lapelas approximate model, fuzzy logic model, Lapelas model, Tanzi model, Marili model, and Macias model, which are generally classified into three categories [33]. The first category includes simple models developed based on economic

theories and considers such as tax rate, tax penalty rate, and the probability of a tax audit to be effective in a person's choice between the two options of complete compliance or complete non-compliance [3]. The second category includes the models that design a game between the government and taxpayers, and in which part of the government's policies are exogenous [11]. And finally, the models in which the government designs a specific audit mechanism and process, to bring the balance of the game closer to the desired balance [17]. A look at the triple goals of the comprehensive tax plan, i.e. increasing tax revenues by preventing tax evasion and eliminating unnecessary tax exemptions, as well as reducing the operating costs of the Tax Administration by mechanizing operations and optimizing processes, and finally increasing the satisfaction of stakeholders by establishing tax justice, facilitating interaction with the organization and honoring taxpayer tax evasion has always been the main problem of the government at the macro level and the country's tax affairs organization at the micro level [35].

1.3 Factors affecting non-compliance and tax evasion

Monge et al. [22], found that dealing with management factors from a new perspective and updating the factors designed in this field in most companies in the world can be an obstacle against tax evasion. On the other hand, according to [13] behavioral variables have the strongest effect on tax evasion compared to economic factors, and therefore these variables such as education, justice, complexity, and tax ethics should be considered in different models of tax evasion. Almi [24] showed that the most important reason for tax evasion is the lack of complete information exchange. On the other hand, [16] introduced the absence of a monitoring and follow-up system for tax collection, detection of overheads, and the existence of weaknesses in it as the most important reasons for tax evasion. Wang [34] also stated that the weak executive guarantee in the tax laws, as well as the delay in timely taxes collection, are the main reasons for tax evasion. Wilson [4] found that the existence of wide and varied exemptions is one of the important reasons for tax evasion. Aljaaidi et al. [1], introduced the complexity and ambiguity in tax rules and regulations along with the weakness of tax policies and lack of attention to the recruitment of efficient human resources as the main factors of tax evasion. Kaufman [14] also introduced the lack of rewards and punishments commensurate with the managers' performance, as well as the lack of taxpayers' knowledge of their rights, among the most important factors affecting tax evasion.

Dell'Annoa et al. [10], examined the shadow economy and tax evasion in Romania. They found that the development of political measures can be considered an obstacle in the path of the shadow economy and tax evasion.

Keno [15] investigated the factors affecting the perception of taxpayers toward tax evasion. The study results showed that tax evasion is caused by a lack of knowledge about tax concepts, the interpretation of tax evasion as a common culture, problems regarding the tax audit process, the degree of detection, and the understanding and interpretation of tax evasion as a minor crime.

2 Research method

This paper's first section is a qualitative exploratory paper based on a content analysis method. Moreover, the quantitative part adopts survey methods to identify and rank the factors. Furthermore, data were collected using a researcher-made questionnaire. Also, a pairwise comparison was used to examine the conceptual relationship between the indicators and the questionnaire; moreover, the AHP method was adopted to prioritize the indicators of the studied groups. The basis of work in the Analytical Hierarchy Process (AHP) is pairwise comparisons that collect the required information through questionnaires or interviews. This scale of comparison, which is of the type of integers, helps the decision maker to intuitively unite the existing knowledge and experience and determine that, taking into account the specified criteria, the frequency of one element is dominant over another element.

2.1 Population and subjects

The statistical population of the article consists of the experts working for the tax affairs organization in 2022. For this purpose, the research subjects were selected in a purposeful and non-random way, several 25 experts were selected based on the criteria, including 1) expertise in tax affairs, 2) holding a relevant academic degree, and 3) work experience in the field of tax affairs. Then, the researcher-made questionnaire was distributed among them. In addition, first, the study objectives were reviewed by the supervisors, advisors, and five experts.

The article's subjects and the members of the Delphi panel include Tax Affairs Organization experts. The number of 15 subjects is sufficient to conduct Delphi; however, we selected 25 subjects to preserve the validity of the research in case of a drop in the number of respondents during the study process.

2.2 Research method

At first, in line with this research, the questions were re-designed and in the next step, the designed questions were sent to 10 identified experts as a pilot so that their answers and perceptions could be evaluated and the purpose of the study could be reached, accordingly.

In the second stage, the first-stage answers were analyzed and evaluated. Then common indicators were extracted and valued. Also, lower scores indicators were evaluated. Further, while holding several meetings with experts, the similar overlapped indicators in terms of concept were merged and finally, the indicators with the most extracted points were used in the next step to prioritize and for Pairwise comparisons. In the next step, the second questionnaire was designed and sent to 25 designated experts, so that first pairwise comparisons were made between the indicators, and then, was the weight of each indicator determined using the fuzzy hierarchical model.

Then, the second questionnaires were collected and a matrix of paired comparisons was formed for all respondents. In the following, through Excel software and using the geometric mean, the questionnaires were converted into a questionnaire in which the indicators have fuzzy weights. In the next step, the data were converted into definitive numbers using the average method. In this research, data analysis was done based on AHP fuzzy model. Also, the relative weights and compatibility rate of each factor were calculated in pairwise comparisons in the software environment.

2.3 Delphi method

In this article, the Delphi technique was used to achieve the most reliable agreement of a group of experts on the topic in question. This technique is based on a repeatedly collected questionnaire and experts' opinions, and according to their feedback [6].

In this research, Kendall's Coefficient of Concordance (W) was used to determine the level of consensus among experts, which is a scale to determine the degree of coordination and agreement between several rank categories related to N individuals, and, by using this scale, the rank correlation between K groups can be determined. Kendall's Coefficient of Concordance shows that experts agree with each other in sorting and prioritizing similar indicators. Kendall's statistic values vary from zero (no agreement) to one (full agreement). This scale is calculated using formula (2.1):

Formula (2.1)- Kendall's Coefficient of Concordance [28]

$$w = \frac{s}{\frac{1}{12}k^2(N^3 - N)} \quad (2.1)$$

where, the sum of the squares of the R_j 's is the average of the R_j 's

$$s = \sum \left(R_j - \frac{\sum R_j}{N} \right)^2$$

R_j : the sum of the ranks of a factor

K : number of rank sets

N : number of ranked factors

$\frac{1}{12}k^2(N^3 - N)$: the maximum sum of the squares of the deviations from the average R_j s

2.4 Scoring method

Quantifying and making qualitative judgments comparable is an important issue that can be solved through scoring, which is part of the classical methods of performance analysis. In this way, all the indicators that may be effective in the evaluation are collected, then they are categorized in the form of several main indicators and the overall score is obtained from the combination of the scores of these indicators. Moreover, collective decision-making can be used in efficiency analysis to increase the accuracy of this method and reduce the impact of the results depending on the opinion of a particular person.

According to the research objective, to identify and prioritize the effective factors in reducing tax evasion in the Tax Administration, first, experts were interviewed about the effective factors in reducing tax evasion in the form of an open-ended questionnaire. Then, 22 factors and finally 19 factors were identified and agreed upon in combination

with theoretical bases. It should be noted that the repetitive factors were deleted. After developing the model, a questionnaire was redesigned and evaluated by experts to check the effect of each factor. Moreover, the results of the responses were reviewed and analyzed after collecting the questionnaires, and specific numerical values were determined for the effectiveness of the options to determine the significance of each criterion.

2.5 Hierarchical Analysis Process (AHP)

Following the above steps, the Hierarchical Analysis Process (AHP) is performed to obtain the scores and prioritization of each of the criteria and sub-criteria relative to each other. In AHP, the comparative spectrum of 1-9, which is known as the Saati spectrum, is used to score the numerical significance of the criteria. In this technique, which is used in the questionnaire, the decision maker first expresses their priorities in the form of verbal elements including Equally Preferred, Moderately Preferred, Strongly.

Preferred, Very Strongly Preferred, and Extremely Preferred, and these expressions are scored with numerical values of 1, 3, 5, 7, and 9, respectively. Also, even values of 2, 4, 6, and 8 are used in the comparison between two consecutive judgments. Table 1 shows how to score the criteria based on the Saati spectrum.

Table 1: Scoring the significance of the criteria (the Saati spectrum of the questionnaire, [28])

Numerical value	Comparison of states	Descriptions
1	Equally Preferred	The two considered options are of equal importance to each other or they are not preferable to each other.
3	Moderately Preferred	One option is slightly more important than the other.
5	Strongly Preferred	One option is more important than the other.
7	Very Strongly Preferred	One option is more important than the other.
9	Extremely Preferred	One option is absolutely more important than the other and they are not comparable.
2, 4, 6 and 8	Intermediate values	have intermediate values. For example, 2 indicates more importance than 1 and less than 3.

After the scoring, the effectiveness of the effective factors was determined for each factor by summing and averaging the obtained values, and the factors with a very high influence among the variables between 7 and 10 were considered as the main criteria. Therefore, all the factors specified in Table 2 were identified as indicators effective in reducing tax evasion and presented in the proposed conceptual model.

In this research, the inconsistency rate was used to determine the consistency of the comparisons, which shows the extent to which the priorities obtained from the experts' opinions or composite tables can be trusted. The experiences show that in cases of inconsistency rate of less than 0.1, the compatibility of the comparisons is accepted. Otherwise, first, the triangular fuzzy numbers of the matrix are replaced with verbal expressions in the pairwise comparisons made by each respondent, for each questionnaire, and then the inconsistency rate is determined.

3 Research findings

In this research, theoretical literature and previous researches were used to identify criteria and sub-criteria, although domestic and foreign researchers, based on their theoretical views, emphasized and investigated certain aspects of effective factors in reducing tax evasion and its various dimensions; in total, five effective criteria and 19 sub-criteria were identified using experts opinions and the literature (Table 2). Accordingly, the initial questionnaire was designed based on the Delphi approach with the effectiveness of these 19 sub-criteria.

Table 2: Factors identified from literature, research history and experts' opinion with the help of qualitative content analysis method

NO.	Criteria type	Criteria	Sub-criteria
1	Qualitative	Managerial	Inadequacy of information and training system for taxpayers
2	Qualitative		Technological inability to correctly identify and register taxpayers
3	Qualitative		Inability to detect unreal and fraudulent transactions and data
4	Qualitative	Political	Taxpayers' lack of trust in the government.
5	Qualitative		Taxpayers find the tax system unfair
6	Qualitative		Corruption of government members
7	Qualitative		Inability to establish tax justice
8	Qualitative	Rules and regulations	Existence of escape routes in tax laws
9	Qualitative		Unnecessary regulations and directives
10	Qualitative		Complex guidelines
11	Qualitative		Inability to communicate between taxpayer and the auditor in a short time
12	Qualitative		Lack of coordination with other laws and legal system of the country
13	Qualitative	Social	No limit for the number of tax items
14	Qualitative		Not reducing the social status of the fugitives
15	Qualitative		No negative impact on the social personality of tax evaders
16	Qualitative		People's absence in the decision-making process
17	Qualitative		Lack of stability, security and social welfare
18	Qualitative	Economic	Underground economy and smuggling
19	Qualitative		Weakness of monetary circulation
20	Qualitative		Incorrect audit based on compliance

3.1 Descriptive statistics of respondents

Table 3 shows the demographic characteristics of respondents, including gender, education and work experience, based on the distributed questionnaires.

Table 3: demographic characteristics of respondents

Variables	Description	Frequency	Percentile
Gender	Female	5	16
	Male	21	84
Education	Masters Degree	19	76
	PhD	6	24
Experience	5 to 10 years	3	12
	10 to 15 years	7	28
	15 to 20 years	6	24
	20 to 25 years	4	16
	Over 25 years	5	20

3.2 Delphi results

Table 4 shows the three rounds of Delphi findings. Regarding almost all indicators, the proportion of experts who determined the order of significance as the order of the group is more than 50%, and the standard deviation of the experts' answers about the significance of the indicator has decreased in the third round compared to the first and second rounds, so it can be concluded that a consensus has been reached among the experts and the repetition of the rounds can be ended.

Furthermore, the *t*-test was performed to check the difference between the second and third stages averages. Table 5 shows no significant difference between the second and third stages averages.

Table 6 shows the Kendall's Coefficient of Concordance value has reached an almost proportional value of 0.683 in round 3.

Table 7 shows that the highest rank belongs to the indicators of the tax system being considered unfair by taxpayers, the lack of stability and security, and social welfare, the lack of trust of taxpayers in the government, and the lack of restrictions on the number of tax items, and the lowest rank belongs to the indicators of unlimited exemptions, the impossibility of communication between the taxpayer and the auditor in a short time, the existence of loopholes in tax laws and the absence of people in the decision-making process.

Table 4: Descriptive statistics of the Delphi approach

Factors affecting the reduction of tax evasion	Round 1			Round 2			Round 3		
	N	A	S	N	A	S	N	A	S
Inadequacy of information and training system for taxpayers	19	4.64	0.429	19	4.60	0.511	19	4.83	0.401
Technological inability to correctly identify and register taxpayers	19	4.39	0.498	19	4.23	0.499	19	5.11	0.413
Inability to detect unreal and fraudulent transactions and data	19	4.62	0.477	19	4.55	0.489	19	5.53	0.425
Taxpayers' lack of trust in the government	19	4.18	0.469	19	4.14	0.512	19	4.89	0.428
Taxpayers find the tax system unfair	19	4.37	0.511	19	4.25	0.534	19	4.26	0.463
Corruption of government members	19	4.65	0.527	19	4.44	0.491	19	4.08	0.482
Inability to establish tax justice	19	4.38	0.448	19	4.26	0.487	19	4.42	0.412
Existence of escape routes in tax laws	19	4.83	0.481	19	4.69	0.509	19	4.24	0.433
Unnecessary regulations and directives	19	4.17	0.485	19	4.11	0.488	19	5.62	0.399
Complex recipes	19	4.21	0.517	19	4.09	0.489	19	5.16	0.461
Inability to communicate between Modi and the auditor in a short time	19	4.11	0.488	19	4.05	0.521	19	5.27	0.426
Lack of coordination with other laws and legal system of the country	19	4.55	0.493	19	4.57	0.507	19	4.97	0.418
Not reducing the social status of the fugitives	19	4.35	0.485	19	4.61	0.499	19	5.10	0.397
No negative impact on the social personality of tax evaders	19	4.46	0.489	19	4.57	0.507	19	5.03	0.384
People's absence in the decision-making process	19	4.96	0.455	19	4.61	0.502	19	4.61	0.428
Lack of stability, security and social welfare	19	4.41	0.507	19	4.65	0.487	19	4.84	0.383
Underground economy and smuggling	19	4.42	0.504	19	4.76	0.481	19	4.78	0.428
Weakness of monetary circulation	19	4.38	0.496	19	4.65	0.487	19	4.82	0.451
Incorrect audit based on compliance	19	4.67	0.496	19	3.33	0.662	19	4.78	0.465

Table 5: Comparison of the average indicators in the Delphi second and third stages

Indicators	T-test	Significance
Inadequacy of information and training system for taxpayers	1.082	0.682
Technological inability to correctly identify and register taxpayers	0.882	0.715
Inability to detect unreal and fraudulent transactions and data	1.449	0.221
Taxpayers' lack of trust in the government	0.180	0.177
Taxpayers find the tax system unfair	0.527	0.193
Corruption of government members	0.089	0.262
Inability to establish tax justice	0.585	0.428
Existence of escape routes in tax laws	1.698	0.524
Unnecessary regulations and directives	0.696	0.793
Complex guidelines	1.077	0.179
Inability to communicate between Modi and the auditor in a short time	0.071	0.193
Lack of coordination with other laws and legal system of the country	0.933	0.154
Not reducing the social status of the fugitives	1.845	0.117
No limit for the number of tax items	1.680	0.285
No negative impact on the social personality of tax evaders	1.292	0.840
People's absence in the decision-making process	0.079	0.890
Lack of stability, security and social welfare	0.222	0.580
Underground economy and smuggling	0.651	0.859
Weakness of monetary circulation	0.529	0.840
Incorrect audit based on compliance	0.204	0.190

Table 6: Statistical test of Kendall's Coefficient of Concordance

Indicator	Round 1	Round 2	Round 3
Kendall's Coefficient of Concordance	0.507	0.526	0.683
Significance	0.000	0.0029	0.001

3.3 Modeling

The most important part of the hierarchical analysis process was carried out by converting the issue of factors affecting the reduction of tax evasion into a hierarchical structure since effective factors in reducing tax evasion topics have become a simple form that matches the human mind.

The prioritization was done in the form of goals, criteria, and sub-criteria to develop a hierarchical model; and Figure 1 shows the results in the form of a hierarchical decision tree including 5 criteria and 19 sub-criteria.

Table 7: Average ranking of indicators in the third stage of Delphi

Indicators	Mean
Inadequacy of information and training system for taxpayers	13.38
Technological inability to correctly identify and register taxpayers	13.36
Inability to detect unreal and fraudulent transactions and data	13.94
Taxpayers' lack of trust in the government	14.29
Taxpayers find the tax system unfair	14.74
Corruption of government members	13.63
Inability to establish tax justice	13.93
Existence of escape routes in tax laws	13.11
Unnecessary regulations and directives	14.15
Complex guidelines	13.74
Inability to communicate between Modi and the auditor in a short time	11.65
Lack of coordination with other laws and legal system of the country	13.68
Not reducing the social status of the fugitives	13.51
No limit for the number of tax items	13.95
No negative impact on the social personality of tax evaders	13.15
People's absence in the decision-making process	14.65
Lack of stability, security and social welfare	14.15
Underground economy and smuggling	13.74
Weakness of monetary circulation	13.65

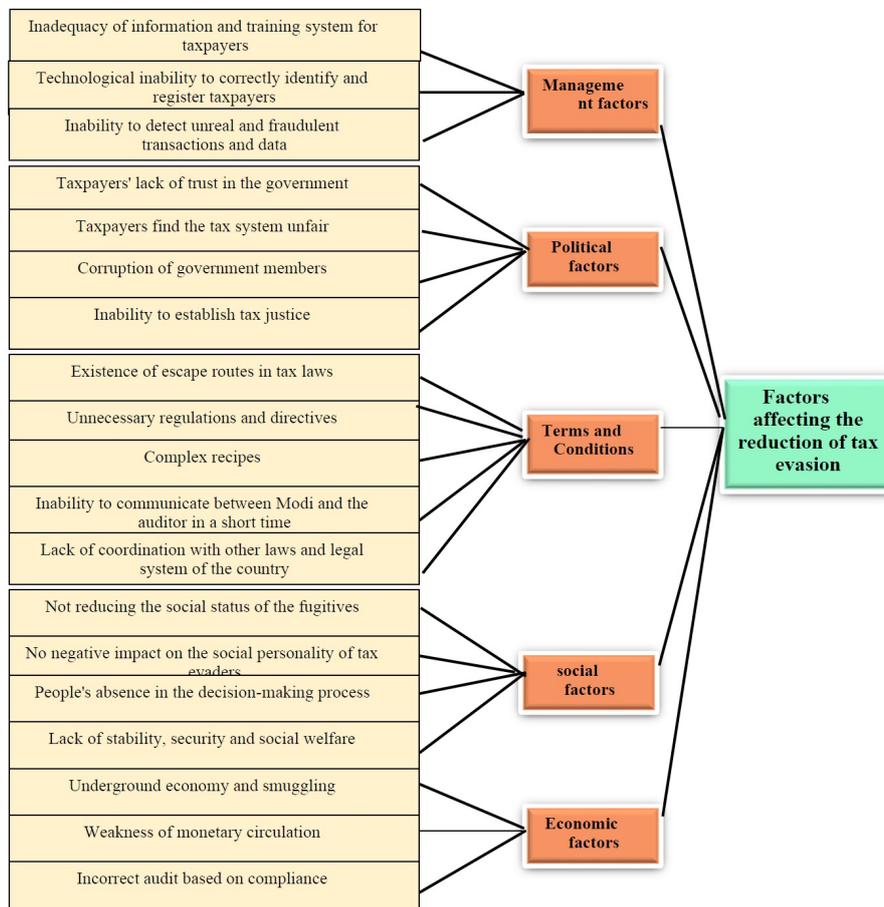


Figure 1: Hierarchical decision tree for variables

Pairwise comparison, degree of inconsistency, and weight of criteria

At this stage, after building the model in the Expert Choice program and entering the matrices of paired comparisons, the weight and significance of the criteria and sub-criteria as well as their inconsistency were determined, separately. Tables 8 to 13 and Figures 2 to 7 present the pairwise comparison results based on each main criterion and its sub-criteria.

3.4 Main criterion

Table 8 and Figure 2 show the pairwise comparison results and prioritization and weight of 5 main criteria according to tax organization experts opinion.

Table 8: Pairwise comparison of criteria

Criterion	1	2	3	4	5	6
Managerial		1.7135	1.9328	2.1464	1.1003	1.6392
Political			1.1357	2.2504	1.4433	1.1179
Rules and regulation				1.1896	2.1523	1.1237
Social				1.8326	2.5394	
Economic					1.4009	

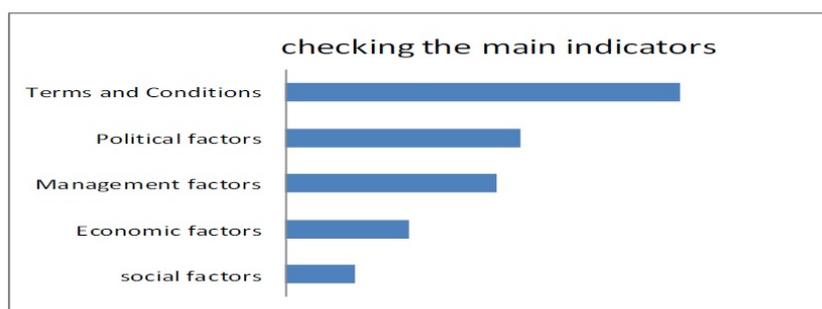


Figure 2: Investigate the prioritization of the main indicators

Figure 2 shows that among the 5 main criteria, rules and regulations with a weight of 0.381 have the highest priority and are the most effective factors in reducing tax evasion, followed by political and managerial factors with weights of 0.246 and 0.216. The least effective factors affecting the reduction of tax evasion are economic and social factors with weights of 0.12 and 0.067, respectively.

3.5 Managerial factors

Table 9 and Figure 3 present pairwise comparison, the degree of inconsistency, and the relative weight of the sub-criteria of managerial factors, respectively.

Table 9: Pairwise comparison of sub-criteria based on managerial factors

Criterion	1	2	3	4
Inadequacy of information and training system for taxpayers		1.3169	1.6918	2.2235
Technological inability to correctly identify and register taxpayers			1.8362	1.0159
Inability to detect unreal and fraudulent transactions and data				1.3009
Inconsistency = 03%				

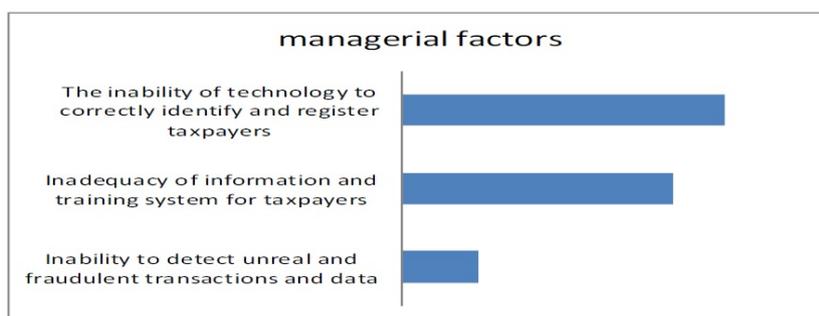


Figure 3: Examine sub-criteria based on managerial factors

Figure 3 shows the technological inability to correctly identify and register taxpayers with a relative weight of 0.481 is the most significant factor. Therefore, among the 3 sub-criteria, it is the most significant in terms of managerial

factors, followed by the inadequacy of the information and training system for taxpayers and the inability to discover unreal and fraudulent transactions and data are the next priority with a relative weight of 0.405 and 0.114, respectively. Table 8 details the degree of inconsistency confirmed consistency.

3.6 Political factors

Table 10 and Figure 4 present pairwise comparison, the degree of inconsistency, and the relative weight of sub-criteria based on political factors.

Table 10: Pairwise comparison of sub-criteria based on political factors

Criterion	1	2	3	4	5
Taxpayers' lack of trust in the government		1.6294	1.1169	2.4836	1.4009
Taxpayers find the tax system unfair			2.1379	1.5628	2.3716
Corruption of government figures				1.0194	1.7336
Inability to establish tax justice					2.9216
Inconsistency = 09%					

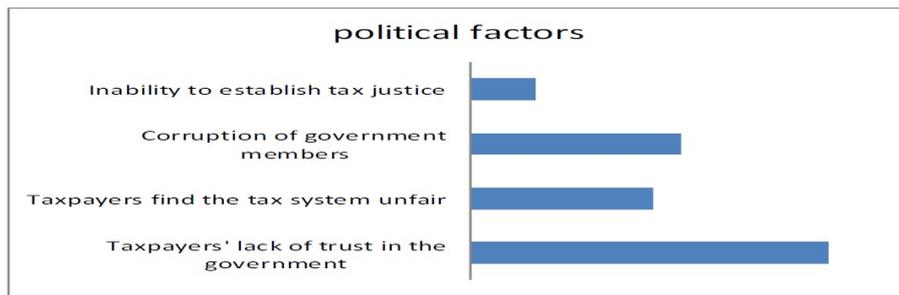


Figure 4: Examine sub-criteria based on political factors

Figure 4 shows that the taxpayers' lack of trust in the government is the highest priority with a relative weight of 0.440, based on political criteria, followed by the corruption of government members and the tax system being considered unfair by taxpayers, with a relative weight of 0.259, 0.223, respectively as the next priorities. Also, Table 10 details the degree of inconsistency confirmed consistency.

3.7 Rules and regulations

Table 11 and Figure 5 present pairwise comparison, the degree of inconsistency, and the relative weight of sub-criteria based on rules and regulations.

Table 11: Pairwise comparison of sub-criteria based on rules and regulations

Criterion	1	2	3	4	5	6
Existence of escape routes in tax laws		1.1598	2.3629	1.1194	1.0069	2.5361
Unnecessary regulations and directives			1.8947	2.2239	1.5478	1.1196
Complex guidelines				1.3327	1.9621	1.2246
Impossibility of communication between taxpayer and the auditor					2.1008	1.6638
Lack of coordination with other laws						1.3245
Inconsistency = 09%						

Figure 5 shows that necessary regulations and directives are the most effective factors of 5 sub-criteria related to rules and regulations with a relative weight of 0.339, followed by the impossibility of communicating between the taxpayer and the auditor in a short time and the lack of coordination with other laws and the legal system of the country with a relative weight of 0.233 and 0.187, respectively. Also, Table 11 details the degree of inconsistency of 0.09, confirming consistency.

3.8 Social factors

Table 12 and Figure 6 present pairwise comparison, the degree of inconsistency, and relative weight of sub-criteria based on social factors.

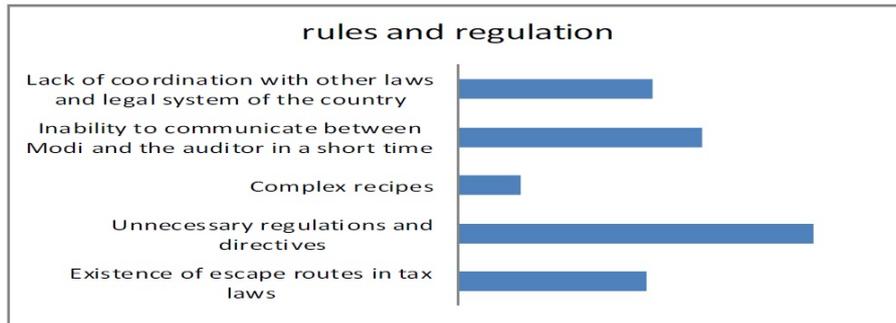


Figure 5: Examine sub-criteria based on rules and regulation

Table 12: Pairwise comparison of sub-criteria based on social factors

Criterion	1	2	3	4	5
Not reducing the social status of the fugitives		1.5223	1.9114	2.8362	1.2247
No negative impact on social personality			2.4534	1.7769	1.1106
People's absence in the decision-making process				2.2109	1.3972
Lack of stability, security and social welfare					1.4988
Inconsistency = 02%					

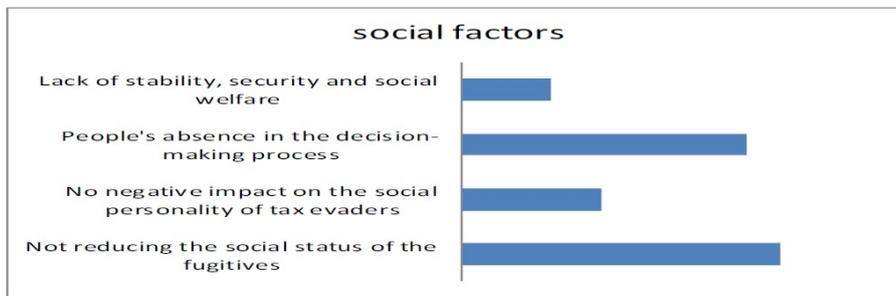


Figure 6: Examine sub-criteria based on social factors

Figure 6 shows that not reducing the social status of the fugitives is the most effective factor of 4 sub-criteria related to social factors with a relative weight of 0.383, followed by the absence of people's presence in the decision-making process and the lack of positive influence on the social personality of tax evaders are the next priority with a relative weight of 0.342 and 0.168, respectively. Also, Table 12 details the degree of inconsistency confirmed consistency.

3.9 Economic factors

Table 13 and Figure 7 present pairwise comparison, the degree of inconsistency, and the relative weight of sub-criteria based on economic factors.

Table 13: Pairwise comparison of sub-criteria based on economic factors

Criterion	1	2	3	4
Underground economy and smuggling		1.8622	2.1244	1.1196
Weakness of monetary circulation			1.6116	1.5433
Incorrect audit based on compliance				2.2139
Inconsistency = 05%				

Figure 7 shows that the weakness of monetary circulation is the most effective factor of the 3 economic sub-criteria with a relative weight of 0.513, followed by the underground economy and smuggling and incorrect audit based on compliance are the next priorities with relative weights of 0.407, and 0.081, respectively. Also, Table 13 details the degree of inconsistency equal to 0.05, confirmed consistency.

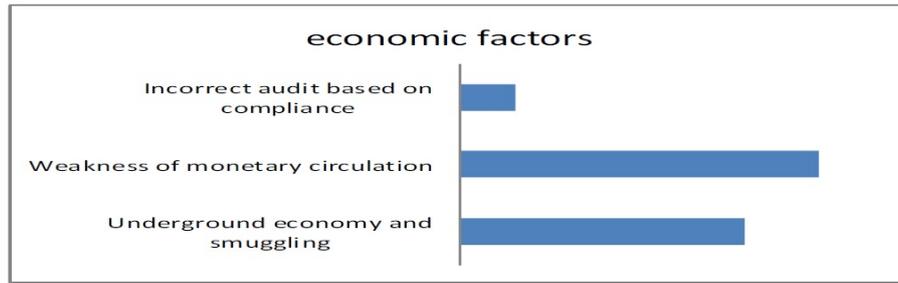


Figure 7: Examine sub-criteria based on economic factors

4 Discussion and conclusion

In Iran, taxes are always one of the main sources of income for the government, and so far various upstream documents such as the 20-year vision document, the five-year development plans, and the economic transformation plan have emphasized the need to increase the country's tax revenues. Nevertheless, the tax evasion problem is always considered one of the main obstacles to realizing the government's tax revenues and is one of the challenges and concerns that have not yet been resolved.

Therefore, the importance of the subject necessitates the research to identify and rank the factors effective in reducing tax evasion. Moreover, the literature review shows some identified actors; therefore this paper attempts to identify effective factors in reducing tax evasion based on theoretical foundations and tax organization experts' opinions, followed by ranking the factors in terms of weight and degree of significance. This is a qualitative and quantitative survey based on a content analysis method. The final matrix of pairwise comparisons and Expert Choice 2000 software results based on the criteria weight and significance show that the rules and regulations criterion is ranked first by experts' opinions in reducing tax evasion among the 5 main identified effective factors, followed by political and managerial factors as second and third, and finally, economic and social factors are ranked the least significant.

Such a result is not far-fetched; because according to Article 51 of the Islamic Republic of Iran's Constitution reads, No form of taxation may be imposed except following the law. Provisions for tax exemption and reduction will be determined by law. Therefore, as tax rules and regulations are always the main factor for tax assessment and collection, establishing laws, and providing incentives, they can be used as the main actors in reducing tax evasion. On the other hand, the multiplicity, complexity, and ambiguity in tax laws, regulations, and processes, as the hours spent every year filing documents, preparing tax payment documents and legal deductions, and in total paying a high percentage of their annual profit for taxes and legal deductions include problems faced by economic activists in paying taxes. Therefore, the simplification of tax laws, regulations, and processes is an inevitable necessity to prevent tax evasion, and a serious effort to implement a comprehensive tax plan in the country will help in this matter.

The research findings show that along with rules and regulations, political criteria also play an effective role in reducing tax evasion because different tax rates and concessions are imposed by the authorities and the inherently political process of power institutions to the tax field, and this criterion has a significant impact although not directly attributed to the actual area of tax law.

Also, research results in the field of managerial criteria indicate that among its three sub-criteria affecting the reduction of tax evasion, the role of technological inability in the identification and correct registration of taxpayers is the first priority, more prominent than the two sub-criteria, followed by the inadequacy of the information and training system for taxpayers and finally the inability to discover unreal and fraudulent transactions and data in the next ranks of playing a role in reducing tax evasion.

Thus, the development of technological capabilities in tax identification and collection provides the basis for direct access of citizens to service support systems (online services). Anyway, no policy and system in the economic system are more stable and old than the tax system, and this system should grow according to new economic developments; in addition to facilitating progress, it will also be aligned and coordinated with the world's electronic tax systems. On the other hand, as the enforcer of tax rules and regulations, the State Tax Authority is obliged to use information technology in conducting affairs, as well as benefit from the comprehensive information base of taxpayers, in addition to providing specialized and up-to-date training needed by taxpayers and plan for effective measures. However, in this path, the tax organization should pay attention to the taxpayer's behavior and degree of compliance.

In addition, the research findings show that taxpayers' lack of trust in the government was the highest priority

in political criteria, followed by the corruption of government members, the tax system being considered unfair by taxpayers, and the inability to establish tax justice sub-criteria as second to fourth priorities. In the context of taxpayers' lack of trust in the government, it can be argued that regardless of the size of the country, taxes are objective, and people will find more motivation to pay taxes if they see construction and development, and the provision of public services in the area of taxes. Therefore, the efficiency and effectiveness of the government is an important factor in preventing tax evasion. In effect, this factor can lead to people's lack of trust in the government in cases of the absence of necessary efficiency in the government's income on the country, as a result, a decrease in their willingness to pay taxes. Therefore, as long as the government's performance is not effective and efficient and the government's expenditures do not have the necessary transparency, the realization of tax revenues in society will be far from expected. On the other hand, the increase in the problem of corruption, which has been evaluated as the sixth main problem of the business environment according to economic activists, based on the Global Competitiveness Report in 2017-2018, is one of the obstacles that must be taken to reduce and eventually eliminate it. In this context, the first step to fight corruption and thus reduce the amount of tax evasion is to create transparency in the country, which is important through the establishment of clear laws and their timely publication, the clarification of government tenders and auctions, and the clarification of how revenues are spent. government and its distribution activities, timely publication of statistics and economic information, use of new technologies, and such.

The research findings show that the regulations and unnecessary circulars were the highest priority out of the 5 rules and regulations sub-criteria influencing the reduction of tax evasion, followed by the impossibility of communication between the taxpayer and the auditor in a short time, lack of coordination with other laws and legal system of the country, the existence of escape routes in tax laws and complex instructions. The existence of unstable numerous and generally low-efficient tax regulations leads to the complexity of the tax system and thus acts as the influential factor that leads customers to tax evasion [10]. On the other hand, [31] introduced the complexity of regulations and the tax system as one of the influential factors in tax evasion and believe that most citizens have diverse educations, different cultures, etc, and possibly they do not clearly understand tax rules and regulations. [25], also emphasizes that the information required in the tax return of taxpayers should be at a minimum level and be easily understandable for taxpayers, and can be extracted from their accounting system. On the other hand, in general, as much as taxpayers' relationship with the auditor and the auditor with the case decreases, a large part of the roots of administrative corruption in the tax sector will disappear. But on the other hand, in the short term, this communication can provide transparency and assurance in the way of tax payment. However, even at this time, compliance with ethical and professional principles can prevent violations or tax evasion.

The research findings show that not reducing the social status of the fugitives has the highest impact in reducing tax evasion in the social criteria four sub-criteria, followed by the lack of people's presence in the decision-making process, the lack of influence in the social personality of tax evaders and lack of stability, security, and social welfare. Protecting and safeguarding people's affairs, as well as making judgments based on the value criteria specified in the Islamic religion, are among the important moral and educational principles that even in the case of tax evasion by individuals, should be observed by the responsible organizations and institutions. They also should address the issue of evasion, while in the meantime the social dignity of people should not be harmed. In addition, in this path, paying attention to the principle of justice in determining the tax of different classes and occupations is also an important issue that can be the basis of people's negative judgments regarding paying taxes and consequently tax evasion.

On the other hand, it is necessary to consider that people always make their final judgment about paying taxes process and the visible effects and results of paying them in society. Therefore, the government should improve the people's knowledge of tax in society, and make a serious effort to fulfill their demands and also follow its slogans. Because the reduction of welfare, security, and social dignity provides the basis for the spread of deviations, including tax evasion.

The research findings show that the weakness of monetary circulation has the highest impact in reducing tax evasion in the economic criteria, followed by the two sub-criteria of underground economy and smuggling and incorrect auditing based on compliance, out of the determined economic criteria three sub-criteria by tax organization experts' opinions. Examining the changing state of inflation in domestic and international reports shows that the problem of inflation has not yet been resolved in Iran's economy. Accordingly, due to the uneven distribution of income, with the increase in the general level of prices, a large number of households will be below the poverty line, and poverty and the inability to provide the minimum income increase the motivation to enter underground activities. Therefore, with the spread of poverty in society, turning to underground activities also increases, which causes tax evasion. Thus, [30] believes that tax evasion has led to an increase in distortionary taxes, and therefore by enlarging the underground economy, it has pushed resources toward non-productive activities, therefore it is considered an obstacle to economic growth.

Finally, tax evasion can also affect the effectiveness of economic policies, because such policies are based on official

indicators (such as unemployment, the number of formal labor force, income, and consumption) and this is while the existence of the underground economy makes politicians face a problem. It creates and leads to the fact that the correct and appropriate economic policy is not applied.

Therefore, the research findings suggested to the tax affairs organization increase their ability to detect tax evasion cases by holding various awareness courses for employees, because as the results showed, the low detection probability is a significant factor in tax evasion. In addition, it is suggested that the government always provides useful information related to the collected taxes, how to spend these funds, etc., to increase people's trust in the government.

It is also suggested to the tax affairs organization to increase the tax knowledge of taxpayers through mass communication networks such as radio, television, etc. because tax knowledge is an influencing factor in the relationship between other factors in tax evasion. In any case, high tax knowledge leads to the fact that taxpayers are more aware of the consequences of tax evasion and always pay attention to these issues in their decisions.

On the other hand, paying special attention to the issue of sustainable employment and appropriate inflationary policies can have significant effects in reducing the amount of tax evasion. In addition, paying attention to measures such as increasing government accountability, reducing cumbersome laws and complex administrative bureaucracy, clarifying laws, paying attention to sustainable job creation, curbing inflation, and expanding the tax culture in the society, along with creating a comprehensive and inclusive economic database can play an effective role in reducing tax evasion. In any case, in recent years, the fight against large-scale tax crimes and the ways of tax evasion in Iran has become one of the main strategies of our country in the path of progress and justice, as one of the important manifestations and examples of economic crimes. It, without a doubt, benefits from an efficient and consistent criminal system in dealing with tax crimes and significantly help to improve the performance of the tax system.

References

- [1] K.S.Y. Aljaaidi, N.A. Abdul Manaf, and S.S. Karlinsky, *Tax evasion as a crime: A survey of perception in Yemen*, Int. J. Bus. Manage. **6** (2011), no. 9, 190–201.
- [2] P. Alleyne and T. Harris, *Antecedents of taxpayers' intentions to engage in tax evasion: Evidence from Barbados*, J. Financ. Report. Account. (Emerald Publishing Limited) **15** (2017), no. 1, 2–21.
- [3] M.G. Allingham and A. Sandmo, *Income tax evasion: a theoretical analysis*, J. Public Econ. **1** (1972), no. 3–4, 323–338.
- [4] J. Alm and A. El-Ganainy, *Value-added taxation and consumption*, Int. Tax Public Finance **20** (2013), 105–128.
- [5] B. Aumeerun, B. Jugurnath, and H. Soondrum, *Tax evasion: Empirical evidence from sub-Saharan Africa*, J. Account. Taxation (Acad. J.) **8** (2016), no. 7, 70–80.
- [6] A. Azar, H. Faraji, *Fuzzy Management Science*, Jamaat Publisher, 2002. (In Persian)
- [7] D. Bergstresser and T. Philippon, *CEO incentives and earnings management*, J. Financ. Econ. **80** (2006), no. 3, 511–529.
- [8] B. Blaha and B. Senouci, *An evaluation of tax fraud cases limited by fiscal control in Algeria 2007–2013*, J. North Afr. Stud. **28** (2022), no. 1, 133–150.
- [9] B. Chiarini and E. Marzano, *A strategic approach for the crime of tax evasion*, J. Financ. Crime **26** (2019), no. 2, 477–487.
- [10] R. Dell'Annoa, A. AnaMaria, and D. Alexandrub, *Estimating shadow economy and tax evasion in Romania. A comparison by different estimation approaches*, Econ. Anal. Policy **63** (2019), 130–149.
- [11] J. Farrar and T. King, *To punish or not to punish? The impact of tax fraud punishment on observers' tax compliance*, J. Bus. Ethics **183** (2023), no. 1, 289–311.
- [12] W. Irawati, S. Zimah, H. Barli, and L. Nadi, *Understanding of tax & religiosity to tax fraud*, 1st Int. Conf. Res. Soc. Sci. Human. (ICoRSH 2020), Atlantis Press, 2021, pp. 150–166.
- [13] L.D. Kapranova, A. Stankevičius, Z. Simanaviciene and A. Lukšaitė, *Tax moral and tax evasion: Theoretical insights*, Visuomenes saugumas ir viesoji tvarka **16** (2016), 80–95.
- [14] J. Kaufman, *Tax compliance*, J. Econ. Literature, **36** (2000), no 2.

- [15] B.G. Kenno, *Factors affecting perception of taxpayers towards the seriousness of tax evasion in Bale Robe town administration, Oromia, Ethiopia*, Int. J. Finance Account. 9 (2020), no. 2, 21-30.
- [16] K. Kim, A. Abdul, and K. Stewart, *Tax evasion as a crime: A survey of perception in Yemen*, Int. J. Bus. Manag. **6** (2019), no. 9, 192–201
- [17] C. Lee, *Deep learning-based detection of tax frauds: an application to property acquisition tax*, Data Technol. Appl. **56** (2022), no. 3, 329–341.
- [18] J. Lenz, R. Van Brunt, P.J. Rohan, and M. Reskin, *Tax issues in condemnation cases*, Nichols on Eminent Domain **7** (2016).
- [19] O. Parsa, *Evaluating the ethical approach of accountants and the phenomenon of tax evasion*, Majlis researches. Modern Market. Res. **1** (2019), no. 3, 26–49
- [20] Y. Mangoting, C.A. Pangestu, and F.M. Tjan, *Tax fraud Intentions with an integrative model approach*, J. ASET (Akuntansi Riset), **13** (2021), no. 2, 333–348.
- [21] L. Mihokova, R. Dráb, and A. Kralik, *Assessing the impact of tax evasion on long-term fiscal imbalance: A sensitivity analysis application*, Prague Economic Papers, University of Economics, Prague, (2018), no. 3, 331–350.
- [22] M. Monge, C. Poza, and S. Borgia, *A proposal of a suspicion of tax fraud indicator based on Google trends to foresee Spanish tax revenues*, Int. Econ. **169** (2022), 1–12.
- [23] M.M. Mughal, *Reasons of Tax Avoidance and Tax Evasion: Reflections from Pakistan*, J. Econ. Behav. Stud. **4** (2012) no. 4 , 217–222.
- [24] K.H. Musslewhite, *The application of collateral estoppel in the tax fraud context: does it meet the requirement of fairness and equity*, Am. UL Rev. **33** (1983), 643.
- [25] M.R. Palil, *Tax Knowledge and Tax Compliance Determinants in Self Assessment System in Malaysia*, PhD Thesis, University of Birmingham, 2010.
- [26] H.J. Sackman, C. T. Kreiner, and E. Saez, *Why can modern governments tax so much? An agency model of firms as fiscal intermediaries*, Economica **83** (2016) no. 330, 219–246.
- [27] A. Sadjarto, A.N. Susanto, E. Yuniar and M.G. Hartanto, *Factors affecting perception of tax evasion among Chindos*, 23rd Asian Forum Bus. Educ., (AFBE 2019), Atlantis Press, 2020, pp. 487–493.
- [28] R. Safarishali and K. Habibpourgatabi, *Comprehensive Guide to Using SPSS in Survey Research (Quantitative Data Analysis)*, Loyeh Publication, 2013. (In Persian)
- [29] D. Saxunova and R. Szarkova, *Global efforts of tax authorities and tax evasion challenge*, J. Eastern Europe Res. Bus. Econ. **2018** (2018), 1–14.
- [30] W. Selymore, S.Z. Amaliyah, H. Barli, and L. Nadi, *Understanding of Tax & Religiosity to Tax Fraud*, 1st Int. Conf. Res. Soc. Sci. Human., Atlantis Press, 2007, pp. 150–166
- [31] E. Stankevicius and L. Leonas, *Hybrid Approach Model for Prevention of Tax Evasion and Fraud*, Soc. Behav. Sci. **213** (2015), 383–389
- [32] M.D.C.G. Vasco, M.J.D. Rodríguez and S.D.L. Santos, *Segmentation of potential fraud taxpayers and characterization in personal income tax using data mining techniques*, Hacienda Publica Espanola **239** (2021), 127–157.
- [33] F.C. Venturini and R.M. Chaim, *Predictive models in the assessment of tax fraud evidences*, World Conf. Inf. Syst. Technol., Springer, Cham., 2021, pp. 69–79.
- [34] M.G. Allingham and A. Sandmo, *Income tax evasion: a theoretical analysis*, J. Public Econ. **1** (1972), no. 3, 323–338.
- [35] B. Zagorski, *Taking the hit: Despite irs attempts, domestic abuse victims cannot get innocent spouse protection when their partner's commit tax fraud*, Family Court Rev. **59** (2021), no. 3, 612–625.