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ANALYSIS

OF THE LEVEL OF RISK IN THE CRIME OF TAX EVASION FROM A JUDICIAL PERSPECTIVE IN ECUADOR

ANÁLISIS DEL NIVEL DE RIESGO EN EL DELITO DE EVASIÓN FISCAL DESDE UNA PERSPECTIVA JUDICIA EN ECUADOR

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ABSTRACT

Currently, tax evasion is a crime punishable by law in most countries. The occurrence of this type of event deprives governments of having income from taxes and duties for social, environmental, and investment programs. In the case of Ecuador, it shows strengths in its confrontation, which translates into strategies and actions to eradicate them or at least reduce them. For this reason, the present investigation has the general objective of analyzing, from a judicial perspective, the level of risk of the crime of tax evasion in Ecuadorian organizations. For its fulfillment, multi-criteria decision methods were used in order to discern the effects and causes of these phenomena and assign weights according to their level of importance in the tax systems. Subsequently, and with this same approach, the level of risks for different types of companies was determined, which resulted in organizations classified as small and medium-sized enterprises obtaining the highest level with respect to the others. The application of the previous methods was the result of the help and participation of a heterogeneous group of experts in the subject of study.

Keywords: Tax evasion, risk level, multicriteria decision methods.

RESUMEN

Actualmente, la evasión fiscal es un delito penado por la ley en la mayoría de los países. La ocurrencia de este tipo de hechos priva a los gobiernos de contar con ingresos provenientes de impuestos y tasas para programas sociales, ambientales y de inversión. En el caso de Ecuador, muestra fortalezas en su enfrentamiento, lo que se traduce en estrategias y acciones para erradicarlas o al menos reducirlas. Por ello, la presente investigación tiene como objetivo general analizar, desde una perspectiva judicial, el nivel de riesgo del delito de evasión tributaria en las organizaciones ecuatorianas. Para su cumplimiento, se utilizaron métodos de decisión multicriterio con el fin de discernir los efectos y causas de estos fenómenos y asignar pesos de acuerdo a su nivel de importancia en los sistemas tributarios. Posteriormente, y con este mismo enfoque, se determinó el nivel de riesgos para los diferentes tipos de empresas, lo que dio como resultado que las organizaciones clasificadas como pequeñas y medianas empresas obtuvieran el nivel más alto con respecto a las demás. La aplicación de los métodos anteriores fue el resultado de la ayuda y participación de un grupo heterogéneo de expertos en el tema de estudio.

Palabras clave: Evasión fiscal, nivel de riesgo, métodos de decisión multicriterio.

INTRODUCTION

According to (Becerra et al, 2022), the pandemic due to the presence of the coronavirus unleashed a profound impact on humanity. For this reason, one of the largest crises in history was generated and an excessive impact was caused on the most disadvantaged and vulnerable population who work in the informal and insecure economy. In addition, the productive and business structure, with the starvation typical of its form of organization, suffered the blows of this situation, which led to certain irregularities in the tax sector.

In the same way, (Villamarin et al, 2021) agree that the objective of the Organic Law of Humanitarian Support of Ecuador is to establish humanitarian support measures, necessary to face the consequences derived from the health crisis caused by COVID-19. These measures intend to mitigate its adverse effects within the Ecuadorian territory where economic and productive reactivation is promoted. Within its content, special emphasis is placed on the human being, the containment and reactivation of family, business, popular and solidarity economies, and the maintenance of employment conditions.

In this aspect, the contribution of taxes plays a fundamental role by covering a large part of public expenses and helps the development of projects of a social, environmental, or investment nature. (Agarwal et al, 2020; James, 2019). According to (Mestanza-Ramón et al, 2022) in his research, when referring to taxes; quote from the Ecuadorian Tax Code the following: "taxes, in addition to being means to collect public income, will serve as an instrument of general economic policy, stimulating investment, reinvestment, savings and their destination towards productive purposes and national development. They will attend to the demands of social stability and progress and will seek a better distribution of national income.

In accordance with article 300 of the Constitution of the Republic of Ecuador, the authors (Vega et al, 2020; von Feigenblatt et al, 2022) state that the tax regime will be governed by the principles of generality, progressivity, efficiency, administrative simplicity, non-retroactivity, fairness, transparency, and collection sufficiency. Direct and progressive taxes will be prioritized, and the tax policy will promote redistribution and stimulate employment, the production of goods and services, and responsible ecological, social, and economic behaviors.

Although this fact is well referenced in the law, there is still a long way to go in terms of eliminating or reducing tax evasion; not only in Ecuador but worldwide (Buneci, 2021). Each country needs to know the causes of a phenomenon as complex as tax evasion, since only then can strategies be formulated to fight it. In his report, he details some of these causes as shown below, which coincide, in the opinion of the authors, with those present in the Ecuadorian economy:

Table 1: Main causes of tax evasion in Ecuador.

Nomenclature	Causes of tax evasion
C1	Own structure of the tax system of the countries.
C2	Anarchic distribution of powers between the different levels of government, especially in federal countries.
C3	Low educational level of the population.
C4	Lack of simplicity and precision of the tax legislation.
C5	Inflation.
C6	Tax pressure – high rates.
C7	Existence of a significant informal economy.
C8	Permanent regularization regimes (moratoria, laundering, etc.)
C9	Possibility of failing to comply without major risks.
C10	Promotional regimes (fiscal incentives, exemptions, and tax expenses).
C11	Lack of dissemination of the use of resources from taxes.
C12	Lack of tax awareness of citizens.
C13	Inefficiency of the Tax Administrations themselves (TA).
C14	Presence of multinational companies with aggressive tax planning.
C15	Tax havens – jurisdictions with zero or low taxation or, as it is said in many countries, non-cooperative jurisdictions.
C16	Great weight of intangibles which makes it difficult to assign their true value and place of generation.
C17	Financial system with multiple sophisticated figures that allow moving money quickly and easily.
C18	Proliferation of special tax regimes to attract investment (e.g. tax rulings).
C19	Difficulty in controlling the transfer prices of related multinational companies: today more than 60% of world trade is carried out through these companies and 50% are intra-group operations.

C20	Digital economy, with the great technological development: electronic commerce, collaborative platforms, digital currencies, and new ways of marketing goods and services increase the difficulties of taxing and controlling.

Fuente: Buneci, B. (2021).

Having stated the foregoing, from the judicial point of view it would be feasible to take into account which type of company is more likely to commit this type of crime in order to use it as a deterministic tool in trials associated with such acts, thus being fairer when issuing a sentence. (Onet, 2022). For this, the general objective of this investigation is to determine the level of risk in the occurrence of tax evasion of Ecuadorian business organizations from the judicial perspective. The research will be carried out with the support of the IRS (Internal Revenue Services) and a heterogeneous group of experts in the field. The following are proposed as specific objectives of the research:

1. Distinguish between the effects and causes of tax evasion and determine the weight of the latter through the DEMATEL (Decision Making Trial and Evaluation) method with the support of a group of experts on the subject.
2. Calculate, through the TOPSIS method, the level of risk in the occurrence of these causes in Ecuadorian business organizations.
3. Propose action strategies that favor the non-occurrence of these events in these organizations.

The research is made up of a section dedicated to the explanation of the theoretical methods and another to present the results in a synthesized way. As complements, a body of conclusions is developed detailing the specific objectives that are achieved and the sources consulted are shown in the section dedicated to the bibliography.

MATERIALS AND METHODS

Selection of the number of experts

To determine the number of experts, probabilistic criteria are used assuming a binomial distribution. For this purpose, the following expression is used:

$$M = \frac{P(1-P)K}{i^2} \quad (1)$$

Where: M: number of experts; i: desired level of precision, P: estimated proportion of errors of the experts K; constant whose value is associated with the chosen confidence level.

Dematel

DEMATEL can be used to identify the pattern of causal relationships between variables. It shows the causal relationships and the influences exerted by the factors. The advantage of this method is that experts can more fluently express their opinions about the effects (direction and severity of effects) between factors. (Miao et al, 2020). A series of steps to follow for its development are described below:

Step 1: Generate the direct relationship matrix.

To identify the model of the relationships between the n criteria, an n × n matrix is first generated with the effect of the elements of each row exerted on the elements of each column of this matrix according to Table 4. If the opinions of several experts are used, then all experts must complete the matrix. The arithmetic mean of all experts' opinions is used and then a direct relationship matrix X is generated.

Table 2: Linguistic transformation matrix.

Comparison between criteria	Numerical value
No Influence	0
Low Influence	1
Moderate Influence	2
High Influence	3
Very High Influence	4

$$X = \begin{bmatrix} 0 & \cdots & x_{n1} \\ \vdots & \ddots & \vdots \\ x_{1n} & \cdots & 0 \end{bmatrix} \quad (2)$$

Step 2: Calculate the normalized direct relationship matrix.

To normalize, the sum of all the rows and columns of the matrix is calculated directly. The largest number of sums of rows and columns can be represented by. Each element of the direct relationship matrix needs to be divided by .

$$k = max\left\{ max \sum_{j=1}^{n} x_{ij}, \sum_{i=1}^{n} x_{ij} \right\} \quad (3)$$

$$N = \frac{1}{k} * X \quad (4)$$

Step 3: Calculate the total relationship matrix.

After calculating the normalized matrix, the fuzzy total relationship matrix can be calculated as follows:

$$T = \lim_{k \to +\infty} (N^1 + N^2 + \cdots + N^k) \quad (5)$$

In other words, an n × n identity matrix is first generated, then this identity matrix is subtracted from the normalized matrix, and the resulting matrix is inverted. The normalized matrix is multiplied by the resulting matrix to obtain the total relationship matrix.

Step 4: Set the threshold value.

The threshold value must be obtained in order to calculate the matrix of internal relationships. Consequently, partial relationships are neglected and the network relationship map (NRM) is plotted. Only relations whose values in the matrix are greater than the threshold value are represented in the NRM. To calculate the threshold value of the relationships, it is sufficient to calculate the mean values of the matrix. After determining the threshold intensity, all values of the matrix T that are less than the threshold value are set to zero, that is, the causal relationship mentioned above is not considered. (Bonifaz et al, 2020).

Step 5: Final output and creation of a causal diagram.

The next step is to find out the sum of each row and each column of (in step 3). The sum of rows and columns can be calculated as follows:

$$D = \sum_{j=1}^{n} T_{ij} \quad (6)$$

$$R = \sum_{i=1}^{n} T_{ij} \quad (7)$$

Then, the values of and can be calculated by and , where they represent the degree of importance of factor *i* in the whole system and represent the net effects that factor *i* contributes to the system. Significant relationships can be seen in the scatter plots between these two factors. This model can be represented as a diagram in which the values of (D + R) are placed on the horizontal axis and the values of on the vertical axis. The position and interaction of each factor with a point in the coordinates are determined by the coordinate system.

Step 6: Interpret the results.

According to the previous diagram and table, each factor can be evaluated based on the following aspects:

The horizontal vector represents the degree of importance that each factor plays in the entire system. In other words, indicates both the impact of factor i on the entire system and the impact of other factors in the system on the factor. The vertical vector represents the degree of influence of a factor in the system. In general, the positive value of represents a causal variable and the negative value of represents an effect.

Topsis

TOPSIS is a technique for decision-making that was developed by Hwang and Yoon in 1981. It allows combining several heterogeneous attributes in a single dimensionless index, and this is because it is very likely that the attributes under evaluation are expressed in different units or scales. It is based on the concept that the selected alternative must have the smallest Euclidean distance to an ideal solution and the largest Euclidean distance to an anti-ideal solution. Thus, the order of preference of the alternatives can be determined through a series of comparisons of these distances. Both the ideal and anti-ideal solutions are fictitious. (González et al, 2018).

The ideal solution is that for which all attribute values correspond to the optimal values of each attribute contained in the alternatives; the anti-ideal solution is that for which all attribute values correspond to the least desired values of each attribute contained in the alternatives. In this way, TOPSIS provides a solution that is not only the closest to a hypothetically better solution but also the farthest from the hypothetically worse one. The steps to take into account are described in (Barcos et al, 2020).

RESULTS AND DISCUSSION

To determine the risk level of tax evasion from the judicial perspective in Ecuadorian organizations, it was necessary to determine a group of experts to participate in the application of multicriteria methods. For this, the necessary sample was calculated for an estimated level of precision of 5%, an estimated proportion of 10% of expert errors, and a constant dependent on the confidence level of 3.8416, which turned out to be the following:

$$M = \frac{P(1-P)K}{i^2} = \frac{0.05(1-0.05)3.8416}{0.01} = 18.24\ experts \approx 18\ experts$$

The resulting heterogeneity is shown in the following figure:

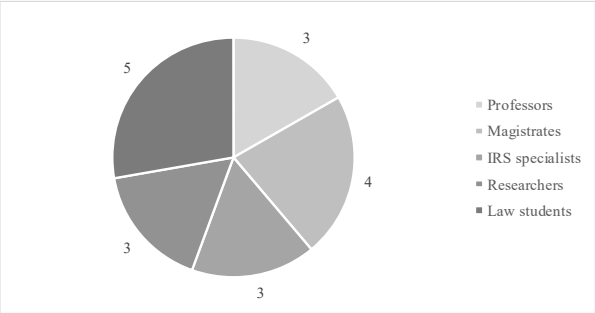

Figure 1: Composition of the group of experts. Source: own elaboration

Once the group to be surveyed was determined, a form was given to each expert so that they could weigh the causes that were influencing the events related to the crime under study in order to determine its weight. Its design was based on the DEMATEL method and the final weightings were the result of the statistical mode of the scores in each comparison. The table 3 shows the direct relationship matrix that served as the basis for the study. It was also necessary to normalize said matrix (Table 4). From the latter, the total relationship matrix (Table 5) and the relationship matrix for a threshold value of 0.205 (Table 6) were calculated.

For the interest of the investigation, the main causes resulting from the previous method will be taken (Table 8) and specifically the causes with D+R values corresponding to the degree of importance in the system for the analysis of the TOPSIS method with the objective of determine is more likely to commit crimes through tax evasion. Table 9 shows the normalization of the weights of the main causes.

Table 3: Direct relationship matrix. Source: Own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
C1	0	2	3	5	1	3	3	2	3	2	3	3	3	4	2	5	3	3	3	5
C2	1	0	2	5	3	5	3	5	4	3	5	2	3	2	1	3	2	2	3	2
C3	1	7	0	6	2	1	1	1	4	1	5	4	3	5	3	4	3	3	1	3
C4	1	6	1	0	4	1	4	1	3	3	5	3	1	3	1	1	1	3	5	5
C5	2	1	4	2	0	1	4	3	5	4	3	1	3	3	5	1	1	1	1	2
C6	1	3	1	4	3	0	4	2	4	1	2	1	1	4	4	1	4	1	3	3
C7	1	1	1	2	2	2	0	2	1	3	3	1	5	1	5	3	1	3	1	5
C8	1	2	2	5	1	1	3	0	2	5	1	1	1	3	3	1	4	4	1	2
C9	1	1	1	3	4	1	1	2	0	2	3	5	2	1	1	4	4	4	1	5
C10	5	3	3	1	4	2	5	1	5	0	1	1	1	1	5	4	5	4	4	4
C11	3	5	3	1	3	1	1	1	5	2	0	2	3	1	2	3	2	1	2	5
C12	1	4	1	1	1	3	3	2	1	1	1	0	2	2	3	2	4	1	3	3
C13	4	3	3	1	1	4	1	1	3	1	1	5	0	3	1	2	2	2	1	3
C14	5	5	3	2	4	4	3	3	5	3	1	4	3	0	2	2	5	4	1	3
C15	4	3	1	4	3	3	1	1	2	4	5	5	1	1	0	2	3	1	2	5
C16	4	5	4	5	5	4	2	3	2	1	2	1	3	3	1	0	2	2	1	3
C17	1	1	3	5	3	3	4	4	1	4	4	3	3	3	3	1	0	2	5	1
C18	2	1	4	4	4	4	5	4	3	1	3	5	3	2	1	3	1	0	1	5
C19	5	2	5	3	3	5	4	4	4	3	1	3	4	4	2	3	3	1	0	5
C20	1	1	5	1	2	1	4	2	5	2	2	4	3	1	4	4	5	1	5	0

Table 4: Normalized direct relationship matrix. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
C1	0	0.031	0.047	0.078	0.016	0.047	0.047	0.031	0.047	0.031	0.047	0.047	0.047	0.063	0.031	0.078	0.047	0.047	0.047	0.078
C2	0.016	0	0.031	0.078	0.047	0.078	0.047	0.078	0.063	0.047	0.078	0.031	0.047	0.031	0.016	0.047	0.031	0.031	0.047	0.031
C3	0.016	0.109	0	0.094	0.031	0.016	0.016	0.016	0.063	0.016	0.078	0.063	0.047	0.078	0.047	0.063	0.047	0.047	0.016	0.047
C4	0.016	0.094	0.016	0	0.063	0.016	0.063	0.016	0.047	0.047	0.078	0.047	0.016	0.047	0.016	0.016	0.016	0.047	0.078	0.078
C5	0.031	0.016	0.063	0.031	0	0.016	0.063	0.047	0.078	0.063	0.047	0.016	0.047	0.047	0.078	0.016	0.016	0.016	0.016	0.031
C6	0.016	0.047	0.016	0.063	0.047	0	0.063	0.031	0.063	0.016	0.031	0.016	0.016	0.063	0.063	0.016	0.063	0.016	0.047	0.047
C7	0.016	0.016	0.016	0.031	0.031	0.031	0	0.031	0.016	0.047	0.047	0.016	0.078	0.016	0.078	0.047	0.016	0.047	0.016	0.078
C8	0.016	0.031	0.031	0.078	0.016	0.016	0.047	0	0.031	0.078	0.016	0.016	0.016	0.047	0.047	0.016	0.063	0.063	0.016	0.031
C9	0.016	0.016	0.016	0.047	0.063	0.016	0.016	0.031	0	0.031	0.047	0.078	0.031	0.016	0.016	0.063	0.063	0.063	0.016	0.078
C10	0.078	0.047	0.047	0.016	0.063	0.031	0.078	0.016	0.078	0	0.016	0.016	0.016	0.016	0.078	0.063	0.078	0.063	0.063	0.063
C11	0.047	0.078	0.047	0.016	0.047	0.016	0.016	0.016	0.078	0.031	0	0.031	0.047	0.016	0.031	0.047	0.031	0.016	0.031	0.078
C12	0.016	0.063	0.016	0.016	0.016	0.047	0.047	0.031	0.016	0.016	0.016	0	0.031	0.031	0.047	0.031	0.063	0.016	0.047	0.047
C13	0.063	0.047	0.047	0.016	0.016	0.063	0.016	0.016	0.047	0.016	0.016	0.078	0	0.047	0.016	0.031	0.031	0.031	0.016	0.047
C14	0.078	0.078	0.047	0.031	0.063	0.063	0.047	0.047	0.078	0.047	0.016	0.063	0.047	0	0.031	0.031	0.078	0.063	0.016	0.047
C15	0.063	0.047	0.016	0.063	0.047	0.047	0.016	0.016	0.031	0.063	0.078	0.078	0.016	0.016	0	0.031	0.047	0.016	0.031	0.078
C16	0.063	0.078	0.063	0.078	0.078	0.063	0.031	0.047	0.031	0.016	0.031	0.016	0.047	0.047	0.016	0	0.031	0.031	0.016	0.047
C17	0.016	0.016	0.047	0.078	0.047	0.047	0.063	0.063	0.016	0.063	0.063	0.047	0.047	0.047	0.047	0.016	0	0.031	0.078	0.016
C18	0.031	0.016	0.063	0.063	0.063	0.063	0.078	0.063	0.047	0.016	0.047	0.078	0.047	0.031	0.016	0.047	0.016	0	0.016	0.078
C19	0.078	0.031	0.078	0.047	0.047	0.078	0.063	0.063	0.063	0.047	0.016	0.047	0.063	0.063	0.031	0.047	0.047	0.016	0	0.078
C20	0.016	0.016	0.078	0.016	0.031	0.016	0.063	0.031	0.078	0.031	0.031	0.063	0.047	0.016	0.063	0.063	0.078	0.016	0.078	0

Table 5: Total relationship matrix. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
C1	0.157	0.236	0.228	0.288	0.212	0.221	0.249	0.191	0.27	0.198	0.234	0.245	0.223	0.23	0.209	0.254	0.246	0.203	0.213	0.322
C2	0.163	0.193	0.201	0.275	0.23	0.237	0.238	0.225	0.274	0.206	0.252	0.215	0.211	0.19	0.187	0.213	0.22	0.18	0.202	0.265
C3	0.171	0.310	0.180	0.302	0.227	0.194	0.218	0.179	0.285	0.185	0.267	0.26	0.221	0.24	0.219	0.239	0.244	0.202	0.184	0.292
C4	0.158	0.269	0.184	0.189	0.237	0.176	0.246	0.165	0.253	0.199	0.245	0.223	0.18	0.194	0.181	0.182	0.198	0.186	0.225	0.299
C5	0.159	0.181	0.205	0.202	0.157	0.155	0.221	0.171	0.256	0.198	0.2	0.179	0.187	0.179	0.221	0.164	0.18	0.146	0.148	0.234
C6	0.144	0.208	0.164	0.235	0.206	0.143	0.227	0.163	0.244	0.159	0.188	0.18	0.162	0.196	0.209	0.162	0.224	0.145	0.183	0.249
C7	0.134	0.164	0.152	0.185	0.173	0.159	0.149	0.146	0.183	0.169	0.184	0.165	0.203	0.138	0.208	0.178	0.164	0.159	0.139	0.258
C8	0.136	0.184	0.168	0.237	0.167	0.149	0.204	0.123	0.201	0.205	0.163	0.168	0.15	0.172	0.184	0.153	0.213	0.183	0.146	0.221
C9	0.137	0.174	0.162	0.211	0.213	0.153	0.179	0.158	0.176	0.162	0.193	0.23	0.169	0.147	0.159	0.2	0.217	0.181	0.149	0.266

C10	0.235	0.247	0.234	0.241	0.261	0.211	0.284	0.184	0.303	0.175	0.215	0.222	0.201	0.19	0.261	0.248	0.279	0.221	0.231	0.316
C11	0.169	0.234	0.192	0.188	0.2	0.156	0.176	0.146	0.255	0.164	0.153	0.19	0.187	0.15	0.173	0.192	0.191	0.141	0.163	0.27
C12	0.123	0.196	0.14	0.164	0.148	0.168	0.185	0.143	0.168	0.134	0.146	0.135	0.152	0.146	0.169	0.152	0.198	0.122	0.161	0.212
C13	0.172	0.194	0.177	0.174	0.156	0.19	0.165	0.135	0.209	0.136	0.154	0.22	0.129	0.17	0.147	0.163	0.18	0.145	0.139	0.224
C14	0.235	0.283	0.236	0.259	0.264	0.246	0.262	0.218	0.31	0.224	0.218	0.27	0.232	0.179	0.222	0.221	0.286	0.227	0.193	0.305
C15	0.197	0.223	0.177	0.245	0.215	0.198	0.197	0.157	0.23	0.208	0.241	0.246	0.171	0.163	0.161	0.19	0.223	0.152	0.183	0.292
C16	0.2	0.261	0.226	0.273	0.251	0.219	0.218	0.193	0.239	0.172	0.207	0.197	0.207	0.203	0.181	0.164	0.212	0.175	0.169	0.27
C17	0.165	0.207	0.214	0.271	0.226	0.208	0.251	0.208	0.226	0.22	0.235	0.228	0.209	0.203	0.216	0.182	0.187	0.177	0.229	0.249
C18	0.172	0.207	0.229	0.258	0.239	0.22	0.264	0.208	0.254	0.173	0.221	0.258	0.211	0.188	0.188	0.213	0.204	0.147	0.171	0.305
C19	0.244	0.252	0.273	0.281	0.256	0.265	0.283	0.235	0.306	0.23	0.223	0.263	0.254	0.248	0.23	0.244	0.268	0.191	0.183	0.344
C20	0.159	0.2	0.239	0.213	0.206	0.176	0.242	0.176	0.274	0.184	0.203	0.242	0.208	0.171	0.225	0.225	0.257	0.158	0.224	0.226

Table 6: Relationship matrix for a threshold value of 0.205. Source: own elaboration.

	C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**	**C17**	**C18**	**C19**	**C20**
C1	0	0.236	0.228	0.288	0.212	0.221	0.249	0	0.27	0	0.234	0.245	0.223	0.23	0.209	0.254	0.246	0	0.213	0.322
C2	0	0	0	0.275	0.23	0.237	0.238	0.225	0.274	0.206	0.252	0.215	0.211	0	0	0.213	0.22	0	0	0.265
C3	0	0.31	0	0.302	0.227	0	0.218	0	0.285	0	0.267	0.26	0.221	0.24	0.219	0.239	0.244	0	0	0.292
C4	0	0.269	0	0	0.237	0	0.246	0	0.253	0	0.245	0.223	0	0	0	0	0	0	0.225	0.299
C5	0	0	0	0	0	0	0.221	0	0.256	0	0	0	0	0	0.221	0	0	0	0	0.234
C6	0	0.208	0	0.235	0.206	0	0.227	0	0.244	0	0	0	0	0	0.209	0	0.224	0	0	0.249
C7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.208	0	0	0	0	0.258
C8	0	0	0	0.237	0	0	0	0	0	0.205	0	0	0	0	0	0	0.213	0	0	0.221
C9	0	0	0	0.211	0.213	0	0	0	0	0	0	0.23	0	0	0	0	0.217	0	0	0.266
C10	0.235	0.247	0.234	0.241	0.261	0.211	0.284	0	0.303	0	0.215	0.222	0	0	0.261	0.248	0.279	0.221	0.231	0.316
C11	0	0.234	0	0	0	0	0	0	0.255	0	0	0	0	0	0	0	0	0	0	0.27
C12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.212
C13	0	0	0	0	0	0	0	0	0.209	0	0	0.22	0	0	0	0	0	0	0	0.224
C14	0.235	0.283	0.236	0.259	0.264	0.246	0.262	0.218	0.31	0.224	0.218	0.27	0.232	0	0.222	0.221	0.286	0.227	0	0.305
C15	0	0.223	0	0.245	0.215	0	0	0	0.23	0.208	0.241	0.246	0	0	0	0	0.223	0	0	0.292
C16	0	0.261	0.226	0.273	0.251	0.219	0.218	0	0.239	0	0.207	0	0.207	0	0	0	0.212	0	0	0.27
C17	0	0.207	0.214	0.271	0.226	0.208	0.251	0.208	0.226	0.22	0.235	0.228	0.209	0	0.216	0	0	0	0.229	0.249
C18	0	0.207	0.229	0.258	0.239	0.22	0.264	0.208	0.254	0	0.221	0.258	0.211	0	0	0.213	0	0	0	0.305
C19	0.244	0.252	0.273	0.281	0.256	0.265	0.283	0.235	0.306	0.23	0.223	0.263	0.254	0.248	0.23	0.244	0.268	0	0	0.344
C20	0	0	0.239	0.213	0.206	0	0.242	0	0.274	0	0	0.242	0.208	0	0.225	0.225	0.257	0	0.224	0.226

Table 7: Calculation of the importance and influence of the factors. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
R	0.71	2.94	1.88	3.59	3.24	1.83	3.20	1.09	4.19	1.29	2.56	3.12	1.97	0.72	2.22	1.86	2.89	0.45	1.12	5.42
D	3.88	3.06	3.32	2.00	0.93	1.80	0.47	0.88	1.14	4.01	0.76	0.21	0.65	4.52	2.12	2.58	3.40	3.09	4.70	2.78
D+R	4.60	6.00	5.20	5.58	4.18	3.63	3.67	1.97	5.32	5.30	3.32	3.33	2.63	5.24	4.34	4.44	6.29	3.54	5.82	8.20
D-R	3.17	0.12	1.44	-1.59	-2.31	-0.03	-2.74	-0.22	-3.05	2.71	-1.80	-2.91	-1.32	3.80	-0.10	0.73	0.51	2.64	3.58	-2.64
Classi-fication	C	C	C	E	E	E	E	E	E	C	E	E	E	C	E	C	C	C	C	E
Legend	C : cause										E : effect									

Table 8: Main causes determined through the DEMATEL method. Source: own elaboration

Nomenclature	Main causes
C1	Own structure of the tax system of the countries.
C2	Anarchic distribution of powers between the different levels of government, especially in federal countries
C3	Low educational level of the population
C10	Promotional regimes (fiscal incentives, exemptions, and tax expenses)
C14	Presence of multinational companies with aggressive tax planning
C16	Great weight of intangibles which makes it difficult to assign their true value and place of generation
C17	Financial system with multiple sophisticated figures that allow moving money quickly and easily
C18	Proliferation of special tax regimes to attract investment (eg tax rulings)
C19	Difficulty in controlling the transfer prices of related multinational companies.

Table 9: Main causes determined through the DEMATEL method. Source: own elaboration

Main causes	C1	C2	C3	C10	C14	C16	C17	C18	C19
Weights	0.099	0.129	0.1121	0.114	0.113	0.096	0.135	0.076	0.125

For the development of the TOPSIS method, a questionnaire was given to the experts where they were asked to weigh each business organization according to the comparison factors in ascending order with a score of 1-10. The result (table 10) was the result of the arithmetic mean of the scores obtained in the exercise and the organizations to be weighted were denoted as follows:

- Government Organizations (O1)
- Small and medium enterprises (O2)
- Financial companies (O3)
- Transnationals (O4)
- E-commerce companies (O5)
- Technology companies (O6)

For the calculation of the values of relative closeness () in search of the quantitative order of the organizations with the highest level of risk of the occurrence of tax evasion, the normalized matrix (table 11) and the matrix for the calculation of the solutions were determined ideals and anti-ideals (table 12). In the case of figure 2, it shows the order resulting from the application of the method, which showed that medium and small companies in Ecuador have a higher level of risk in the occurrence of this type of crime.

Table 10: Main causes determined through the DEMATEL method. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9
O1	3	4	6	2	3	2	3	2	6
O2	2	4	2	3	2	5	6	5	5
O3	3	5	3	6	5	22	3	2	6
O4	4	6	2	4	2	6	3	5	3
O5	5	3	5	2	6	5	3	4	3
O6	3	5	5	4	3	2	2	6	4

Table 11: Normalized weighting matrix. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9
O1	0.354	0.355	0.591	0.217	0.322	0.202	0.344	0.191	0.524
O2	0.236	0.355	0.197	0.325	0.214	0.505	0.688	0.477	0.437
O3	0.354	0.444	0.296	0.651	0.536	0.202	0.344	0.191	0.524
O4	0.471	0.532	0.197	0.434	0.214	0.606	0.344	0.477	0.262
O5	0.589	0.266	0.493	0.217	0.643	0.505	0.344	0.381	0.262
O6	0.354	0.444	0.493	0.434	0.322	0.202	0.229	0.572	0.349

Table 12: Matrix for the calculation of the ideal and anti-ideal solutions. Source: own elaboration

	C1	C2	C3	C4	C5	C6	C7	C8	C9	Di+	Di-	Pi
O1	0.035	0.046	0.066	0.025	0.036	0.019	0.047	0.015	0.066	0.047	0.033	0.410
O2	0.023	0.046	0.022	0.037	0.024	0.048	0.093	0.036	0.055	0.011	0.061	0.841
O3	0.035	0.057	0.033	0.074	0.060	0.019	0.047	0.015	0.066	0.028	0.042	0.601
O4	0.047	0.069	0.022	0.050	0.024	0.058	0.047	0.036	0.033	0.042	0.046	0.524
O5	0.058	0.034	0.055	0.025	0.073	0.048	0.047	0.029	0.033	0.048	0.036	0.428
O6	0.035	0.057	0.055	0.050	0.036	0.019	0.031	0.044	0.044	0.042	0.028	0.402
V+	0.023	0.034	0.022	0.025	0.024	0.019	0.031	0.015	0.033	Di+	Di-	Pi
V-	0.058	0.069	0.066	0.074	0.073	0.058	0.093	0.044	0.066	0.047	0.033	0.410

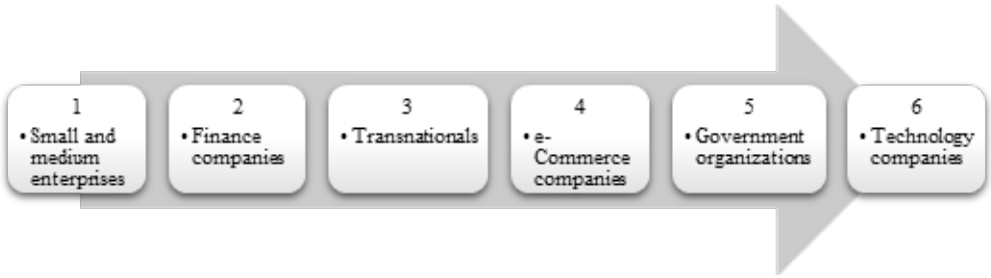

Figure 2: Order of the Ecuadorian business organizations resulting from the evaluation of the level of risk in the occurrence of the crime of tax evasion. Source: own elaboration.

- Carry out cooperation actions that strengthen the tax administrations and the exchange of experiences and good practices, seeking to facilitate and promote voluntary compliance, combat fraud, tax evasion, and avoidance, promoting.
- Develop and disseminate information, studies, research, innovative practices, and other products to improve tax policy and administration.
- Design, promote and carry out training and development activities for human talent in coordination with the tax administrations.
- Identify and monitor needs, support and implement technical assistance projects to strengthen tax administrations, as well as monitor technical assistance needs through various channels, responding to the demand of member countries.

Develop internal management and external coordination policies for the institutional strengthening of CIAT (Inter-American Center for Tax Administration).

CONCLUSIONS

In conclusion, a group of experts on the subject with a heterogeneous composition was selected, which allowed the analysis of the causes of tax evasion in Ecuadorian business organizations from the legal point of view. The results showed that out of the 20 causes analyzed, 9 were classified as main causes through the DEMATEL method. In the same procedure, the weight of the resulting causes was obtained, which was normalized for later use.

The TOPSIS method served as the basis for determining the level of risk mentioned above. For this, the authors relied on the group of experts previously selected, who evaluated the different types of business organizations based on the main causes of the object of study. It was determined that the type of company with the highest level of risk for the occurrence of the determined situations were the *small and medium enterprises*.

For this result, a set of strategies was proposed to reduce the level of existing risk, which was considered an improvement for the Ecuadorian tax system from the judicial point of view. Although the research does not constitute a practical contribution to the subject, it lays the foundations for its extraterritorial application in the legal framework.

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