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Plithogenic Statistical Study of Environmental Audit and Corporate Social Responsibility in the Junín Region, Peru

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Abstract. Caring for the environment is a transversal task that concerns all professions, including accounting, with an emphasis on auditing; on the other hand, corporate social responsibility seeks efficiency between environmental, social, and economic aspects. This research aims to determine the relationship between environmental auditing and corporate social responsibility in the Junín Region, Peru. To meet this objective, surveys were applied to a randomly selected sample (121 Chartered Public Accountants) and interviews (12 Auditors attached to the Audit Chapter) as research instruments, the sample was obtained from the members of the College of Public Accountants of Junín, which made it possible through the Concurrent Triangulation Design to apply a holistic vision that allowed to compensate and strengthen the credibility of the investigation. To combine all these statistical results, the Plithogenic Statistic was used as a tool for processing the collected data. One of the advantages offered by the plithogenic theory is the possibility of combining knowledge from different sources, which allows us to capture the holistic and dynamic nature of the phenomena. In this case, there is a phenomenon that responds to different branches of knowledge that overlap in a complex way, such as the environmental and ecological aspect, with the economic-financial aspect, as well as the social and educational aspect, which present contradictory components among themselves.

Keywords: Environmental audit, corporate social responsibility, environmental care, Concurrent Triangulation Design, plithogenic statistics, plithogenic refined statistics, plithogenic neutrosophic statistics, neutrosophic statistics.

1 Introduction

This research stems from the need to care for the environment, which has become a very well-written green speech. Within the economic aspects where the social and environmental spheres revolve, the desire for control emerges, which is systematized through the environmental audit. Faced with this concern, the objective of the investigation is formulated, which is to determine the relationship that exists between environmental auditing and corporate social responsibility in the Junín Region, Peru.

The main theme of the study is based on the analysis of the variables Environmental Audit and Corporate Social Responsibility, both of which are important and consistent, hence the reason for evaluating the relationship between them. Over the years, the deterioration of nature has been observed, whose main depletion factor is directed by human beings, and companies pollute and destroy the environment. As part of the common welfare is the protection of future generations, for this inevitably control of the use of natural resources must be exercised, through the environmental audit. If substantial changes are not made in the way of developing the Environmental Audit, as well as the requirement of Corporate Social Responsibility, the disappearance of most of life on planet Earth will soon be observed.

An *a priori* analysis of the studied variables allows us to realize that both variables are contradictory to each other, at least partially. Especially if we practice the most widespread and successful economic models in the purely economic sense, those that do not take into account the damage to the environment that is inflicted during

the production and service process. Until today, the polluting model, destructive of ecosystems, has predominated. However, more and more policies are included in private companies and States on the protection of the environment, since the old model will fail in the long term, also economically speaking.

This paper shows the results of the surveys carried out on 121 public accountants, and also 12 auditors were interviewed. This information was corroborated with each other by Concurrent Triangulation Design, confirming and compensating for the results [1, 2]. The qualitative results were converted to neutrosophic scales to process the indeterminacy that is typical of any decision-making process.

We carry out Plithogenic Statistics [3-7] instead of Classical Statistics because it involves processing variables of a different nature with a certain contradictory relationship with each other in a phenomenon that is multivariate, where there are indeterminate aspects, due to the lack of knowledge of how to dynamically run an economically profitable company, which fulfills its corporate purpose but also respects the laws and the environment. To combine so many benefits, we understand that the right measure must be found, where a 100% acceptable result will never be obtained in all these aspects.

The Plithogenic Statistics was introduced by Professor F. Smarandache, which according to his own words is defined as: "Plithogenic Statistics (PS) encompasses the analysis and observations of the events studied by the Plithogenic Probability. Plithogenic Statistics is a generalization of classical Multivariate Statistics, and it is a simultaneous analysis of many outcome neutrosophic /indeterminate variables, and it as well as a multi-indeterminate statistic." ([7]).

Also, "The Plithogenic Probability of an event to occur is composed of the chances that the event occurs concerning all random variables (parameters) that determine it. The Plithogenic Probability, based on Plithogenic Variate Analysis, is a multi-dimensional probability ("plitho" means "many", synonymous with "multi"). We may say that it is a probability of sub-probabilities, where each sub-probability describes the behavior of one variable. We assume that the event we study is produced by one or more variables. Each variable is represented by a Probability Distribution (Density) Function (PDF)." [7].

This paper consists of a Materials and Methods section, where the basics of Plithogeny are explained as well as some statistical and other tools used in this work. Section 3 contains the results obtained from the study we carried out. The article ends with the conclusions.

2 Materials and Methods

This section is dedicated to summarizing the basic principles of the theories that will be applied in solving the problem. The first one of them is the notion of Plithogenic Sets and Plithogenic Statistics.

2.1 Basic Notions on Plithogeny

According to F. Smarandache, "Plithogeny is the genesis or origination, creation, formation, development, and evolution of new entities from dynamics and organic fusions of contradictory and/or neutrals and/or non-contradictory multiple old entities. Plithogeny pleads for the connections and unification of theories and ideas in any field. As "entities" in this study, we take the 'knowledge' in various fields, such as soft sciences, hard sciences, arts, and letters theories, etc." [3, 8, 9]

A *Plithogenic Set* is a non-empty set P whose elements within the domain of discourse U ($P \subseteq U$) are characterized by one or more attributes $A_1, A_2, \cdots, A_m, m \geq 1$, where each attribute can have a set of possible values within the spectrum S of values (states), such that S can be a finite, infinite, discrete, continuous, open, or closed set.

Each element $x \in P$ is characterized by all the possible values of the attributes that are inside the set $V = \{v_1, v_2, \cdots, v_n\}$. The value of an attribute has a *degree of appurtenance* $d(x, v)$ of an element x in the set P, about a certain given criterion. The degree of appurtenance can be either fuzzy, intuitionistic fuzzy, or neutrosophic, among others.

That means,

$$\forall x \in P, d: P \times V \to \mathcal{P}([0,1]^z) \quad (1)$$

Where $d(x, v) \subseteq [0,1]^z$ and $\mathcal{P}([0,1]^z)$ is the power set of $[0,1]^z$. $z = 1$ (the *fuzzy degree of appurtenance*), $z = 2$ (the *intuitionistic fuzzy degree of appurtenance*), or $z = 3$ (the *neutrosophic degree of appurtenance*).

Whether the cardinality of V is greater than or equal to 1, $c: V \times V \to [0,1]$ is called an *attribute value contradiction degree function* between any pair of attributes v_a, v_b, which satisfies the following axioms:

- $c(v_a, v_a) = 0$,
- $c(v_a, v_b) = c(v_b, v_a)$.

c defined as above, is denoted by c_F to indicate that this is a function called *fuzzy attributes value contradiction degree function*. It is generally defined like $c_{IF}: V \times V \to [0,1]^2$ as an *intuitionistic attributes value contradiction function* and like $c_N: V \times V \to [0,1]^3$ to indicate a *neutrosophic attributes value contradiction function*.

Thus, the Plithogenic Set is characterized by (P, a, V, d, c), which is constituted by the set P, the set a of attributes, the set V of values, the appurtenance function d and the c called *value contradiction degree function.*

The contradiction function in practice is applied to compare the contradiction of all attributes concerning a dominant attribute in case it exists, which is the most important one compared to the others.

On the other hand (U, a, V, d, c) is called *Plithogenic Probability*, where U is the event space E. A Plithogenic Probability is the probability that an event occurs in all the random variables that determine it. Where each random variable can be classical, (T,I,F)-neutrosophic, I-neutrosophic, (T,F)-intuitionistic fuzzy, (T,N,F)-picture fuzzy, (T,N,F)-spherical fuzzy, or (other fuzzy extensions) distribution function. In this way, the Plithogenic Probability generalizes classical multivariate Probability.

For its part, *Plithogenic Statistics* includes the analysis and observations obtained through the methods of the Plithogenic Probability [3, 6-7]. Plithogenic Statistics generalizes classical multivariate Statistics.

The *Refined Probabilities* are decomposed into more than one element of truth, or into more than one element of indeterminacy, or into more than one element of falsehood [3, 10]. That is, they are of the form; $(T_1, T_2, \cdots, T_p, I_1, I_2, \cdots, I_q, F_1, F_2, \cdots, F_r)$, where at least one of the indices p, q, or r is strictly bigger than 1.

2.2 Other tools used in the research

In this sub-section, we describe other tools that are used to solve the problem.

Cronbach's alpha makes it possible to quantify the level of reliability of a measurement scale for the unobservable magnitude constructed from the n observed variables. Cronbach's Alpha is calculated using the variances with Equation 2 ([11]):

$$\alpha = \left[\frac{k}{k-1}\right]\left[1 - \frac{\sum_{i=1}^{k} S_i^2}{S_t^2}\right] \quad (2)$$

Where:
S_i^2 is the variance of the ith item,
S_t^2 is the variance of all the observed values,
k is the number of questions or items.

Based on the correlation among items, the *Standard Cronbach's Alpha* is defined as follows in Equation 3:

$$\alpha_{stand} = \frac{kp}{1+p(k-1)} \quad (3)$$

Where:
k is the number of questions or items.
p is the mean of the linear correlations among the items.
Alphas bigger than 0.7 or 0.8 are enough to consider the scale reliable.

Spearman's Rho Correlation Coefficient results in a measure of the correlation between two variables. It is a non-parametric test, therefore it does not need to be verified that the sample satisfies a given distribution.

In the analyzed sample, the results were compared using Spearman's Rho Correlation Coefficient, which is calculated by Equation 4 ([12]):

$$\rho = 1 - \frac{6\sum_{i=1}^{N} D_i^2}{N(N^2-1)} \quad (4)$$

Where D is the difference between the corresponding x-y order statistics. N is the number of data pairs. $\rho \in [-1, 1]$, where 0 means no correlation, 1 means maximum positive correlation, and -1 means maximum negative correlation.

Finally, we address the *Concurrent Triangulation Design* ([1, 2]). This model is probably the most popular and is used when the researcher intends to confirm or corroborate results and perform cross-validation between quantitative and qualitative data, as well as take advantage of each method and minimize its weaknesses. It may happen that confirmation or corroboration is not presented. Quantitative and qualitative data on the research problem are simultaneously collected and analyzed at approximately the same time. During interpretation and discussion, the two kinds of results are fully explained, and comparisons of the databases are generally made. These are discussed "side by side", that is, the statistical results of each variable or quantitative hypothesis are included, followed by qualitative categories and segments, as well as the grounded theory that confirms or not the quantitative findings.

3 The Plithogenic statistical studies

This study focuses on the following two variables V1 and V2:

V1- **Environmental Audit**: This implies a systematic and independent examination or evaluation process to determine if the audited party complies with the audit objectives. This is the result of the application of an important methodology for the audited party to continuously improve its operations and guarantee a better framework of environmental protection. Using the audit, steps are taken to eliminate identified deficiencies. It is based on four main dimensions:

D11: Systemic evaluation,
D12: Business efficiency,
D13: Strategic Foresight,
D 14: Protective role.

V2- **Corporate Social Responsibility**: This is a sensible and coherent pact or commitment that fully respects the mission of the company, protecting its strengths, and considering the economic, social, and environmental expectations of all the parties involved. It consists of the following four dimensions:

D21 = Economic,
D22 = Legal,
D23 = Ethics,
D24 = Voluntary.

The objective of this research is to find a relationship between both variables and their dimensions. As well as the quantification of the probabilities of the behavior of both of them.

For the study, there were 121 unionized accountants for the quantitative study, they were randomly selected with simple random sampling. For the qualitative study, 12 ordinary and independent auditors were involved. Table 1 summarizes the research methods applied.

TECHNIQUE	INSTRUMENTS	CHARACTERISTICS
Reference analysis	Records	Bibliographic material, scientific articles, current reports, and others.
Interview	Interview guide	It consists of 8 open questions (4 of each variable)
Survey	Questionnaire	It consists of 24 questions with responses on a Likert scale (12 questions for each variable).

Table 1: Research Techniques and Instruments.

The questionnaire was evaluated by judges to determine its reliability. The validation of the expert judges determines that the research instrument regarding Category 1: Environmental audit is found in 13 items at a high qualification level and 3 items at a moderate qualification level, in Category 2: Corporate Social Responsibility it is found in 14 items at a high qualification level and 2 items at a moderate qualification level, determining that the instrument has a favorable evaluation.

The internal consistency of the quantitative instrument analyzed by Cronbach's Alpha determines a value of 0.99; therefore, the survey has a high level of reliability.

The survey was then applied where the 121 public accountants had to express their opinion on the situation of the two variables and their dimensions. To capture the multidimensionality of the problem, it was decided to apply the theory of Plithogenic Refined Probabilities. This was applied in two phases, which are mentioned below:

Phase 1. The experts were asked their opinions on each of the dimensions of the variables, based on a Likert scale with the components ([13-14]): Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree.

1.1 For these results, we calculated their relative frequency in percent.

1.2. These frequency values were converted into Plithogenic Refined Probabilities to express the behavior of these dimensions in a general way in the region. Percentages are converted to Plithogenic Neutrosophic Probabilities

Phase 2: Data are processed by using techniques of Plithogenic Neutrosophic Probabilities.

The results of the survey in Phase 1 are shown in the following Tables 2-9:

	Absolute frequency	Percentage
Strongly disagree	28	23.1
Disagree	29	24.0
Undecided	23	19.0
Agree	41	33.9
Total	121	100.0

Table 2: Frequency table of Dimension 1 Systemic Evaluation of Variable 1 Environmental Audit in the Junín Region.

	Absolute frequency	Percentage
Strongly disagree	26	21.5
Disagree	45	37.2
Undecided	19	15.7
Agree	22	18.2
Strongly agree	9	7.4
Total	121	100.0

Table 3: Frequency table of Dimension 2 Business Efficiency of Variable 1 Environmental Audit in the Junín Region.

	Absolute frequency	Percentage
Strongly disagree	25	20.7
Disagree	27	22.3
Undecided	23	19.0
Agree	31	25.6
Strongly agree	15	12.4
Total	121	100.0

Table 4: Frequency table of Dimension 3 Strategic Prospective of Variable 1 Environmental Audit in the Junín Region

	Absolute frequency	Percentage
Disagree	32	26.4
Undecided	41	33.9
Agree	3. 4	28.1
Strongly agree	14	11.6
Total	121	100.0

Table 5: Frequency table of Dimension 4 Protective Role of Variable 1 Environmental Audit in the Junín Region.

	Absolute frequency	Percentage
Disagree	39	32.2
Undecided	37	30.6
Agree	37	30.6
Strongly agree	8	6.6
Total	121	100.0

Table 6: Frequency table of Dimension 1 Economic of Variable 2 Corporate social responsibility in the Junín Region.

	Absolute frequency	Percentage
Disagree	49	40.5
Undecided	40	33.1
Agree	28	23.1
Strongly agree	4	3.3
Total	121	100.0

Table 7: Frequency table of Dimension 2 Legal of Variable 2 Corporate social responsibility in the Junín Region.

	Absolute frequency	Percentage
Strongly disagree	30	24.8
Disagree	32	26.4
Undecided	26	21.5
Agree	19	15.7
Strongly agree	14	11.6
Total	121	100.0

Table 8: Frequency table of Dimension 3 Ethics of Variable 2 Corporate social responsibility in the Junín Region

	Absolute frequency	Percentage
Disagree	61	50.4
Undecided	13	10.7
Agree	33	27.3
Strongly agree	14	11.6
Total	121	100.0

Table 9: Frequency table of Dimension 4 Voluntary of Variable 2 Corporate social responsibility in the Junín Region

These results are plotted in Figure 1.

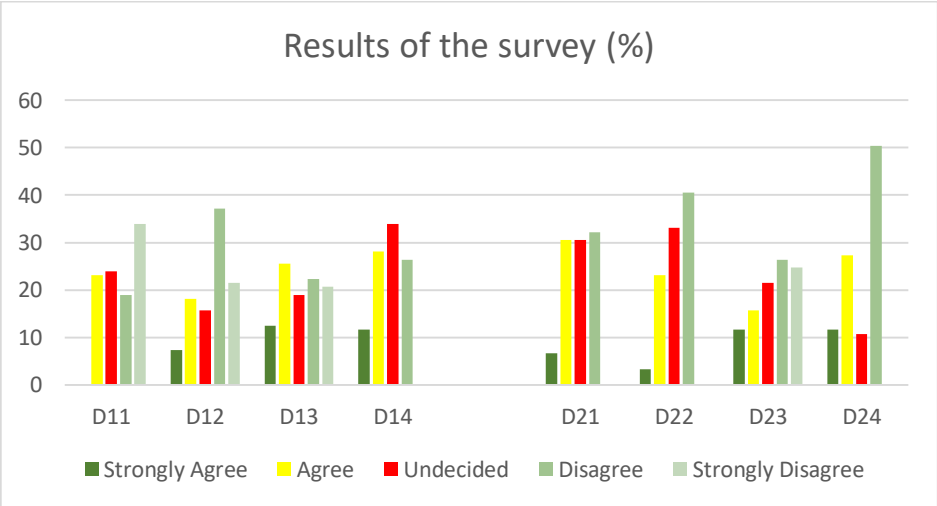

Figure 1: Results of the percentages for the 8 dimensions according to Tables 2-9.

To obtain the probabilities of each variable and its dimensions, they were represented by values of the type $(p_1, p_2, pI, np_2, np_1)$ that mean:

p_1- "Strongly sure" probability that the variable (dimension) is occurring properly,

p_2- "Sure" probability that the variable (dimension) is occurring properly,

pI- "Unsure" probability that the variable (dimension) is occurring properly,

np_2- "Sure" probability that the variable (dimension) is not occurring properly,

np_1- "Totally sure" probability that the variable (dimension) is not occurring properly,

In this case, p_1 is matched with the percentage corresponding to "Strongly disagree" from Tables 2-9; $p_2$is matched to "Agree"; pI with "Undecided"; $np_2$with "Disagree"; and $np_1$with "Strongly disagree".

For example, the probabilities of D11 are $(0,33.9,19.0,24.0,23.1)$, based on the results in Table 2. For clarity these probabilities can be converted to Plithogenic Neutrosophic Probabilities such that: $(p_1 + p_2, pI, np_2 + np_1)$,

that is, continuing with the example we have that the Plithogenic Neutrosophic Probability of D11 is (33.9,19.0,47.1).

Table 10 contains the results of each of the Plithogenic Refined Probabilities (PRP) and the Plithogenic Neutrosophic Probabilities (PNP) of all dimensions.

Dimension	PRP	PNP
D11	(0,33.9,19.0,24.0,23.1)	(33.9,19.0,47.1)
D12	(7.4,18.2,15.7,37.2,21.5)	(25.6,15.7,58.7)
D13	(12.4,25.6,19.0,22.3,20.7)	(38.0,19.0,43.0)
D14	(11.6,28.1,33.9,26.4,0)	(39.7,33.9,26.4)
D21	(6.6,30.6,30.6,32.2,0)	(37.2,30.6,32.2)
D22	(3.3,23.1,33.1,40.5,0)	(26.4,33.1,40.5)
D23	(11.6,15.7,21.5,26.4,24.8)	(27.3,21.5,51.2)
D24	(11.6,27.3,10.7,50.4,0)	(38.9,10.7,50.4)

Table 10: Plithogenic Refined Probabilities and Plithogenic Neutrosophic Probabilities calculated for the 8 dimensions.

From the values of the PNPs in Table 10, it can be seen that the probabilities of good results are less than or equal to 39.7% at the most, which can be assessed as "less than acceptable".

If we take $\wedge_p$ as the plitogenic conjunction between probabilities of the PNP type, where $(p_A, I_A, np_A) \wedge_p (p_B, I_B, np_B) = (p_A \wedge p_B, I_A \vee I_B, np_A \vee np_B)$, such that $\wedge$ is the t-norm minimum of fuzzy logic and $\vee$ is the t-conorm maximum. Then, calculating $PNP(V1) = \wedge_{p_{i=1}}^{4}$ PNP$(D1i)$ and $PNP(V2) = \wedge_{p_{j=1}}^{4}$ PNP$(D2j)$ we have:

$PNP(V1) = (25.6,33.9,58.7)$, while $PNP(V2) = (26.4,33.1,51.2)$. This shows that both variables have a low probability of being considered to have good behavior in the Junín region. These results are plotted in Figure 2.

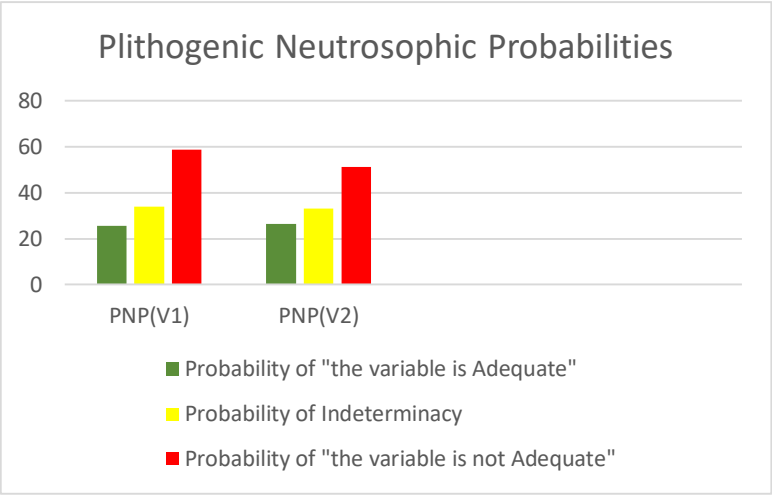

Figure 2: Graphical representation of $PNP(V1)$(on the left) and $PNP(V2)$(on the right) with chart graphs. Veracity appears in green, indeterminacy in yellow, and falsehood in red.

Next, we consider the relationship between both variables. To do this, we make the following conversion for each of the respondents, as can be seen in Table 11:

Value on the Likert Scale	Conversion to the form $a + bI$
Strongly disagree	0
Disagree	0.3
Undecided	I
Agree	0.6
Strongly agree	1

Table 11: Likert scale conversion rules into numbers of the form $a + bI$ ([15, 16]), with a and b constants.

For each Likert-type response from the 121 respondents, the data was processed by converting them into numbers $a + bI$ as it was indicated in Table 11. Then, the opinion of the ith expert is added as follows:

- The opinions on the 8 dimensions of a given expert are converted into the form $a + bI$ according to the rules in Table 11.
- The expert's opinions for D11, D12, D13, and D14 are added together and this is considered his/her opinion about V1. In the same way, his/her opinions on D21, D22, D23, and D24 are added; this is considered his/her opinion on V2.

Let us recall that the sum between $a_1 + b_1 I$ and $a_2 + b_2 I$ is defined as $(a_1 + a_2) + (b_1 + b_2)I$ ([15, 16]).

For example, if expert X evaluates D11 as "Undecided", D12 as "Disagree", D13 as "Agree" and D14 as "Strongly Agree", then the conversion would be according to Table 11 as follows:

I for D11, 0.3 for D12, 0.6 for D13, and 1 for D14. To calculate the value of the X's opinion on the variable V1 we have that it is equal to $I + 0.3 + 0.6 + 1 = 1.9 + I$.

Additionally, in this article, we define an order relationship between numbers of the form $a + bI$, as follows:

$a_1 + b_1 I \preccurlyeq a_2 + b_2 I$ ($a_1 + b_1 I$ is less than or equal to $a_2 + b_2 I$) if and only if $a_1 < a_2$, or if $a_1 = a_2$, then $b_1 > b_2$.

Spearman's Rho coefficient can be calculated, which only requires the ordinal number of the data to be calculated. This result can be seen in Table 12.

			Environmental audit	Corporate social responsibility
Spearman's Rho	Environmental audit	Correlation coefficient	1.000	598 **
		Next (bilateral)	.	.000
		No.	121	121
	Corporate social responsibility	Correlation coefficient	.598 **	1.000
		Next (bilateral)	.000	.
		No.	121	121

**. The correlation is significant at the 0.01 level (bilateral).

Table 12: Correlation between variable 1 (Environmental audit) and variable 2 (Corporate social responsibility)

According to Spearman's Rho bivariate correlation analysis, a moderate positive correlation (0.598) is found between the Environmental audit variable and the Corporate social responsibility variable in the Junín region, the p-value has been 0.000 <0.05, therefore, the null hypothesis H_0 is rejected. This means that the present problem of environmental auditing in the Junín Region is associated with the problem of corporate social responsibility; in other words, if environmental auditing practices are carried out, there will be awareness of corporate social responsibility, which can be applied to business environments of mining, industry, and commerce in the Junín Region.

Table 13 contains the interpretation in linguistic form of the correlation values:

Ratio range	Relationship
"-1"	"Great and perfect negative relationship"
"(-0.9 to -0.99)"	"Very high negative ratio"
"(-0.7 to -0.89)"	"High Negative Ratio"
"(-0.4 to -0.69)"	"Moderate Negative Ratio"
"(-0.2 to -0.39)"	"Low Negative Ratio"
"(-0.01 to -0.19)"	"Very low negative ratio"
"0"	"Nil"
"(0.0 to 0.19)"	"Very low positive ratio"

"(0.2 to 0.39)"	"Low positive ratio"
"(0.4 to 0.69)"	**"Moderate Positive Ratio"**
"(0.7 to 0.89)"	"High positive ratio"
"(0.9 to 0.99)"	"Very high positive ratio"
"1"	"Great and perfect positive relationship"

Table 13: Linguistic scale of interpretation of Spearman's rho coefficient between two variables.

Note that between V1 and V2 there is a moderate positive relationship.

In the other part of the investigation, in parallel, interviews were conducted with the 12 auditors attached to the Audit Chapter. They were individually asked the following question during the interview: How could an environmental audit be developed that allows corporate social responsibility and vice versa?

In summary, they responded that to develop an environmental audit it is necessary to generate environmental policies, where the government intervenes directly through laws and regulations in the legislature, execution organized by sectors through the Ministry of Economy and Finance (MEF), the National Superintendence of Tax Administration (SUNAT in Spanish), etc., and compliance with these through the judiciary.

They consider that it is important to apply the win-win policy, invest to face the negative threats of the environment, maximize its results, and a factual study that guides sustainability, inevitably with long-term observable results, in practice it implies moderating the use of inputs such as plastics, paper, water, acquisition of non-polluting equipment; as well as the reduction of waste, garbage, etc. good practices that involve the economy, are fair wages, reasonable prices, payment of taxes. Carrying out environmental controls, periodic audits, and obtaining "green" certifications, implies budget allocation for process improvement, which is a clear investment that allows compliance with environmental regulations. It focuses on the generation and distribution of added value among collaborators and shareholders.

In the triangulation, the general hypothesis is confirmed, through quantitative data because there is a moderate positive relationship between environmental auditing and corporate social responsibility in the Junín Region, Peru. In the qualitative aspect, it is confirmed that environmental audits are required to achieve corporate social responsibility and that variable 1 is effectively related to variable 2.

Conclusion

This paper studied the relationship between environmental auditing and corporate social responsibility in the Peruvian region of Junín. As well as the state of these two variables in the region. According to the results obtained, it is concluded that there is a direct relationship of moderate positive scale ($r = 0.598$) between environmental auditing and corporate social responsibility in the Junín region, the p-value has been $0.000<0.05$, therefore the hypothesis that there is a positive relationship between these two variables is accepted. The presence of difficulties in the performance of both variables was observed, since the probability values obtained gave results of less than 40%, while the probability that the results are not adequate gave values above 50%.

Beyond the obtained result to carry out this particular study, the relevance of using Plithogenic Statistics is shown for solving real-life problems. With the support of this tool, we were able to combine statistical results between variables of a different nature.

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