Routines and Incentives, and Their Influence on Compliance with the Doctrinal Principles of Fisheries Cooperatives

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Abstract: Fisheries cooperatives play an important role in Mexico, given that they are capable of generating employment, supplying food, stimulating local commerce, and promoting democracy and social integration in the communities where they operate. Fisheries production cooperatives form part of a sector called the social economy. Nevertheless, like all organizations, they face problems in terms of management, worker relations, rule implementation, and continuance over time. The aim of this study is to analyze and identify the degree of influence that exists between the informal constraints of fisheries production cooperatives (specifically in the form of institutional routines and incentives) and compliance with their doctrinal principles. This study uses a non-experimental quantitative, cross-sectional, correlational-explanatory approach. The research methods consisted of the construction of associated indices, descriptive statistics, correlation analysis and multiple linear regression analysis. Three hypotheses were proposed. With regard to H1, the results showed that informal constraints in the form of routines are moderately correlated with the level of compliance with the formal rules. Regarding the results for H2, it was confirmed that informal constraints in the form of incentives are very weakly correlated with the level of compliance with the formal rules. And with regard to H3, based on a joint analysis of the variables, only routines significantly influenced compliance with these doctrinal principles. Based on the above, it was concluded that routines and not incentives are the factors that exert the greatest influence on compliance with the doctrinal principles of cooperatives.

Keywords: Local Development, Cooperatives, Formal Rules, Informal Constraints, Institutionalism

1. Introduction

Cooperatives play an essential role in the economy of a country, given that they are capable of generating employment, supplying food, stimulating local commerce, and promoting democracy and the social integration of the members of cooperatives in the communities where they operate.

A cooperative is an "autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise" [1].

According to the [2], cooperatives are an inherently sustainable and participatory form of business. They place an emphasis on job security and on improving working conditions, pay competitive wages, promote additional income through profit-sharing and the distribution of dividends, and support community facilities and services

Furthermore, "cooperatives foster democratic knowledge and practices and social inclusion, making them well-placed to support the achievement of sustainable development" [2].

In order for a fisheries production cooperative to be capable of exploiting fisheries resources while achieving economic development in a sustainable manner, it is necessary to understand the types of formal and informal constraints that affect its environment.

According to [3], institutionalization is achieved by studying formal rules and informal constraints.

The former refer to laws, contracts and, in general, the written rules that govern society. The latter are extensions,

elaborations, and modifications of the formal rules, and are recognized behavioral norms in society, such as customs or routines, interests, incentives and the perception of legitimacy.

Reference [4] assert that the institutionalization of an organization is the route by which organizations incorporate defined work practices and procedures and increase their legitimacy and survival prospects, independently of the immediate efficacy of the acquired practices and procedures.

In an organization, therefore, the formal rules (laws, contracts, written rules) are not always complied with, and informal constraints (routines, interests, incentives, perception of legitimacy) affect the actions of individuals. For the purposes of this work, the study of these rules and constraints is framed within the context of fisheries production cooperatives.

As a result of the quest to develop and strengthen the capacities of fisheries production cooperatives, the following is proposed as the principle aim of this study: to analyze and identify the correlation that exists between the informal constraints of fisheries production cooperatives and compliance with the doctrinal principles of cooperatives.

2. Methods and Techniques

This study uses a non-experimental quantitative, cross-sectional, correlational-explanatory approach.

The study involves the preparation of an instrument based on the doctrinal principles of cooperatives, as well as the interests, routines and incentives identified for them by their members. The procedure used to apply the questionnaires to the members of the fisheries production cooperatives consisted of a General Assembly of members being called. The instrument was applied at the beginning of the assembly.

2.1. Instrument Validation

Content validity of the instrument was achieved through its design and review by research professors of the Faculty of Accounting and Administration of the UADY.

The construct validity of the instrument was determined through exploratory and confirmatory factor analysis and its reliability was determined by obtaining Cronbach's alpha coefficient for each of the three constructs under consideration: Interest, Routines and Incentives. The results are described below.

Construct validity

Construct validity was verified by means of exploratory and confirmatory factor analysis, by obtaining the Kaiser-Meyer-Olkin (KMO) sampling adequacy coefficient, Bartlett's test of sphericity (verified by means of the p-value of the test), both with respect to the adequacy of performing the analysis (Ha, in the case of Bartlett's test), as well as the variance explained by the components associated with each of the dimensions of the questionnaire. The following table presents a summary of the results obtained:

Table 1. FA results: KMO and p-value of Bartlett's test, by dimension.

Dimension	KMO sampling adequacy coefficient	p-value of Bartlett's test of sphericity	Percentage of variance explained by the first component
Interest	0.523	0.000	61.0*
Routines and Procedures	0.675	0.000	55.5**
Incentives	0.677	0.000	54.9**

Source: Obtained from the results of the questionnaires applied, March 2017.

According to a number of authors such as [5], the KMO sampling adequacy coefficient is generally considered satisfactory for the case of Routines and Procedures and Incentives and barely acceptable in the case of Interest. As such, while the instrument could be improved in general, it is considered to have construct validity.

Reliability

On the other hand, reliability was verified by obtaining the Cronbach's alpha coefficient for the constructs under study. The following table shows the results.

Table 2. Reliability analysis results, by dimension.

Dimension	Cronbach's alpha coefficient
Interest	0.464
Routines and Procedures	0.640
Incentives	0.705

Source: Obtained from the results of the questionnaires applied, March 2017.

According to the results of the validity and reliability analyses, although not perfect, the Routines and Incentives sections are considered valid and reliable. This is not the case of Interest, which presents a barely acceptable level of validity and a low and unsatisfactory reliability. The Interest variable was therefore not taken into account in the statistical analyses described in the following section.

2.2. Techniques

The techniques applied were the construction of indices associated with the dimensions or constructs of Routines and Incentives, descriptive statistics, correlation analysis and multiple regression analysis.

Construction of associated indices

To obtain the data on the scores assigned to the cooperatives for each principle, respondents were asked to assign a value of 1 to 10 to each principle, where 1 is the lowest value and 10 is highest value. These responses comprised the score assigned to the principles that are complied with in the cooperatives.

On the other hand, indices associated with the dimensions or constructs of Routines and Incentives were constructed from the cumulative Likert-scale responses to the items

corresponding to each dimension by means of the following expression [1]:

$$Ind_j = \frac{V_{max}(\sum_{i=1}^{n} x_{ij} - V_{minant})}{V_{maxant} - V_{minant}} \qquad (1)$$

Where for each respondent, Ind_j is the corresponding index associated with dimension j, the summation corresponds to the total points obtained for each dimension on the original Likert scale, V_{max} is the maximum value by dimension on the new scale (i.e., 100) and V_{maxant} and V_{minant} are the maximum and minimum values for the dimension on the original Likert scale of 1 to 5.

Descriptive statistics and analysis of Pearson's correlation

Descriptive statistics are a "set of techniques whose purpose is to organize and present the information contained in a sample in a manner that is convenient for its analysis" [6]. Their importance lies in the fact that through descriptive statistics it is possible to reach conclusions about a population from the information contained in a sample.

Pearson's correlation coefficient is the most common measure of linear correlation used in statistics. According to [7], the purpose of correlation "is to study the degree of association that exists between variables; that is, to provide coefficients that measure the degree of mutual dependence between variables".

The values of Pearson's correlation coefficient range from -1 to 1, with the most extreme values indicating the greatest correlation between variables, and 0 indicating the point where no correlation exists. The positive or negative sign of the coefficient indicates whether the relationship is direct (positive) in inverse (negative). Correlation does not imply causality or dependence.

To interpret results in the social sciences, [7] state that if the resulting correlation coefficient is between 0 and 0.2, then the correlation is very weak; if it is between 0.2 and 0.4, it is a weak correlation; if it is between 0.4 and 0.6, then it is a moderate correlation; between 0.6 and 0.8 it is a strong correlation; and between 0.8 and 1 it is a very strong correlation. The same applies to negative values.

For the purposes of the analysis and interpretation of the results of the study, the criteria set out by [7] stated in the previous paragraph will be used.

Multiple linear regression analysis

A multiple linear regression analysis is also included to analyze the combined effect of the Routines and Incentives variables (independent variables) on compliance with cooperative principles, the latter comprising the dependent variable.

2.3. Hypotheses

The general idea of the hypotheses is that the informal constraints, such as perceived routines and incentives, are congruent with, positively and directly correlated with, and also have an influence on formal rules, which consist of compliance with cooperative principles.

The following hypotheses were proposed in this study:

H1: The more positive the perception of the routines and procedures of the organization, the greater the general score assigned to compliance with the doctrinal principles of cooperatives will be and vice versa.

H2: The more positively members perceive the incentives in favor of the organization, the greater the general score these members will assign to compliance with these principles and vice versa.

H3: Routines and incentives significantly influence compliance with the doctrinal principles of cooperatives.

2.4. Population and Sample Size

The population comprised the 824 members belonging to the Regional Federation of the Fisheries Industry of the East Zone of the State of Yucatán [in Spanish: *Federación Regional de la Industria Pesquera de la Zona Oriente del Estado de Yucatán*].

The Regional Federation of the Fisheries Industry of the East Zone of the State of Yucatán is composed of 5 cooperatives:

1. Two cooperatives located in the municipality of San Felipe, in the State of Yucatán, with a total of 254 members.
2. Two cooperatives located in the municipality of Río Lagartos, in the State of Yucatán, with a total of 402 members.
3. One cooperative located in Cuyo, belonging to the municipality of Tizimín, located within the Río Lagartos Biosphere Reserve in the State of Yucatán, with 168 members.

The sample size was determined to estimate the correlation coefficient between the score assigned to the cooperatives by members and the indices of interest, routines and incentives, such that the sample size is given by the expression [2]:

$$n = \left(\frac{Z_\alpha + Z_\beta}{\frac{1}{2}Ln\left(\frac{1+r}{1-r}\right)}\right)^2 + 3 \qquad (2)$$

Where:

Z_α is the Z-value for significance level α (in this case α = 0.05) associated with a certain confidence level (95%, in this case), meaning that the Z-value is 1.96

Z_β is the Z-value for a certain power 1-β (in this case 80%), that is β = 0.2, meaning that the Z-value is 0.84

R is the expected value of Pearson's linear correlation coefficient associated with the relationship under study, in this case r = 0.3 (this value is the result of the pilot study of the instrument).

According to the above data, in principle the sample size turns out to be n = 85 people. Additionally, an expected non-response percentage of 30% was taken into account, such that the required sample size is 111 people, which in practice turned out to be 113 people.

2.5. Study Respondents

The study respondents were the members of the cooperatives located in San Felipe and in Río Lagartos belonging to the Regional Federation of the Fisheries

Industry of the East Zone of the State of Yucatán. The population and sample of these members was determined previously.

The locations of the cooperatives are described briefly below:

4. Two cooperatives in San Felipe. The municipality of San Felipe is located on the north coast of the State of Yucatán. Its main activity is agriculture and fisheries. It has a total population of 1,945 inhabitants, of which 739 make up the economically active population and the majority (46.14%) are agricultural and livestock workers in the primary sector.

    In 2014, the municipality of San Felipe received gross revenue of MXN$28.9 million according to the chapter of income captured through taxes, social security contributions, contributions for improvements, duties, fees, levies, and federal holdings and contributions. The majority (MXN$18.2 million) came from federal and state contributions [8].

5. Two cooperatives in Río Lagartos. Río Lagartos is a coastal town in the State of Yucatán located on the north coast of the Yucatán peninsula. Its principle activities are agriculture and fisheries. The total population is 3,502 inhabitants, of which 1,187 make up the economically active population and the majority (39.93%) are agricultural and livestock workers in the primary sector.

    In 2014, the municipality of Río Lagartos received gross revenue of MXN$21 million according to the chapter of income captured through taxes, social security contributions, contributions for improvements, duties, fees, levies, and federal holdings and contributions. The majority (MXN$10.8 million) came from federal and state contributions [8].

2.6. Study Period

The study period comprised the month of August 2016 to the month of July 2017. The questionnaire was applied during the month of March 2017.

3. Theoretical Framework

3.1. Institutionalism, Formal Rules and Informal Constraints

Fisheries production cooperatives form part of a sector called the social economy. Nevertheless, like all organizations, they face problems in terms of management, worker relations, rule implementation, and continuance over time.

Institutionalism is characterized by the importance that it places on the study of social institutions, the consideration of society as an organism and of individuals as active agents.

In this regard, [4] consider that institutionalism purportedly represents a distinctive approach to the study of social, economic and political phenomena, and the approach taken depends on the discipline from which it is tackled.

In this regard, the institutional context must be taken into account when studying organizations as a factor that explains the behavior and conduct of individuals, because it is within institutions that individuals make decisions, and design and choose between different knowledge alternatives.

According to [9], an organization is the arrangement and obtaining of personnel to facilitate the accomplishment of some commonly-agreed purpose through the allocation of functions and responsibilities.

The same author believes that formal structures represent rationally organized instruments for achieving specific goals. Government, political parties, companies, trade unions, and associations are common examples of modern formal structures.

Formal structures within modern societies are found in highly institutionalized contexts, which is to say that economies, politics and programs function in conjunction with the products and services that must be produced rationally and, as a result, organizations incorporate the practices and procedures defined by organizational work and institutionalized in society.

As such, in order to keep the peace provided by institutional rules, organizations protect their formal structures from the uncertainties of activities by means of loose coupling, establishing gaps between their formal structures and actual work activities.

Reference [10] state that the purpose of formal constraints is to complement and sustain, modify or replace informal constraints, as well as to convert them or direct them towards new formal rules.

Informal constraints are important in their own right and not just as a complement to formal ones. They arise from culture, they are modified slowly and little control is exerted over them in the short term [3].

According to [10], informal limitations are transmitted socially and through culture, which is to say that the transmission occurs from generation to generation, by means of teaching and imitation, of knowledge, values and other factors that influence social behavior.

This is confirmed by the institutional model of [11], which proposes that incentives, interests and routines must be chosen and be congruent based on the proposed goal, which will provide legitimacy to the formal and informal rules in an institution.

Reference [12] asserts that formal and informal institutions are not necessarily or usually created to be efficient in society. They are created and molded to serve the interests of the most powerful people in it, or in other words, the most powerful impose the rules in an institutional sphere and they do so to favor their own interests. Meanwhile, [13] states that institutions are conceived of and focused as constraints or as a product of the actions required to satisfy their interests.

Furthermore, within the institutional perspective, institutions are the environment in which actors design the optimal mechanisms and the means for achieving their ends, conditioning the behavior of agents, establishing permitted or prohibited conduct, by means of their interests and

preference schemes that allow processes to be followed and rules to be created. In the event that there is a conflict of interests, recourse must be made to new rule or law that could transform the organization or the conduct of the actors.

On the other hand, [14] states that a routine is an activity repeated within an organization, performed habitually as an assumed manner of accomplishing an established goal. Routines are an element of great importance for understanding the functioning of an organization, because they explain the way in which organizations perform their tasks on a daily basis, thereby managing to include the regulatory framework of a policy.

Additionally, routines are also important because they allow the complexity of carrying out various policies simultaneously in an organization to be interpreted, especially when organizations have limited resources.

In this regard, researchers believe that routines that are related to the company environment, to the industry that it belongs to, to the technological group in question, to companies from the same industry and from other industries and services require studies on the levels of authority in the hierarchical structure, the strength of the relationship and connection between agents, as well as the schematization of routines with these connections.

The institutional design promoted by [15] establishes that relationships are governed by means of contracts "represented by formal and informal rules and procedures", whose behavior is influenced by the overall set of relationships, rules and procedures. The relationship between the institutional design and the conduct of the people involved or agents is established by means of the incentives imposed by the principal organization and the way in which the agents respond to those incentives.

Reference [15] also state that the purpose of incentives in the institutional model is to align the interests of the agents with the principal organization, given that an efficient system of incentives will manage to link the benefits for agents to the fulfillment of the goals accomplished in the organization.

On the contrary, if the institutional design does not contain incentives that align the interests of the organization with those of the agents, the latter will only act on their own interests.

On the other hand, [16] state that incentive systems are one of the most important support processes for strengthening structural connections throughout an organization, given that they are an instrument for motivating the behavior required of its members. In this regard, there must be a high degree of integration between the structural connections of an organization and incentive schemes; otherwise the organization will be sending out conflicting signals that cause confusion, frustration and substandard performance among the actors. In this context, [17] proposed dividing incentives into extrinsic and intrinsic incentives.

Reference [18] defines extrinsic incentives as rewards external to the worker that are administered by the organization, colleagues or other external actors, such as for example: wages or salary, vacations, commissions,

productivity bonuses and pension plans.

Intrinsic incentives, on the other hand, are all those not limited to the economic side of things, and may be those linked to exercising power or holding a certain position in an organization, stimulating participation and social recognition, as well as achieving personal satisfaction or satisfaction inherent to performing the job.

As far as sanctions are concerned, [11] states that these can be direct, through punishment for a breach of or non-compliance with a formal rule, but they can also come from the disapproval of society due to the violation of a code of conduct or a moral rule.

Sanctions in cooperatives can be social or legal, the former dictated by the community and of a moral nature, and the latter described in the bylaws of the cooperative, as well as within the legal framework of the country of origin of the cooperative.

3.2. Cooperatives

There is a global trend of incentivizing the formation of groups, associations and organizations that seek to generate economic resources, but without negatively impacting the environment, or in other words that manage to achieve a collective efficiency through sustainable development. In this regard, the social economy model arises as an alternative in opposition to capitalist organizations. Cooperatives comprise an essential element of the social economy, because they are also considered to be resilient to financial crises.

Doctrinal Principles of Cooperatives

Article 2 of [19] states that the cooperative principles are: solidarity, self help and mutual help, the purpose of which are to meet individual and collective needs by performing the economic activities of production, distribution and consumption of goods and services.

These principles continue to be set out in Article 6 of the LGSC, which establishes that cooperatives must observe the following principles in their operations:

I.   Freedom of association and voluntary withdrawal of members
II.   Democratic administration
III. Limitation of interest on some contributions of members if so agreed
IV.   Distribution of earnings proportional to holdings of members
V.   Promotion of cooperative education and education in the solidarity economy
VI.   Participation in cooperative integration
VII. Respect for the individual right of members to belong to any political party or religious association
VIII. Promotion of an ecological culture

Furthermore, all worker cooperatives are structured based on the principles, values and operating methods contained in the Statement on Cooperative Identity adopted in the city of Manchester in 1995, within the framework of the International Co-operative Alliance (ICA). Cooperatives develop and strengthen their identity based on the cooperative values of self help, self responsibility, democracy,

equality, equity, solidarity and an ethics based on honesty, openness, social responsibility and caring for others.

According to the Statement on Cooperative Identity adopted at the General Assembly of the ICA (2015), the cooperative principles are as follows:

a) Voluntary and open membership: Co-operatives are voluntary organizations that are open to society, given that they may accept any person as a member, that is, they do not discriminate on social, political, religious, racial, or gender grounds, provided that members are willing to accept their responsibility within the organization.

b) Democratic member control: Cooperatives are also democratically organized by their members, through their active participation in policy creation and decision-making.

c) Member economic participation: The capital of cooperatives is composed of equitable contributions from each of their members. It is common for members of cooperatives to receive economic compensation on capital paid up as a condition of membership

d) Autonomy and independence: Cooperatives are characterized as being self help organizations controlled by their members. If they obtain capital or support from external sources, they ensure democratic control is retained by their members, as well as their autonomy.

e) Education, training and information: Cooperatives also seek to provide education and training for their members, elected representatives, managers and employees in order to contribute effectively to their development.

f) Cooperation among cooperatives: Cooperatives also strengthen the cooperative movement by working together at local, national, regional and international levels.

g) Concern for community: An objective of cooperatives is the sustainable development of their communities.

This work focuses on the following principles: solidarity, self help, mutual help, freedom to voluntarily withdraw, democratic administration, distribution of earnings proportional to the holdings of each member, promotion of cooperative education, promotion of an ecological culture, and contribution of physical or intellectual work by all.

IX. Principle of solidarity

Solidarity is defined by the Real Academia Española ("Royal Spanish. Academy") as "joining in the cause or the enterprise of others based on circumstance", that is, when two or more people join together and mutually collaborate to achieve the same goal.

The principle of solidarity is stated in Article 2 of the LGSC. Cooperative solidarity entails reciprocity between members, and it is understood that members show solidarity when they are all individually responsible for the functioning of the cooperative and the totality of its obligations. In other words, it entails shared responsibility and joint obligations. Furthermore, [20] remarks that solidarity arises from the consideration of the cooperative as a group of members that comprise a collective. In this regard, the interests established in a cooperative go beyond individual interests and are based on the collective interest.

X. Principle of self help

Self help comprises the path by which each person can achieve their own destiny [20]. The principle of self help is stated in Article 2 of the LGSC and can be seen within cooperatives in the form of joint action, as well as the responsibilities and obligations shared by the members of the organization, provided that they set their objectives to achieve a common goal and thereby obtain profits from the cooperative. The latter must be distributed in a manner proportional to the contributions of each member.

XI. Principle of mutual help

Mutual help is considered by the Diccionario Jurídico Mexicano ("Mexican Legal Dictionary") cited by [21] to be reciprocal, spontaneous and irregular help or direct cooperative effort.

The principle of mutual help is also stated in the aforementioned Article 2 of the LGSC. Mutual help in cooperatives stands out in the form of cooperation and it is this that permits the promotion of education and development within the cooperative.

XII. Principle of freedom to withdraw

The principle of freedom to withdraw is mentioned in Section I of Article 6 of the LGSC. It is through this principle that cooperatives are voluntary organizations that are open to society, given that they may accept any person as a member, which is to say they do not discriminate on social, political, religious, racial, or gender grounds, provided that members are willing to accept their responsibility within the organization.

XIII. Principle of democratic administration

The principle of democratic administration refers to the fact that cooperatives are organized democratically by their members, through their active participation in policy creation and decision-making. We can find this principle in Section II of Article 6 of the LGSC.

XIV. Principle of distribution of earnings

Pursuant to the LGSC (Articles 27 and 28), it is a requirement that members personally contribute work, either physical, intellectual or both, to the production cooperative because the annual earnings reported on the balance sheets are distributed in accordance with the work contributed by each member during the year, taking into account that the work can be evaluated based on the following factors: quality, time, and technical and educational level.

XV. Principle of promoting cooperative education

The principle of promoting cooperative education is stated in Section V of Article 6 of the LGSC. Through this principle, cooperatives seek to provide education and training to their members, elected representatives, managers and employees in order to contribute effectively to their development.

XVI. Principle of promoting an ecological culture

Pursuant to the provisions of Section VIII of Article 6 of the LGSC, cooperatives pursue the sustainable development

of their communities through the principle of promoting an ecological culture.

XVII. Principle of physical and intellectual work

Finally, the principle of physical and intellectual work mentioned in Section II of Article 64 of the aforementioned LGSC refers to the manner in which members of production cooperatives may contribute work, which must be personal and can be physical, intellectual, or both.

Based on the review of the literature and for the purposes of this research, the doctrinal principles shall be taken to be the formal rules identified and, on the other hand, the routines and incentives of the institutional design to be the informal constraints, in order to comply with the aforementioned research goal.

The following section begins by describing the characteristics of the study respondents and then describes the results of the correlations between: a) the formal rules represented by the score perceived and given by members of the cooperatives on compliance with the doctrinal principles of cooperatives, and b) the informal constraints represented by the index of routines and the index of incentives based on the perception of the members of the cooperatives.

4. Results

This section presents the results obtained in the questionnaires applied to 113 members of the 5 cooperatives belonging to the Regional Federation of the Fisheries Industry of the East Zone of the State of Yucatán.

4.1. Sample Characteristics

The majority of respondents were men, who represented 98.2% of the sample, while only 2 respondents were women, representing just 1.8% of the sample.

Nevertheless, according to data from the [22], the productive-economic sector of fisheries and aquaculture has recorded an increase in the proportion of women, who currently represent 10% of the population and present the greatest average annual growth rate of 5.6%, meaning that is highly likely that there will be an increase in the percentage of women in fisheries production cooperatives in the coming years.

In terms of the age of the respondents, the average was 41 years, and it can be seen that the respondents presented a relatively uniform distribution. The most representative age group was 30 to 39 years with 29.2%; followed by the age group of 40 to 49 years, representing 27.4%; and finally the age group of 50 to 59 years, with a total of 24.8% of the sample.

Furthermore, small groups of opposing ages were observed. The youngest group with a range between 20 and 29 years and the oldest group with a range between 60 and 69 years accounted for 15.9% and 2.7% respectively.

Meanwhile, in terms of educational level, it can be seen that the greatest percentages correspond to junior high school level, with 34.5%, and elementary school level with 32.7%, followed by those with no formal education, who represented

19.5%, and finally those who had studied senior high school with 11.5%.

The cumulative percentage of people who attended elementary school and junior high school shows that 67.2% of the members of the fisheries cooperatives surveyed had completed the mandatory level of basic education in accordance with the provisions of Article 3 of the [23].

In terms of the number of years as members, the average membership was 17.27 years. The majority of respondents (37.5%) had been members of the cooperative for up to 10 years. In second place, 27.6% of members were observed to have been members of the cooperative for over 10 years and up to 20 years. In third place, with a percentage of 14.3%, were those who had been members for over 20 and up to 30 years, followed by just 20.6% who had been members for over 30 years.

Regarding the type of member mentioned within Section 2 of Article 64 of the General Law on Cooperatives (LGSC), which states that members of production cooperatives must personally perform work, whether physical, intellectual or both, the results of the study showed that 3.5% of members contributed capital and 86.7% contributed work to the fisheries cooperative, and just 9.7% contributed both work and capital.

Furthermore, these results provide information on the positions held by members in the fisheries cooperatives in management, administration and supervision through the General Meeting, the Board of Directors, and the Supervisory Board, as well as the commissions and other committees established in the Chapter IV of the LGSC. In accordance with their responses, 18.6% of respondents stated that they held a position in the cooperative. Of those who stated that they held a position, two respondents were secretaries and the other two presidents. Only one person stated that they were a treasurer and the rest only mentioned that they took part in the fisheries cooperative with some other unidentified position.

Meanwhile, in terms of the training obtained on tax matters, the results of the interviews indicated that just over half or 55.8% were unaware of the courses offered by the Tax Administration Service (in Spanish: *Servicio de Administración Tributaria*; SAT). Of the 44.2% who were aware of the courses offered by the SAT, 10 people had attended at least one course, eight to nine people had attended two to four courses, two to three people had attended between six and 10 courses, and just one had taken part in 15 courses offered by the SAT on tax matters.

4.2. Descriptive Analysis of the Study Variables

This section includes the descriptive statistics of the results reflected by the score assigned by respondents in relation to how important they consider the principles of solidarity, self help, mutual help, freedom to withdraw, democratic administration, distribution of earnings, promotion of cooperative education, promotion of an ecological culture, and physical or intellectual work to be within the fisheries cooperative to which they belong.

In this regard, the average overall score for all respondents of the questionnaire was 8.94, which positions the fishing cooperative within the range of outstanding, given that is less than two points away from obtaining the maximum score (10 points).

Furthermore, the respondents deemed the aspect of "freedom to withdraw" to be the most important, given that it obtained an average score of 9.79 points, and this was the highest score assigned to any of the principles. Next the respondents deemed "physical or intellectual work" to be the second most important aspect to them, giving it an average score of 9.15 points. The following principles to stand out based on the average scores assigned were the principles of "self help" and "mutual help", with 9.07 and 9.02 points.

Meanwhile, the principles of "solidarity", "promotion of cooperative education" and "distribution of earnings" were the three aspects with the lowest average scores, obtaining 8.15, 8.5 and 8.9 points respectively.

Additionally, the information from the questionnaires revealed that, while the average scores were high in general, one person scored the principles promoted by the cooperative significantly below five points (3.89) and another below seven points (6.44).

4.3. Correlation Analysis

The correlation matrix for a sample of 113 members of fisheries production cooperatives was produced, and the relationship between the score assigned to the cooperative on compliance with the doctrinal principles and the indices of routines and incentives was analyzed. The results for this sample are presented in the following table:

***Table 3.** Correlations.*

		Score assigned to the cooperative	Routines index	Incentives index
Pearson's correlation	Score assigned to the cooperative	1.000	.555	.032
	Routines index	.555	1.000	.298
	Incentives index	.032	.298	1.000
Sig. (one way)	Score assigned to the cooperative	.	.000	.370
	Routines index	.000	.	.001
	Incentives index	.370	.001	.
N	Score assigned to the cooperative	113	113	113
	Routines index	113	113	113
	Incentives index	113	113	113

Source: Prepared by the authors based on the results of the questionnaire, March 2017.

As a result of the analysis performed on Table 1, it is concluded that the variable of the general score assigned to the cooperatives[1] has a Pearson's correlation of 0.555 with routines (p= 0.000), which according to authors such as [7] is a moderate correlation. This means that the routine, which was measured based on what is really done in cooperatives with respect to cooperative principles, is related to or associated with the perception of how members rated the cooperatives in general.

Hypothesis H1 was confirmed to a moderate degree: The more positive the perception of the routines and procedures of the organization, the greater the general score assigned to compliance with the principles of cooperatives will be and vice versa.

On the other hand, the correlation found between the score assigned to the cooperatives and the incentives index was 0.032, showing a very weak correlation [7]. As such, the following hypothesis was confirmed to a minimal degree: H2: The more positively members perceive the incentives in favor of the organization, the greater the general score these members will assign to compliance with these principles and vice versa.

Both results explain that while Routines and Incentives are informal constraints within organizations on compliance with a formal rule, in this case the routines and not the incentives are observed to be more strongly correlated with compliance with the formal rule, which for the purposes of this work refers to cooperative principles.

In this case, it is important to note that the routine, which is "custom or habit acquired from doing things simply through practice and in a more or less automatic manner"[2], is more important in this case than Incentives, which are defined as something "that moves or excites one to desire or to do something"[3]. This result confirms that this federation of cooperatives has institutionalized compliance with cooperative principles in their daily activities and they do not require additional incentives to comply with them, which can be deemed something worthy of recognition, because the members of the cooperatives are inherently committed to these principles.

On the other hand, it is important to stress that a future change in the formal aspect of these cooperative principles, contrary to what exists in the present day, would involve greater effort to accept the change, given that the members of these cooperatives act through personal conviction and not based on the perception of some kind of incentive.

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1 The general score assigned is composed of the results that the members of the fisheries production cooperatives assigned to the aspects promoted by the cooperatives (solidarity, self help, mutual help, freedom to withdraw, democratic administration, distribution of earnings, promotion of cooperative education, promotion of an ecological culture, and physical and intellectual work).

2 Definition of routine according to the Real Academia Española, Diccionario de la Real Academia Española, 2017, http://dle.rae.es/

3 Definition of incentive according to the Real Academia Española, Diccionario de la Real Academia Española, 2017, http://dle.rae.es/

4.4. Multiple Linear Regression Analysis

In order to analyze the level of influence between the indices of routines and incentives on compliance with the aforementioned doctrinal principals, a multiple linear regression model was constructed, with the score assigned to compliance with these principles as the dependent variable and the indices of routines and incentives as the independent variables (x1 y x2 respectively). The expression of the model was:

$$y = 0.424x_1 - 0.074x_2 + 59.11 \qquad (3)$$

The significance level of this model was 0.05 and the Enter method was used. The results showed that only routines significantly influence compliance with these doctrinal principles, given that they produced a standardized regression coefficient in the regression model of b = 0.598 (p-value = 0.000) (See Table 4).

Table 4. *Summary of the multiple regression model (dependent variable: Score assigned to the cooperative).*

Predictive variables	Regression coefficient	Standardized regression coefficient	t	Value p
Indice of routines	0.424	0.598	7.3	0.000 (***)
Indice of incentives	-0.074	-0.147	-1.788	0.077 (*)
Constant	59.11		11.773	0.000 (***)
	Valor	Valor p		
Ryx1	0.555	0.000 (***)		
Ryx2	0.032	0.370 (NS)		
R2 ajustado	0.315			
F	26.73	0.000 ***		

*** value-p < 0.001, ** value-p ≤ 0.05, * value-p ≤ 0.1; NS, Not significant (valor p > 0.1)
Source**:** Prepared by the authors based on the results of the questionnaire, March 2017.

The statistical tests associated with the verification of the assumptions of the model, is presented in Table 5.

Table 5. *Results of Multiple linear regression analysis.*

Concept	Enter method	Observations
Equation of the model	Y = 0.424x$_1$ - 0.074x$_2$ + 59.11	y = Score assigned to the cooperative x1 = Indice of routines x2 = Indice of incentives
Correlation coefficients	r$_{yx1}$ = 0.555 (0.000**) r$_{yx2}$ = 0.032 (0.370 NS)	In parentheses, the p-value of the coefficients
Adjusted coefficient of determination	R^2 = 0.315 (31.5%)	
Coefficient of Durbin Watson	DW = 1.922 The assumption is fulfilled.	The coefficient allows to review the assumption of independence
Value-p of ANOVA	0.0.00 (***) The model is lineal	The p-value allows to review the linearity assumption
P-value of the t-tests	Para B$_0$ = 0.000 (***) Para B$_1$ = 0.000 (***) Para B$_2$ = 0.077 (*) The model is lineal	The p-value allows to review the linearity assumption and the statistical significance of the regression coefficients.
Tolerance	Tol x1 = 0.911 Tol x2 = 0.911 The assumption is fulfilled.	Its value allows to review the assumption of non-collinearity.
Value-p of Kolmogorov-Smirnov	0.098 * The assumption is fulfilled.	The p-value allows to review the normality assumption
Standardized predictions against standardized residuals	The graph is a random cloud. The assumption is fulfilled.	The graph allows to review the assumption of homoscedasticity

*** value-p < 0.001, ** value-p ≤ 0.05, * value-p ≤ 0.1; NS, Not significant (value p > 0.1)
Source: Prepared by the authors based on the results of the questionnaire, March 2017.

5. Conclusions

The analysis of the formal and informal constraints of fisheries production cooperatives under the institutional approach aims to identify the values, routines, incentives, sanctions and rewards that influence the behavior of the members of cooperatives by means of conduct, through the values stated in the doctrinal principles of cooperatives.

This work presents the theoretical framework and the analysis of the results obtained by applying questionnaires on compliance with formal rules and the identification of informal constraints to a sample of 113 members of the Regional Federation of the Fisheries Industry of the East Zone of the State of Yucatán.

With regard to H1, the results showed that informal constraints in the form of routines are moderately correlated with the level of compliance with the formal rules. Regarding the results for H2, it was confirmed that informal constraints in the form of incentives are very weakly correlated with the level of compliance with the formal rules. And with regard to H3, based on a joint analysis of the variables, only routines

significantly influenced compliance with these doctrinal principles. Based on the above, it is concluded that routines and not incentives are the factors that influence compliance with the doctrinal principles of cooperatives.

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