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The role of the cooperative model in sustainable development: 
Case of agricultural cooperatives in the SOUSS MASSA region in Morocco

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Summary:

The question of sustainable development is generally based on the activity of economic actors in implementing the challenges of the sustainable development model. In developing countries in Morocco, and which continues to exist with my new industrialized countries, cooperatives are one of the engines of growth and development, allowing initially reducing the scale of precariousness, inequalities and underdevelopment between regions and cities. At this level, cooperatives have several commitments; in particular, respect for the environment through compliance with standards that serve to assess the latter is capacity to satisfy the needs of its customers, the repair of wealth and the rise in inequalities. . In this work, we seek to ensure that sustainable development is strongly linked to the development of the cooperative model.

Keywords: cooperative, sustainable development
1. Introduction

The objective of this research work is the treatment of some methodological and analytical tools through the exploitation of the data collected through our questionnaire paper. These tools will constitute a technical guide for analyzing and interpreting the results.

In order to answer our research problem we will try to collect data, and validate the research model, which will help us answer the latter. First, we will present the results of our exploratory study of the research field. Secondly, we will present the questionnaire and its analysis methods, as well as its progress. Finally, the third part will be devoted to the presentation of the results, and their analysis and discussion, as well as the verification of the hypotheses.

The objectives of the research

Analyzing the role of cooperatives in sustainable development involves determining the aspects of cooperatization to influence socio-economic development. In our research work, we will try to combine aspects of cooperation and the determinants of sustainable development.

This problem raises the following question:
- What are the aspects of cooperation?
- Will the analysis of interactions be able to understand the effect of cooperatives on sustainable development?

It is with this in mind that this research proposes:

- On the one hand, to identify and analyze the determinants of sustainable development, by defining and combining the economic, social and environmental aspects with the cooperative.
- On the other hand, it is to show the importance of the cooperative model.

In order to answer our research problem, we formulated these research hypotheses, which we can consider as provisional answers. Our problem is as follows:

Does the cooperative model contribute to sustainable development? If yes, how?
In order to answer this problem we defined the following hypotheses:

- **Hypothesis 1**: the identification of markets for cooperatives depends on the nature of their economic activity;
- **Hypothesis 2**: the number of jobs created by cooperatives contributes positively to sustainable development;
- **Hypothesis 3**: Certification of the quality of agricultural products is a necessary condition for sustainable development;

2. Exploratory study

From the data collected, we discovered that the people to whom we can send our questionnaire, and from whom we can have the information to answer our problem, are the managers of the cooperatives who are capable of answering our various questions. We have approximately 15 cooperatives chosen randomly in the SOUSS MASSA region in Morocco, and which are presented in the following table:

<table>
<thead>
<tr>
<th>Cooperative name</th>
<th>Activity area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative 1</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 2</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 3</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 4</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 5</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 6</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 7</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 8</td>
<td>Argan oil</td>
</tr>
<tr>
<td>Cooperative 9</td>
<td>sewing</td>
</tr>
<tr>
<td>Cooperative 10</td>
<td>sewing</td>
</tr>
</tbody>
</table>
As our second research point, we carried out semi-structured individual interviews with the leaders of the cooperatives through previously established research themes. These themes were included in an interview guide. We identified the themes covered based on the various components of our research. Questions were opened. However, there were questions that were precise, while leaving room for flexibility for the interviewee, in order to adjust to their lived reality.

2.1 maintenance guide

At this level, the first questions are open-ended, which leave the manager of the cooperative to give his answers freely. The rest of the questions are semi-closed, which serves to see the reality of each cooperative and to evaluate the relationship of cooperatization with sustainable development.

<table>
<thead>
<tr>
<th>Table 2: interview guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>theme 1:</strong> General information</td>
</tr>
<tr>
<td><strong>theme 2:</strong> cooperative–ecology relationship</td>
</tr>
<tr>
<td><strong>theme 3:</strong></td>
</tr>
</tbody>
</table>
The interviews we carried out by telephone, lasting from 15 to 20 minutes in order to avoid any problem allowing our interviews to be blocked. With the consent of the participants, the interviews are recorded to save all content.

2.2 Qualitative data analysis

At this level, and to carry out a good analysis, we have grouped the results according to three pillars, namely the social, economic and environmental pillar that can be considered as pillars of sustainable development.

2.2.1 Environmental pillar

The environmental pillar is the main pillar of sustainable development. Indeed, there are several parameters through which we can know if a cooperative can be considered socially responsible and which has a positive impact on its environment.

The ultimate objective of this work is to seek the links between cooperatives and their environments and to look into responsible ecological practices, at this level we seek to answer all the questions:

- Are cooperatives raising enough awareness about the environmental issue?
- Do cooperatives adhere to the principles of sustainable development?

As part of the measurement of ecological practices, initially, we are interested in waste management according to two types of cooperatives:

<table>
<thead>
<tr>
<th>Cooperative</th>
<th>The activity</th>
<th>Waste management</th>
</tr>
</thead>
</table>

Source: by the author
Production of edible argan oil

- Fruit harvesting and drying;
- Pulp the fruit to separate the nuts from the pulp;
- The nuts are crushed to obtain fines;
- The fines are mixed in a mold to obtain a paste which will then be mixed with water and kneaded by hand to extract the oil.

- Waste due to separation of the kernel from the pulp. The latter constitutes a waste which is exploited in livestock breeding;
- Waste resulting from the crushing of nuts. This shell is exploited in the ovens by lighting the fire;
- The dough that is kneaded to obtain oil. It is used in the production of cosmetic goods such as creams and soaps.

Sewing cooperatives and textiles

- These cooperatives recycle waste, particularly in the manufacturing and production of small rugs;
- They sell the residues to other cooperatives which can be considered as a raw material for the manufacture of their products such as the filling of mattresses or pillows, or the manufacture of carpets.

Source: by the author

2.2.2 Social pillar

Generally, we have observed that the few cooperatives bring together only men and others only women, but on the other hand, there are cooperatives, which bring together both sexes at the same time. This difference mainly comes down to the nature of activity carried out by cooperatives. However, what we especially note is that 12 cooperatives, or the majority, are women's cooperatives. The second remark, the age range varies between 17 years and 68 years. Third, remark, we noted that two cooperatives integrate a disabled person each. These disabled people carry out their work correctly like the rest of the members. Fourth remark, then what we are talking about social protection, we have observed that the side of social protection is absent through the absence of work insurance and life insurance contracts for the benefit of members. However, the presidents of cooperatives all intend to do so, especially with the entry into force of the new law 112.12, which governs cooperatives.

On the other hand, and to ensure the motivation and improvement of the working conditions of members, training has been considered by several factors such as INDH.
The directors of the cooperatives affirm that all children have access to primary school. However, at the colleague level, who is further from their douar, the children, and especially the girls, cannot access it given the critical financial situation of their parents. The majority of cooperative directors say that their daily lives and that of their members have improved, because they currently have a more or less stable job that provides them with a more or less stable income to meet their basic needs.

2.2.3 Economic pillar

These bring together cooperatives which have the same activity, the same objective or which target the same clientele. This group has a special status. It is far from being a company, the group is rather close to the cooperative insofar as its goal is to make the economic activity of its members more developed, and also improve their results and facilitate the marketing of products. However, members are paid according to their productivity.

The directors of the cooperatives affirm that the standard of living of the members has improved thanks to their income, which is primarily used to meet their basic needs. However, they characterize this income as unstable and mediocre, since orders placed by customers are seasonal and generally insufficient to generate growth at the cooperative.

3. Confirmatory analysis

After evaluating the quality of fit of the model, it remains to validate the items. Indeed, one of the main purposes of a confirmatory factor analysis is to assess the validity of measurement scales. It is important to evaluate the validity to standardize the measurement scales and assess the level of real representation of the latent variables of the theoretical model.

Examining the validity of measurement scales involves analyzing the convergent validity and discriminant validity of the measures (Schumacker and Lomax 2004; Hair, Black et al. 2009; Byrne 2010; Kline 2011). According to these authors, SEM provides relevant statistical results for estimating the validity of measurements.

From this perspective, our estimated model can be visualized, as we will see in the figure below.

Many data analysis software programs dealing with the SEM method have emerged, among the best known and most consulted software programs we find LISREL and AMOS. SPSS Inc. Thanks distribute the latter to the various new version; the performance of this
3.1 Presentation and analysis of results

The objective of this section is to present the descriptive analysis of the data collected. The exploitation and description of the data form a preliminary and essential step before beginning the phase of testing the model and hypotheses.

3.1.1 The results of the questionnaire

Through our questionnaire, we have:

a) Economic component

At this level, we chose five variables, namely: economic activity; membership of a GIE; consumption of raw materials; turnover; and quality certificate.

➢ Economic activity

The intuitive graphical representation can lead us to better appreciate the raw data in the table above. This means that we will base ourselves on the results of the investigation to analyze the nature of the economic activities of cooperatives. We note at this level that 30% of cooperatives are argan cooperatives, 41% are beekeeping cooperatives, and 29% operate in around ten other activities. Which leads us to conclude that in the vast majority of cooperatives in the Agadir region, they are mainly oriented towards argan and beekeeping, as confirmed by the graph below.

Graph 1: The economic activity of cooperatives

Source: Developed by the author
Membership of a GIE

The surveys attempted to answer the following question: are you a member of an economic interest group (EIG)? The directors of the cooperatives responded with:

Graph 2: Membership of an economic interest group
Source: Developed by the author

As we see in the graph, 42% of agricultural cooperatives are members of a GIE, which shows the awareness of cooperatives of the importance of the role of GIEs which is increasingly considerable.

Consumption of raw materials

The respondents tried to answer the following question: How many raw materials do you consume? The question is digital open response. The observations are grouped into seven classes of equal amplitude.
In this sense, the average quantity of raw materials recorded for cooperatives is 600,335.00 DH.

Graph 3: Consumption of raw materials

Source: Developed by the author

It should be noted that the raw material is harvested or purchased from suppliers, which demonstrates the variability of the volumes consumed.

➢ Turnovers achieved

This question deals with the turnover of agricultural cooperatives; the question is a numerical open response. The observations are grouped into seven classes of equal amplitude.

Table 3: Turnovers achieved by cooperatives

<table>
<thead>
<tr>
<th>Turnover</th>
<th>Nb cit.</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 500,000</td>
<td>189</td>
<td>53.00%</td>
</tr>
<tr>
<td>From 500,000 to 1,500,000</td>
<td>15</td>
<td>7.00%</td>
</tr>
<tr>
<td>From 1,500,000 to 2,500,000</td>
<td>59</td>
<td>15.00%</td>
</tr>
<tr>
<td>From 2,500,000 to 3,000,000-</td>
<td>12</td>
<td>3.50%</td>
</tr>
<tr>
<td>4,000,000 and more</td>
<td>63</td>
<td>21.50%</td>
</tr>
<tr>
<td>TOTAL OBS.</td>
<td>338</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Developed by the author

We note that the average turnover is 1,150,200 DH, likewise, 53% of cooperatives have a turnover of less than 500,000 DH that means that their activities are average or even limited, 15% have a turnover between 500,000 DH and 1,500,000 DH, and 63% over 4,000,000 DH.
Do you obtain quality certificates? The objective of this question is to determine the number of cooperatives seeking to invest in quality certificates. The results of the analysis of the data collected, we have 65% of cooperatives having a quality certificate allowing cooperatives to market their products in several locations.

Graph 4: Holding quality certificates

Source: Developed by the author

b) social aspect of sustainable development

In the analysis of this pillar, we chose five variables, namely: stable income of cooperative members; job creation and working conditions.

➢ Stable member income

The interviewees were asked to answer the following question: did the cooperative ensure a stable income for members?

Among the primary objectives of agricultural cooperatives, we note the assurance of a stable income for the member, which allows them to have a certain autonomy and guarantees them a regular source of money, which ensures their subsistence.

Graph 5: Stable income of cooperative members
Analysis of the graph shows that 80% of agricultural cooperatives manage to guarantee a stable income to members while only 20% do not.

- **Job creation**

  We asked respondents if their cooperative regularly creates jobs.

  [Graph showing job creation percentages]

  Generally, cooperatives are considered as actors who have a very important role alongside businesses in terms of direct and indirect job creation. Job creation, particularly in areas suffering from insecurity and poverty, remains a priority to guarantee social equality between regions and cities. Given the geographical location of Morocco, and the absence of businesses in several cities which remains a major obstacle to job creation, at this level, the development of the cooperative is the only solution for citizens to improve socio-economic conditions. According to the data collected, we find that 70% of agricultural cooperatives do not tend to regularly create jobs. The directors of the cooperatives, who specified that there was an absence of subsidies and support, particularly from state actors, commented this result on.

- **Working conditions**
Table 5: Working conditions

<table>
<thead>
<tr>
<th>Working conditions</th>
<th>Nb cit.</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfavorable</td>
<td>55</td>
<td>17.5%</td>
</tr>
<tr>
<td>Favorable</td>
<td>149</td>
<td>46.0%</td>
</tr>
<tr>
<td>Perfectly supportive</td>
<td>134</td>
<td>36.5%</td>
</tr>
<tr>
<td>TOTAL OBS.</td>
<td>338</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Developed by the author

Concerning the working conditions within agricultural cooperatives allowing the exercise of work in the best conditions. Moreover, the directors of cooperatives, most of whom, specify that the conditions are favorable, even perfectly favorable, while 17.5% think that their working conditions are unfavorable.

c) The environmental aspect

In terms of this aspect, we opted for the following two variables: the adoption of renewable energies and the recycling of waste

➢ Renewable energies

This question concerns the use of renewable energies at the level of cooperative activity.

Graph 7: Renewable energies

Source: Developed by the author

Analysis of the graph shows that 65% of cooperatives do not adopt renewable energies, according to the declarations of cooperative directors the cost of renewable energy remains higher, and in the absence of means and financing, cooperatives can no longer opt for this type of energy.

➢ Waste recycling
Table 6: Waste recycling

<table>
<thead>
<tr>
<th>Waste recycling</th>
<th>Nb cit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>301</td>
</tr>
<tr>
<td>No</td>
<td>37</td>
</tr>
<tr>
<td>TOTAL OBS.</td>
<td>338</td>
</tr>
</tbody>
</table>

Source: Developed by the author

At this level, we can observe that 89% of agricultural cooperatives are moving towards waste recycling.

3.1.2. Modeling using SEM approach

The SEM (Structural equation model) approach is based on a specified methodological approach, which makes it possible to follow a progressive path based on a range of steps (Hair et al. 2009). In this wake, we will highlight the main phases

a) Model specification

Specifying the model relies on the graphical representation of the overall model measurement diagram (Path diagram). In this phase, the various elements of the model and the supposed relationships between them are specified.

The idea is to estimate the model equations through a SEM approach based on the LISREL method. To do this, we have drawn up the table below, capable of specifying the model, while creating indicators for each variable and establishing causal pathways of the model.

Table 8: dependent variables of the triangle

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>shutters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belonging to a GIE</td>
<td>economic aspect</td>
</tr>
<tr>
<td>MP consumption</td>
<td>economic aspect</td>
</tr>
<tr>
<td>Turnover</td>
<td>economic aspect</td>
</tr>
<tr>
<td>Economic activity</td>
<td>economic aspect</td>
</tr>
<tr>
<td>Quality certificate</td>
<td>economic aspect</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Level of education</td>
<td>social aspect</td>
</tr>
<tr>
<td>Job creation</td>
<td>social aspect</td>
</tr>
<tr>
<td>Working conditions</td>
<td>social aspect</td>
</tr>
<tr>
<td>Waste recycling</td>
<td>environmental aspect</td>
</tr>
<tr>
<td>Renewable energies</td>
<td>environmental aspect</td>
</tr>
</tbody>
</table>

Source: elaborated by the author

Table 8: variables of the concept of cooperatization as independent variables

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>shutters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Cooperative aspect</td>
</tr>
<tr>
<td>Marketing market</td>
<td>Cooperative aspect</td>
</tr>
</tbody>
</table>

Source: elaborated by the author

At this level we can say that our model will be presented by 12 variables grouped between three factors of exogenous variables and one factor of endogenous variables, at this level and to succeed our model all the variables will be considered as latent variables.
b) Model identification

After model specification, we move on to model identification. Generally, the evaluation of the model involves checking the number of degrees of freedom which remains an order condition. The sus indicator can be identified by the difference in correlations between the measured variables and that of the parameters to be estimated.

Table 9: Calculation of the degree of freedom of the model (Amos 22.0)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of distinct values in the population</td>
<td>171</td>
</tr>
<tr>
<td>Number of distinct parameters to estimate</td>
<td>34</td>
</tr>
<tr>
<td>Degree of freedom ((171 - 34)) =</td>
<td>137</td>
</tr>
</tbody>
</table>

Source: Developed by the author
The identification of the hypothetical model was assessed. The order condition is well verified and the degree of freedom is positive (dll=137). A value greater than zero is necessary to identify the model (Schumacker and Lomax (2004). In our case, the model developed here is over-identified.

c) Model estimation

The next step in the modeling process is parameter estimation, using standardized values of the estimated parameters. At this level, according to the results of the estimation of the model parameters confirm that all the items of the values had corresponding contribution values which are greater than 0.5.

However, the critical ratio CR, which measures the significance of the correlation coefficients, displays variables above the critical value of 1.86 with a significance level of 5%. So, the coefficients are statistically significant attesting to the convergent validity of our model, apart from the property type & marketing market variables which had the minimum value of the Critical Ratio, i.e. 0.150.

In this table, we present the representativeness of each variable in our model:

<table>
<thead>
<tr>
<th>Measurement variables</th>
<th>Latent variables</th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education</td>
<td>SOCIAL PILLAR</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job creation</td>
<td>SOCIAL PILLAR</td>
<td>.510</td>
<td>.118</td>
<td>9,302</td>
<td>***</td>
</tr>
<tr>
<td>EIG</td>
<td>ECONOMIC PILLAR</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw materials</td>
<td>ECONOMIC PILLAR</td>
<td>2,195</td>
<td>.419</td>
<td>15,222</td>
<td>***</td>
</tr>
<tr>
<td>Turnover</td>
<td>ECONOMIC PILLAR</td>
<td>2,800</td>
<td>.830</td>
<td>23,605</td>
<td>***</td>
</tr>
<tr>
<td>Waste recycling</td>
<td>ENVIRONMENTAL PILLAR</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renewable energy</td>
<td>ENVIRONMENTAL PILLAR</td>
<td>.630</td>
<td>.038</td>
<td>18,000</td>
<td>***</td>
</tr>
</tbody>
</table>
In order to verify the relevance of the model, we must go through this step to give more credibility to the identified model. Assessing the goodness of fit of the model is the fourth step of the modeling methodological approach.

The results obtained show a good fit of our model, while comparing the values of the indices and the critical values, of which we found that the calculated values exceed the critical values. From here, we can affirm that our model has a perfect quality of fit, capable of drawing meaningful conclusions depending on the causal links between the variables.

**Table 10: Summary of model fit indices (Amos 22.0)**

<table>
<thead>
<tr>
<th>Adjustment indices</th>
<th>Model value</th>
<th>Critical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute indices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CMIN/ dll</td>
<td>2,796</td>
<td>&lt;= 2.43</td>
</tr>
<tr>
<td>• GFI</td>
<td>0.934</td>
<td>&gt;= 0.85</td>
</tr>
<tr>
<td>• NNFI</td>
<td>1.472</td>
<td>&gt;= 0.73</td>
</tr>
<tr>
<td>• RMSEA</td>
<td>0.022</td>
<td>&lt;= 0.14</td>
</tr>
<tr>
<td>Incremental indices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IFI</td>
<td>0.997</td>
<td>&gt;= 0.80</td>
</tr>
<tr>
<td>• CFI</td>
<td>0.975</td>
<td>&gt;= 0.79</td>
</tr>
<tr>
<td>• TLI</td>
<td>0.902</td>
<td>&gt;= 0.79</td>
</tr>
</tbody>
</table>
The goodness-of-fit indices show that the quality of the developed model is good. Therefore, the model makes it possible to reproduce the variance-covariance matrix of the empirical data. Thus, the goodness of fit of the model is identified. Accordingly, its validity can be assessed. The following paragraph will therefore be devoted to assessing the convergent and discriminant validity of the model.

4. Confirmatory analyzes and discussions of results

Before discussing the results obtained, we remember to recall our hypotheses: In this section, we will highlight the backbone of our research work, through the discussion of the main results found and the verification of the hypotheses research questions previously asked. As a reminder, these hypotheses are stated as follows:

- **Hypothesis 1**: the identification of markets for cooperatives depends on the nature of their economic activity;
- **Hypothesis 2**: the number of jobs created by cooperatives contributes positively to sustainable development;
- **Hypothesis 3**: Certification of the quality of agricultural products is a necessary condition for sustainable development;

In order to answer our research problem, we formulated these research hypotheses, which we can consider as provisional answers. Our problem is as follows:

**Does the cooperative aspect contribute to sustainable development? And if so, how?**

- **Hypothesis 1**: the identification of markets for cooperatives depends on the nature of their economic activity;

Through the descriptive analysis, we concluded that cooperatives and the image of cooperatization in the region is present throughout the region. This behavior even exists internationally. This presence can be explained by the increased desire of agricultural cooperatives to anchor their performance to that of neighboring centers. Hence, the first hypothesis is confirmed.
Hypothesis 2: the number of jobs created by cooperatives contributes positively to sustainable development;

One of the characteristics of rural areas is low employment at all levels, skilled workers, unqualified workers, young people and women. Quite simply the distance between city centers and rural areas, as well as the concentration of production units in city centers, which can make access to employment difficult, can explain this weakness. One of the most favorable solutions to solve this problem is the agricultural cooperative taking advantage of the natural conditions of these areas. At this level, cooperatives can be considered as a locomotive to combat the problem of poverty and unemployment. The results obtained through the estimation of the SEM model show that jobs created by cooperatives in our region remain low; hence, we rejected the second research hypothesis.

- **Hypothesis 3**: Certification of the quality of agricultural products is a necessary condition for sustainable development;

The objective behind this hypothesis is to see to what extent companies are aware of the importance of respecting the environment. To ensure this hypothesis, the traceability process based on the quality of the products, from manufacturing to consumption by the customer, makes it possible to evaluate the contribution and participation of cooperatives in compliance with the environment and customer satisfaction.

5. Conclusion

We can therefore conclude that the cooperative has a commitment to respect the environment through compliance with the standards which serve to assess the latter's capacity to satisfy the needs of its customers. At this level, the quality certification process allows the cooperative to face the increased competition existing on the market as well as to target new, more demanding markets. The modeling results lead us to confirm this hypothesis.

To conclude, sustainable development is strongly linked to the development of the cooperative model. Generally, the activities developed, including rural areas, show that cooperatives constitute a springboard not only for socio-economic development, but also for sustainable development in the SOUSS MASSA region.

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