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RESEARCH ARTICLE

SUSTAINABILITY OF AGRICULTURAL COOPERATIVES: A CASE STUDY OF FOUR MOROCCAN DAIRY COOPERATIVES

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ABSTRACT

For several decades Moroccan agricultural cooperatives have been faced with a radical change in their environment, as well as changes in agricultural policy. The aim of this article is to explore the explanatory factors for the sustainability of dairy agricultural cooperatives in an imprecise environment. To do this, an approach based on the exploratory study of four dairy cooperatives is mobilized. The data were collected by semi-structured interviews with cooperative managers and stakeholders from the four dairy cooperatives, observations during field visits, and collection of archive data. The results show that the financial situation, resilience, and dynamic capacities of a cooperative are necessary conditions for its sustainability. These conditions can help support the cooperative society in another sector of agriculture in Morocco, such as, honey and citrus. Therefore, action is needed to strengthen sustainable agricultural cooperatives in all sectors in Morocco. This work contributes to research on sustainability by extending it to a particular form of organization, namely dairy cooperatives, which are different from companies belonging to traditional or entrepreneurial investors.

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INTRODUCTION

All over the world, cooperatives have a strong presence in the agricultural sector; they are involved in the production and / or marketing of food to consumers (Food & Agriculture Organization of the United Nations (FAO), 2019). In Morocco, agricultural cooperatives occupy a significant place in the national economic fabric. They play a predominant role in sustainable development, as they represent a significant part of the country's economic and social development programs. Since the launch of the National Initiative for Human Development (INDH) and the Green Morocco Plan (PMV), the Moroccan government and its partners have supported the development of cooperatives as an instrument for agricultural development, and more specifically poverty reduction and social inclusion.

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A cooperative is "an autonomous association of people who have come together voluntarily to fulfill their aspirations and meet their common economic, social, and cultural needs through a democratically managed and collectively owned enterprise" (International Co-operative Alliance (ICA), 1995). Cooperatives have distinct characteristics compared to other forms of business. The objectives that govern their creation, in particular, are other than maximizing profits for investors; for example they aim at creating jobs for their members or providing services to underserved populations (members). Agricultural cooperatives enable farmers to adopt more efficient technologies, access inputs at lower cost, and improve the sustainable use of natural resources. In addition, they improve the farmers' standard of living (Kumar et al., 2015). The concept of "sustainable development" is defined as "A development that meets present needs without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). Sustainable agriculture must meet the needs of present and future generations for its products and services, while ensuring profitability, environmental health, and both social and economic equity. It also must nurture healthy ecosystems and support the sustainable management of

land, water, and natural resources, while ensuring world food security (Food and Agricultural Organization of the United Nations (FAO), 2018). In general, cooperatives are characterized by different objectives, governance structures, and forms of surplus distribution than conventional enterprises. These characteristics (or principles) make them more attractive than conventional undertakings to economic agents with specific preferences, namely those seeking forms of association aimed at providing services to their members (for example to improve member profits or to create stable jobs). Therefore, we can argue that the sustainability of a cooperative is very different from that of businesses. Currently, the most widely used approach represents the concept of "sustainability" in the form of three pillars; the economy, environment, and society (Mustapha et al., 2017). While sustainability has been extensively studied in general, agricultural cooperatives' sustainability is still underexplored. The latter refers to the three aspects of economic, social, and environmental sustainability with a strong emphasis on social theft. Although previous studies have identified several benefits of cooperatives, they have not attempted to analyze the factors that explain the sustainability of Moroccan dairy cooperatives. Therefore, the main objective of this article is to answer the following question: What are the factors that explain the sustainability of dairy cooperatives?

Historical context of cooperatives in Morocco: Cooperatives have gone through several stages in their historical evolution. Table 1 below shows the history of the cooperative in Morocco.

Definition and objectives of the agricultural cooperative:

An Agricultural cooperative is defined as a formal or informal (registered or unregistered) membership-based collective action institution serving its members, who are rural dwellers that get part or their entire livelihood from agriculture (crops, livestock, fisheries, or other rural activities). Services provided by agricultural cooperatives are improving the livelihoods of their members and including access to advising, information, markets, inputs, and advocacy (Food & Agriculture Organization of the United Nations (FAO), 2014a). A cooperative is a group of people who voluntarily challenge for common economic action. Entering the market as a group and not as individuals, ensures that they have the appropriate conditions for buying and selling, and carrying out certain tasks in a more efficient way and with better quality. The aim is to support the economic interests of all members by relying on self-help efforts, and not with the help of third parties or state support. It is therefore appropriate to establish a cooperative, when achieving a specific economic goal exceeds the capabilities of the individual, and this individual wants to maintain his/her independence at the same time.

A cooperative is always created around a collective project: to do together what we cannot (or no longer) do alone. The purpose of an agricultural cooperative is the joint use by farmers of all means suitable for facilitating or developing their economic activity, and improving or increasing the results of this activity. The different objectives of agricultural cooperatives are:

- Improve the socio-economic situation of their members
- Generate higher income for their members
- Human development

- Develop and enhance, as much as possible, the production of their members
- Marketing support
- Dairy support

Functions of agricultural cooperatives: Agricultural cooperatives are present throughout the Moroccan territory, and provide all economic functions by being located upstream and downstream of farms. Upstream refers to supply cooperatives, and downstream to processing and marketing cooperatives. The main functions provided by these cooperatives include:

- Reducing the marketing cost
- Collecting dairy from their members
- Better coordination between production and marketing
- Improving the quality of the farmer's product
- Granting of credits to farmers for the purchase of inputs
- Training service provided to dairy producers to enable them to use modern and efficient milk production systems

METHODOLOGY

For this study, we adopt a case study method because the explanatory factors for the sustainability of Moroccan dairy cooperatives are under-explored. Four dairy cooperatives were randomly selected for two reasons: i) the dairy sector constitutes the largest agro-food sector in Morocco, and it is at the center of Moroccan agricultural policy, ii) an undisputed success in the development of a linked national milk sector, narrow with the downstream. The dairy sector faces many uncertainties due to market volatility (boycott). Small milk producers are the least powerful actors in the supply chain, therefore joining a cooperative is a way for them to work together and mitigate risks. The basic information about the four cooperatives is presented in Table 2. The data collection instruments included face-to-face semi-structured interviews lasting 60 to 90 minutes, and archival data from internal cooperative documents. Our interview protocol dealt with questions relating to the profile of dairy farming cooperatives, as well as to the factors explaining sustainability. The field surveys took place over two weeks, from June 3rd to June 17th, 2020.

We made at least two field visits to each cooperative for data collection (Table 1). Generally, the first visit aims to understand the cooperative and its profile. As for the second visit, it aims to collect data concerning the answers to the remaining questions. For each visit, we produced 2 to 4 pages of notes based on direct observations, interviews, and a reflection on the highlights after each visit. In total, we conducted 10 interviews (see Table 2). Interviewees included all the presidents of the four co-operatives, and some members of each co-operative to ensure that an overview was presented. All of the presidents and members were questioned twice or more.

RESULTS AND DISCUSSION

Interviews with the presidents of the four cooperatives have identified three factors around which the dairy cooperatives' sustainability revolves:

Table 1. History of the cooperative in Morocco

Year	Evolution of cooperatives
1937	The Cooperatives were established by the authorities of the protectorate for political reasons. 62 cooperatives were operational on the eve of independence, the majority of which were agricultural and craft cooperatives.
1956-1983	After independence, a number of measures were taken by the state to encourage the development of cooperatives, including: <ul style="list-style-type: none"> o The promulgation of several legal texts, such as the text authorizing the constitution of agricultural cooperatives of agrarian reforms etc. o The provision of technical support agents to cooperatives.
1983-2000	Stage of disengagement from the State of cooperatives and unicity of cooperative legislation.
From 2000	Stage of using cooperatives as an instrument for job creation, integration of women into working life, organization of the informal sector, etc.

Source: <http://www.odco.gov.ma>

Table 2. Profile of the dairy cooperatives

Cooperative name	Date of creation	Members	President	Province	Number of visits	Interviewees
Ait BZD	1975	240	A.El	Azilal	2	3
ENN	1986	221	K. Err	Fquih Ben Saleh	2	2
KOT	1991	179	A.Ech	Beni Mellal	2	2
Ait IAA	2005	89	R. Mes	Azilal	2	3



Fig.1. The volume of milk sales and the profits made by the different cooperatives during the period of 2016-2019.

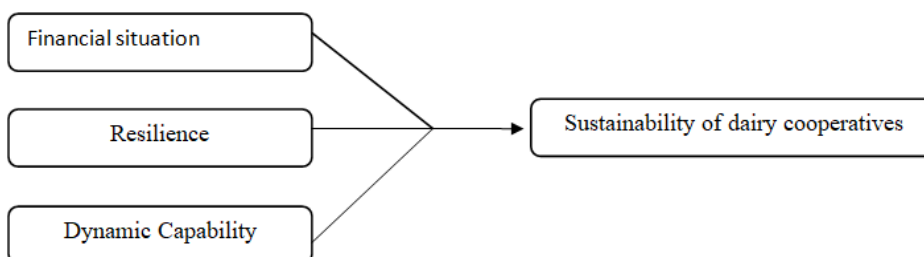


Fig. 2. Conceptual model of the dairy cooperatives' sustainability

- The financial situation of dairy cooperatives:** The success of dairy cooperatives relies on the gains that have been made. Our study shows that, like any business, the surveyed agricultural cooperatives need capital and profits to survive. Part of the profits made is used to finance future investments (purchase of inputs), and the other part is distributed among all the members of the cooperative in an equitable manner (according to the quantity of milk produced). In other words, a successful cooperative should be able to increase members' incomes, promote their participation in rural activities, and strengthen equity among them. Figure 1 shows the volume of milk sales and the profits made during the period of 2016-2019.
- Resilience of dairy cooperatives:** In the context of this study, the term "resilience" means the ability to adapt to adverse environmental changes (Ponomarov and Holcomb, 2009). In other words, if a cooperative takes preventive measures, and it is ready to deal with emerging risks, then it is very resilient. After analyzing the four cooperatives, we found that the level of resilience to boycott movements in 2019, and more than 80 days of confinement in 2020 have an impact on the cooperatives' sustainability. Regarding the ability to cope with these environmental changes, the AIT BZD cooperative has been very protective. Chen (president of the TGX) assures that the cooperative remains on trends with substantially, similar to those observed 10 days after the start of the boycott. The situation almost has not changed; consequently AIT BZD's ability to prepare for environmental changes was high. AIT IAA was not much influenced because the boycott policy only concerned some dairy products (dairy plant), while JX was not a supplier to the boycotted company. However, the members of the AIT IAA cooperative were not prepared for any environmental change, so their ability to prepare for uncertainties was low. ENN clarified that the cooperative should not stand by while waiting for the sky's generosity, but it has to react and make its voice heard. In this regard, the cooperative organized a protest movement, in collaboration with the General Union of Workers in Morocco (UGTM), intended to exert pressure on the government to take into account the situation of farmers and ranchers affected by this decision. The protest action thus seems only a first reaction of the cooperative. Therefore, the resilience of this cooperative is moderated. On the other hand, the KOT cooperative has been strongly affected by the effects of boycotts and the COVID-19 pandemic. Therefore its preparation for this environmental change was weak. Mr. Jin from the KOT cooperative commented: "Our cooperative was not prepared for these environmental changes. Farmers have been producing milk in a traditional way for a long time, and now they are forced to leave this cooperative which has almost disappeared" (President of the KOT cooperative). Consequently, the resilience of the KOT cooperative is low.
- Dynamic capability of dairy cooperatives:** Teece et al. (2007) defined dynamic capacity as "The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments". Dynamic capacity is therefore characterized by the ability of a firm to reconfigure its resource base to cope with changes in the environment. Dimensions of dynamic

capability are the ability of a cooperative to identify opportunities for its member farmers, provide access to resources, and innovate. Regarding the ability to access resources, the AIT BZD and AIT IAA cooperatives did not offer this advantage to member farmers, while the ENN and KOT cooperatives obtained a loan from banks for their members. As a result, the capacity of ENN and KOT to assist member farmers in accessing resources is moderate. Concerning the capacity of cooperatives to identify market opportunities, ENN and AIT BZD are highly capable because they have decided to produce quality milk. KOT and AIT IAA have not identified any business opportunities for their member farmers. The cooperatives in our case study produce only one product that is milk. Therefore, innovative capacities are limited or even non-existent.

Conceptual model of a sustainable dairy cooperative: As indicated above, sustainability refers to the continuation of the organizations' activities and includes economic, social, and environmental sustainability. In this study, economic sustainability is measured through the benefits made by each cooperative. For the social sustainability of a cooperative, equity of access to resources and democratic governance are key elements for being socially sustainable. Finally, environmental sustainability includes air, water, etc. In terms of our study, dairy cooperatives have no negative effects on the environment. Based on the above results, we found that profit, resilience, and dynamic capabilities are necessary conditions for sustainability. These conditions must be combined to achieve high durability. Figure 2 shows the conceptual model of the dairy cooperatives' sustainability.

Conclusion

In spite of the difficulties faced by agricultural cooperatives, both in terms of marketing and the lack of managerial capacity, these represent an effective instrument for the rural world development through the promotion of local products. If cooperative activities continue in a sustainable manner and are established for the long-term improvement of farmers, this should be more beneficial to them. This study provided information on the history of cooperatives in Morocco, and the different goals, characteristics and functions of agricultural cooperatives. The explanatory factors for the sustainability of dairy cooperatives were described in this study. In addition, the study found that financial conditions and resilience have a direct positive effect on the sustainability of dairy cooperatives. Financial position and resilience are necessary to achieve sustainability, but remain insufficient, and must be combined with dynamic capabilities to achieve high sustainability. By adopting a case study method, the results of our study cannot be generalized to all dairy cooperatives, but rather provide an image of a sampling area. Another method, for example survey, can be used to test the three factors presented in our model. The results of this study are based on Moroccan dairy cooperatives; a future perspective will be to study the sustainability factors in other agricultural cooperatives in Morocco, such as rice or vegetables.

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