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Multi-actor arrangements for farmland management in Eastern Spain

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ABSTRACT

Farmland abandonment is common in the southern EU countries. This complex phenomenon has a set of interlinked causes and consequences, among the latter the undermining of farmers' cooperatives role as supply aggregators. The paper discusses a multi-actor farmland consolidation model that avoids some of the drawbacks identified by literature to some models of land mobilization, mostly transaction and agency costs. This model consists on a local-based strategy of common land management, led by a cooperative and supported by a set of external agents. As empirical evidences, we show the attitudes of cooperatives' managers surveyed towards common land management and present a case study implementing this multi-actor model. This piece of evidence shows that strengthening social capital is crucial to the success of these social innovation experiences.

1. Introduction

Cropland abandonment is a common phenomenon in Europe (Strijker, 2005; Pointereau, 2008). In Spain, for example, 2.4 million hectares of land ceased to be cultivated in the period between the last two agricultural censuses (1999 and 2009). This land area corresponds to more than 9% of Spain's utilised agricultural area (UAA), according to the Spanish National Institute of Statistics (INE). The problem is particularly acute in the case of permanent crops such as fruit, citrus orchards and vineyards, which are primarily cultivated in the Mediterranean regions of Spain, such as Murcia, the Region of Valencia, Catalonia, and east of Andalusia, Castilla-La Mancha and Aragon. These regions are referred to in the paper as eastern Spain.

Collective action through production and marketing cooperatives has traditionally helped concentrate the supply from medium and small farms. As these farms disappear and their land is no longer cultivated, cooperatives find themselves in a difficult position. The lost production volume hinders their role as aggregators of supply and makes it difficult for them to meet market requirements. In addition, as volumes fall, the average fixed costs of cooperatives rise, undermining their competitive position with respect to other traders. As a result, some cooperatives may enter a vicious circle of production and membership losses that eventually force them to close.

Beyond this traditional role, previous research has also underlined the role of agricultural cooperatives as key agents in regional development and drivers of employment (Hendrikse and Bijman, 2002; Bijman et al., 2012; Arnalte et al., 2013), reporting how some have also engaged in innovative strategies to strengthen rural economies together with other local actors (Ortiz-Miranda et al., 2010; Tregear and Cooper, 2016; Fonte and Cucco, 2017).

The geographical context of this paper is eastern Spain. A prime example of the evolution of farms' structure in the area is the Region of Valencia (Spain), which is located on the Mediterranean coast. Fruit and citrus orchards are common crops in the agricultural production of this region, where between 1999 and 2009, the number of farms fell by 47% and the UAA shrank by 12%. According to the last Agricultural Census (2009), the average size is less than 5.5 ha, with the area often scattered is several plots. Only 10% of the farms generate more than one annual working unit. Other regions in the Mediterranean coast of Spain suffer from similar farmland fragmentation and abandonment.

Although the lack of profitability is the main reason for cropland abandonment, there are many other interlinked reasons, including high cultivation costs in marginal areas (Benayas et al., 2007; Pointereau et al., 2008) and a lack of alternative crops. Farmland fragmentation and the small size of farms exacerbate the problem (Keenleyside and Tucker, 2010; Terres et al., 2013). These issues are highly relevant in the Region

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of Valencia (Gallego, 2010), where 30% of farms have less than one hectare of UAA scattered across several plots.

Problems related to poor land mobility are also part of this backdrop. Whilst many senior landowners are reluctant to sell or lease farmland, they rarely find anyone in their own family to continue farming. In fact, traditional structural policies attempt to consolidate farmland through the exchange of plots and the aggregation of scattered production units. However, farmland mobility is too slow, partly because of the transaction costs related to farmland exchanges.

The loss of production potential is a long-term consequence of permanent cropland abandonment due to the high cost of reversion. Land abandonment also entails a greater risk of fires, rural depopulation and soil degradation (OECD, 2001; López-Iglesias et al., 2013). In the short term, production losses are another negative consequence with adverse effects on several agri-food stakeholders. Whilst the farmland abandonment has relevant economic consequences for cooperatives, this problem has other implications related to the multi-functional role of agriculture. These implications also merit scholarly attention and specific policy initiatives. For example, Takahashi et al. (2018) examined the public goods provided by agricultural land in Japan, such as landscape maintenance and environmental protection.

Under this backdrop, the objective of the present paper is to describe institutional arrangements for farmland consolidation in eastern Spain. Particularly, we want to show the pathway followed by one cooperative, that is related to the perceptions on land mobilization through joint cropland management by cooperatives, and also linking it to the theoretical framework that allows to stressing the crucial factors impeding land mobilization in the area.

The paper is organised according to this objective. After this introduction, the next section describes the conceptual framework. The survey results and the case study are then presented. The paper ends with the main conclusions.

2. Conceptual framework

2.1. Models of land mobilisation

Takahashi et al. (2018) identified the necessary conditions for successful coordination leading to farmland consolidation projects. Although the analysis applied to Japan, it is also relevant to Southern Europe, where land fragmentation and cropland abandonment remain a serious problem as in the Japanese case.

By adapting to the policies and the cultural and sectoral reality of eastern Spain the conceptual framework suggested by Takahashi et al. (2018), we propose four models to represent the individual choice that owners face with respect to the mobilisation of their land:

- individual transactions (Model 1),
- mediation by the local authority or municipality (Model 2, subtype 1),
- public administration-led land consolidation processes, involving tree removal and massive changes of property and physical characteristics of infrastructures and land plots (Model 2, subtype 2).
- cooperative agriculture (Model 3),

Model 1 considers exchanges amongst farmers and landowners without any intermediary. The exchanges may be land rentals or land sales -unlike Takahashi's et al. (2018) model that only considers land rentals.

In Model 2, the public administration -often municipalities- mediates the transfer of land rights among individuals. Takahashi et al.'s model refers to agricultural land trusts that are lent to municipalities, and then these land plots are in turn sub-leased to cultivators. To the best of our knowledge, this model is rarely taking place in eastern Spain,[3] instead, when this mediation exists, it takes place in the form of municipal land banks. They act as 'available land databases' where land supply and demand get information and meet, whilst in certain cases they also provide technical and legal advice for the two counterparts.

As a public administration-led "subtype" of Model 2, we can consider a more frequent version where a public agency rearranges land plots. A public administration institution -whether it belongs to the state or to the region- plans the new shape of the area consolidated and distributes the resulting area among the previous landowners, who receive consolidated plots not scattered in different small plots. This tradition has been applied in the countries of Central and Western Europe once consolidation is decided upon by the majority of owners of a specific area (van Dijk, 2003, 2007).

While this is approach is a possibility in the regions treated in the paper, actually, a short number of government-led projects of land consolidation have succeeded. As will be discussed in the next paragraphs, government-led land consolidation programs are not free of drawbacks and, therefore, other types of models deserve attention as they can better fit in specific regional contexts. Haldrup (2015) highlighted the insufficient capacity of state and non-state actors to take part in processes that interfere with individual ownership and trigger conflicts between public policy and private rights.

Our Model 3 refers to land consolidation through cooperative agriculture. According to the seminal paper, this model is based on collective cultivation. The authors state that " 'Collective land use' refers to situations in which a landowner joins community farming or leases his or her land through coordination with other landowners to consolidate land" (Takahashi et al., 2018, p. 86.). In the case described in our paper, it is the cooperative that coordinates and manages the land that has been leased by a set of landowners. We have considered that this model is a "collective use of land" because the cooperative is not an external agent, but instead, it belongs to its members -among them, the landowners leasing the land- and the ultimate coordination corresponds to them, according to the cooperative governance rules.

In the quoted seminal paper there is a fourth model where rural communities coordinate principal cultivators and the majority of landowners, and work as intermediary institutions for farmland consolidation. This approach seldom appears in eastern Spain.

Table 1
Comparison of models of land consolidation.

	Takahashi et al. (2018)	Adaptation to eastern Spain
Model 1	Individual transactions	Individual transactions (sales included)
Model 2	Consolidation through a public intermediary institution	Model 2 subtype 1 Municipality land banks acting as intermediary institutions Model 2 subtype 2 Public administration-led land consolidation through planning, expropriations and redistribution
Model 3	Consolidation through community farming	Consolidation through cooperative agriculture
Model 4	Community coordination of individual cultivators	Rarely present

[3] Unlike the state-led Italian case of the ISMEA's trust for setting-up of young farmers, that could lie into Takahashi et al.'s model 2. ('ISMEA" stands for Institute of services for the agri-food markets, the details of the program can be accessed, in Italian language, at http://www.ismea.it/primo-insediamento).

Table 1 summarizes the differences between Takahashi et al.'s seminal model and ours.

2.1.1. Critical assessment of the models

In essence, the two basic individual actors involved in the farmland transactions in all models are landowners and land users. The mediating agent depends on the model. These agents are municipal land banks or government agencies in the two types of Model 2, cooperatives in Model 3 (where a cooperative or farmers' association can be simultaneously a land user and a mediator).

Following Takahashi et al.'s (2018), the implementation of land consolidation under Model 1 is difficult, due to the transaction costs associated with land mobilization. On the other hand, Models 2 and 3 are useful for reducing to landowners and land users the transaction costs of exchanges of farmland or cultivation rights. However, they can lead to agency problems, which may be particularly onerous in Model 2, subtype2. When the administration fails to identify with the idiosyncrasy or specific concerns of the local population, owners may be fearful of losing farmland value and may hence be reluctant to transfer their land rights. Actions in this sense require authorities' commitment to the agricultural community in the region which has not always been the case in rural and non-rural areas of Southern Europe (Plieninger et al., 2016).

Sikor and Müller (2009) critically assessed state-led (i.e. top-down) versus community-based (i.e. bottom-up) land reform initiatives, advocating the benefits of shifting from state to community in land reform schemes. In this vein, other actions concerning land consolidation and the reversion of abandoned cropland in different parts of the world are conversely shaped by bottom-up movements. For example, Wittman et al. (2017) analysed community farm programmes that support socially and ecologically embedded land relations in North America. Bryden and Geisler (2007) analysed the Scottish land reform with a view to its links to community resource management and local development. Cousins (2007) focused on the post-apartheid land acts in South Africa concerning the land tenure of communal lands.

The action of external agents can be encouraged by specific incentives for owners to lease or transfer their land (Jentzsch, 2017), the action of public regulations, including zoning, government-led development projects and protection of agricultural land (FAO, 2011; Hartvigsen, 2014), and the public mediation offices that acquire land for agricultural policies (Milićević, 2014). All of these alternatives may require sizeable amounts of public financing or complex regulation (Fernández, 2010).

On the other hand, subtype 1 of Model 2 and Model 3 can at least partially avoid agency problems by attracting rural actors to participate in land mobilisation schemes and improving the link between landowners, land users and mediators.

There are notable examples of agricultural cooperatives in Spain that have attempted consolidation as per Model 3 through shared or collective cultivation. Land management cooperatives can reduce transaction costs and jointly cultivate farmland. However, such an operation requires collective action, which often involves moral hazard as well as agency problems. Cooperatives often fail to attract landowners to lease their land for joint cultivation because of what Rothstein (2005) calls a 'social trap' caused by a lack of mutual trust. Once a group suffers from persistent stagnation in its trust, escaping from that state becomes difficult until some event or organisational innovation re-establishes trust or improves the social capital in the organisation.

2.2. A hybrid model

In this paper a hybrid model is proposed to address the problems associated with the models described earlier. This hybrid model outlines institutional arrangements amongst various actors, including external institutions (agricultural foundations, professional organisations, innovation intermediaries, universities, etc.), local communities and individual cooperatives. It is led by a local agricultural cooperative and supported by external agents, to bolster the reputation and increase credibility of the initiative, so the 'hybrid model' could be also seen as an upgraded form of Model 3.

The issue tackled with this model is developing an initiative that simultaneously allows for achieving bigger and more profitable farms departing form several scattered ones from different landowners, without changing the property of the smaller initial ones.

Actually, the reputational issue is dealt by the presence and technical support provided by the external agents, as the case study presented later will illustrate. Indeed, a multi-stakeholder consolidation project can only succeed if it is able to reduce transaction costs, such as agency and collective decision-making costs, whilst increasing efficiency and external benefits.

As a synthesis of the agents participating and their choices in land consolidation processes, Table 2 separates the actors according to their level of possible involvement. Each agent faces a set of decisions to be taken, and the crucial decision taking variables and their desired goal (maximization or minimization) shown in the second and third column.

The multi-stakeholder initiative can also be seen as a collective entrepreneurial process that includes not only joint actions in the individual cooperative organisation (Cook and Plunkett, 2006) but also a type of entrepreneurial initiative that can only be addressed within a multi-actor framework. The actions of multiple actors are based on inter-institutional networks, which can be thought of as strategies to define a new business model (Mourdoukoutas and Papadimitriou, 2002) or as ways to achieve social and environmental objectives (Grimm et al., 2013). In the first case, the new business can be improved through financial and human capital that is accessed through the network of multiple actors (Johannisson, 2004); in the second case, institutional innovation, through formal and informal agreements, is promoted using a new model of land governance that fosters social innovations and builds trust (Newell and Swan, 2000). Agricultural cooperatives can form a first envelope of collective business activity or shared cultivation (Foreman et al., 2013) that involves the consolidation of farmland, whilst the multi-stakeholder network acts as a second envelope of support institutions.

The motivations to undertake collective initiatives for land consolidation lie in the taxonomy of motivations proposed by Burress and Cook (2009) to explain collective entrepreneurship. These motivations complete the incentive framework outlined in the consolidation models described earlier.

Table 2
Layers and goals affecting farmland consolidation processes.

Layer of coordination/actors	Key variables affecting choices	Desirable change in key variables
Layer 1		
	Farm values	↑
Landowners	Revenues	↑
	Transaction costs for bilateral exchange	↓
Land users	Revenues/economies of scale	↑
	Transaction costs	↓
Layer 2		
State agencies	Transaction costs	↓
Cooperatives	Collective decision-making costs	↓
	Social capital	↑
Local councils/agencies	Agency costs	↓
Layer 3		
Multi-actor framework extended to foundations, research, rural banks, rural federations, NGOs	Product and process innovation	↑
	Social capital/trust	↑
	Social and environmental values	↑

Source: Produced by the authors.

The first motivation is strengthening social capital in the network of landowners and land users who participate in the project. Social capital (Ostrom, 1990) in this context means inspiring the confidence of landowners and farmers to invest in collective actions. Social networks are crucial to encourage the adoption of innovations by farmers, particularly in terms of assessing their costs and benefits (Steenwerth et al., 2014). In the process of building the land-related project, the multi-stakeholder network, landowners, patrons and cooperative staff receive guarantees of an improved reputation and regain their trust.

The second motivation is to use land consolidation projects to test or implement product or process innovations that need aggregate agricultural land. Burress and Cook (2009) argued that the characteristics of some types of innovation and technology prevent companies from extracting the full value of their invention or innovation, which can be better characterised as a public good (Romer, 1993). The consolidation of land may be motivated by a product innovation such as new varieties to adapt to the market or a new process innovation (e.g. zero waste or organic farming). To gain scale and implement innovation that is valuable to the market, land users should be encouraged to consolidate agricultural plots under centralised management. Collaboration between organisations allows access to external knowledge (von Hippel, 1976; Miozzo et al., 2016) and constitutes a key element in the process of generating competitive advantages. Through interactions in collaborative networks and an interactive learning process, companies can access various types of knowledge and information (Bjerke and Johansson, 2015). Although the intensity of the collaboration may differ considerably in general terms, the transaction costs of external knowledge may be lower if the agents collaborate in the same local environment. Interaction with research institutes, universities and other innovation intermediaries to carry out the collaboration (Lasagni, 2012; Tobiassen and Pettersen, 2018) may be positive for business performance.

3. Methodological section

Once discussed the features and advantages of the model described in the paper, this section explains the mixed methodology followed to present it. First, we describe a survey carried out in agri-food cooperatives in eastern Spain. Second, we describe the case study that fits to the model.

3.1. Survey to cooperatives

With the collaboration of the Innoland Operational Group (OG) of the agricultural European Innovation Partnership (EIP-AGRI) 'Social innovation in land management', a survey of 50 agri-food cooperatives was conducted. The survey was completed by members of the management or the board of the cooperatives in winter 2018/2019.

A limitation of the survey is the sample size, which is not representative of the entire cooperative sector in the area of study as there are over 800 agri-food cooperatives in the eastern part of Spain specialized on perennial Mediterranean crops such as orchards, olive groves or vineyards. However, the analysis can provide useful insights of the extent of joint land management schemes for this area and crops.

There was a balance of sizes, and 51% had more than 500 members, what reflect quite well the reality of the sector. There were aspects that are typical of farming cooperatives, such as small turnover (64% under 10 million € per year) and specialisation in Mediterranean crops (65% marketed citrus fruits). In terms of geographical coverage, 71% of responses were from the Region of Valencia, 12% from Catalonia, 4% from Andalusia, 2% from Murcia, 2% from Castilla-La Mancha, and the remaining 9% from other regions in Spain. The survey highlights the key areas that should be considered to strengthen farm structures, primarily in the eastern part of Spain. More information on the pathways on land grouping derived from the survey can be found in Pineiro et al. (2021).

3.2. The case study

The last part of the paper is the description of a case study. This description has been possible due to the direct participation of the authors of the study in the initiative.

A participatory action research (PAR) method was used. This method drives the production of knowledge based on constructive exchanges, where all those involved participate actively in diagnosis and resolution (Balcazar, 2003; Schut et al., 2015). The objective was to formulate a common land management scheme that overcame the agency problems involved in delegating land management planning to a cooperative and that reduces the current transaction costs in the land market.

Rural San Vicent is part of the arrangement with technical support from the Universitat Politècnica de València (UPV) and Cajamar Foundation. Cajamar is a credit cooperative that supplies funding and planning capabilities to Rural San Vicent. Rural San Vicent must deal with the challenges of ageing members, farmland abandonment and low profitability. Other partners of the multi-actor collaboration are Anecoop, a second layer cooperative, and Cooperatives Agroalimentaries, the regional federation of agricultural cooperatives in the Region of València. The project aims at testing formulas of collective entrepreneurship and social innovation. Several workshops with representatives of the quoted organizations allowed to define the farmland joint management scheme described in Section 5.1.

While the validity of the case study itself is limited just to its own reality, we generalize it from two points of view. First, showing that this case can be an archetype of the limitations, characteristics and wills revealed by survey (see next section). Second, because the implementation model chosen by the cooperative allows smoothing the limitations described to the four traditional consolidation models, creating their own 'upgraded' Model 3.

4. Results of the survey. Are cooperatives willing to engage in joint land management schemes?

The survey provided some valuable results regarding cooperatives' perceptions of joint management of land plots.

Of all the surveyed cooperatives, 20 declared that they offered the service of complete direct management of land plots that had been leased by landowners, regardless of whether they were members of the cooperative. A question launched asked, 'What is the preferred joint management model?' (responses shown in Fig. 1). The answers show that the majority of cooperatives that were prone to common land management (33 out the 50); out of them, 23 would prefer a joint management model where the cooperative, together with its own employees, directly manages the grouped plots. The cooperatives did not rule out other indirect management mechanisms such as hiring young farmers to cultivate the plots.

Using Likert scales (ranging from 1 to 7), the survey asked respondents to evaluate statements on the main advantages for cooperatives of a model for the grouping and management of plots of land by cooperatives (see Fig. 2). The most highly rated statements (34 cooperatives answered to the question) were, first, the opportunity that this management gave to recover abandoned plots; second, the possibility of change of cultivated varieties or the introduction of new crops that enable the grouping of plots and increase the farm size; and third, the reduction of crop costs offered by the model. Remarkably, the opportunity to employ young farmers received the lowest score, which suggests the lack of prospects associated with farming in areas with weak land structures.

The cooperatives were also asked about the key factors that were necessary for the success of these initiatives to group and recover plots (Fig. 3). The main factor for the grouping and management of plots by cooperatives to be viable was the level of advice for members and owners. This factor was followed by guarantees and reliability of the rental contracts, transfer or purchase of the plots, and then trust between

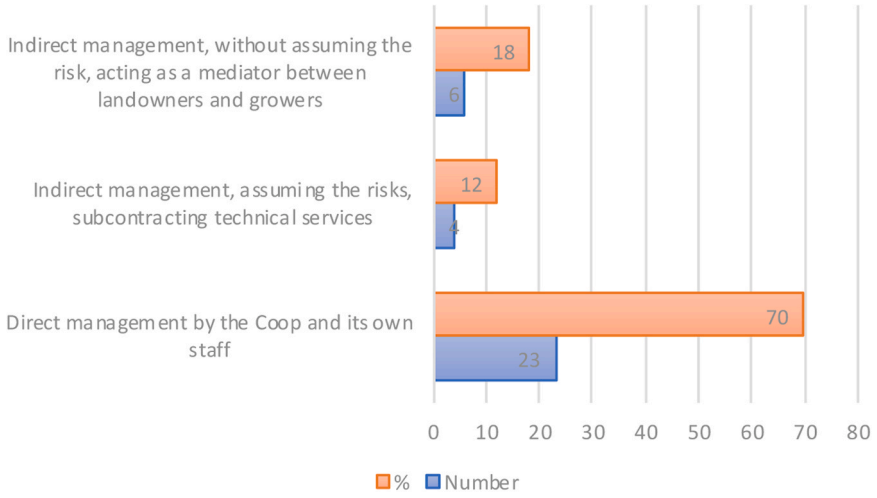

Fig. 1. What is the preferred joint management model? Total number of responses: 33.
Source: Produced by the authors from survey data.

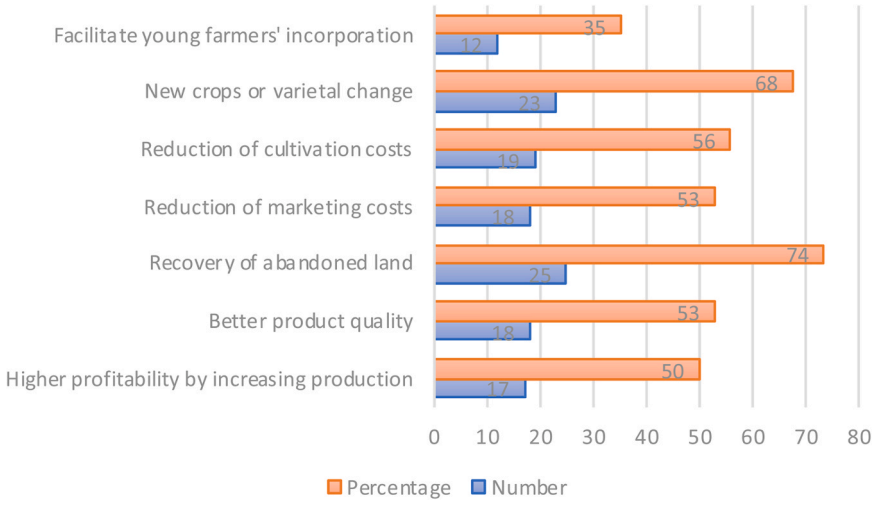

Fig. 2. Number and percentage of high scores (> 6) attributed by respondents to specific advantages of joint land management. Total number of responses: 34.
Source: Produced by the authors from the survey data.

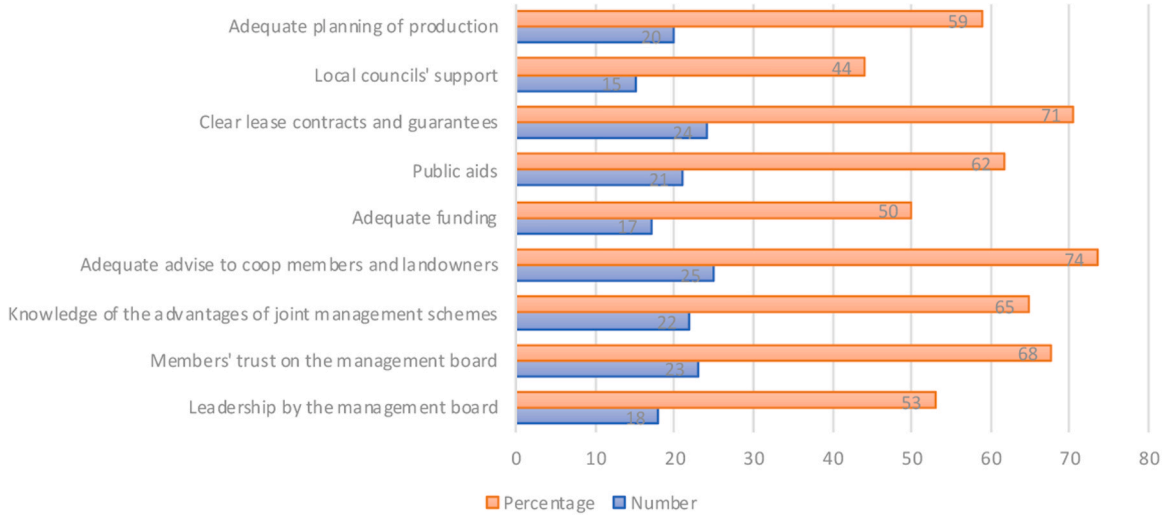

Fig. 3. Number and percentage of high scores (> 6) attributed to specific factors that make joint land management schemes feasible. Total number of responses: 34.
Source: Produced by the authors from survey data.

partners and collaborators in the governance and management of the cooperatives.

5. Case study: pilot experience of a multi-actor arrangement

5.1. Description of the case study

Rural Sant Vicent de Benaguasil COOP.V, (hereafter, Rural Sant Vicent) is an agricultural producer and marketing cooperative located in Benaguasil (16 km north of the city of Valencia in eastern Spain). Rural San Vicent's members cultivate an area of approximately 1000 ha of fruit production (600 ha of citrus fruits), with an average area per plot of about one third of a hectare.

As stated earlier, the project's main goal is to recover abandoned land or land that is under threat of abandonment, with Rural San Vicent becoming the land user. The purpose of the multi-actor institutional arrangement and the PAR was to provide technical support and credibility for the project, also serving as a pilot experience for other sites in the region. Accordingly, this model fits into the category of 'upgraded' Model 3.

Several sequential steps were taken for the actual operation of the farmland arrangements. First, the cooperative identified plots of land with appropriate farming conditions, primarily that they have been abandoned or are under threat of abandonment. Next, the cooperative contacted farm plot landowners. This task often proves difficult because the property trail is lost after death, inheritance or retirement. Landowners are usually wary of ceding the land to third parties. To overcome the principal-agent problems that is caused by information asymmetries between landowners and cooperative managers, small focus groups are formed. In this case study, all senior landowners or their families who are not willing to cultivate the land by themselves are asked to participate in the meetings. These focus groups follow a protocol to convey a common view of the situation, namely that *alternative forms of production do exist, and land abandonment can be avoided.*

As a result of these actions, two alternatives have been proposed to incorporate land as part of the area of production and improve the profitability of the land under the leadership of Rural San Vicent. a) The first alternative is direct conversion, which means that investment is the responsibility of the landowner, with 50% co-financed by the cooperative Operational Programme (OP) funded by the EU' Common Agricultural Policy which is available because the cooperative is an accredited fruit and vegetable producer.[4] b) The second alternative is part of the land consolidation plan by the cooperative. It is made with a formal contract, which means an agreement between the landowner and the cooperative granting land use. This agreement implies that the landowner authorises cultivation of the land by the cooperative for a 15-year period, with the condition that the cooperative will bring the land back into production. Rural San Vicent jointly manages the consolidated plots and gets them back into profitable production according to their production plans. Often, this process involves transformations such as removing old trees, renewing irrigation infrastructures and techniques, modernising production, implementing sustainable practices and improving productivity and value. Both alternatives aim for the plots of cropland to be managed under technical criteria (cultivated varieties, harvest time, crop-protection treatment, etc.). This approach supports the proactive role of the cooperative in planning their production.

Table 3 summarizes the whole process and further details of the actors involved and their tasks are given below. Table 3 mirrors the structure of Table 2, with the key aspects addressed for each type of actor, so different layers of actors are considered: individuals,

[4] This first option is not a case of land consolidation, but instead a way of avoiding the abandonment of plots of land. However, it is mentioned here to show the whole cooperative strategy.

Table 3
Tasks carried out in the pilot project.

Actors	Key variables	Tasks
Layer 1		
Landowners and land users	Transaction costs	Information meetings were held in small groups. A focus group including the coop managers and legal experts discussed the nature of the agreement. Permanent consultation windows are open. Agreements are facilitated.
	Revenues Land values	New production plans are being defined with new commercial varieties and land conservation investments that improve revenues and maintain asset values. In Model b), the coop is the user of the leased small plots. In Model a), the coop members cultivate their own land following coop guidelines.
Layer 2		
State agencies	Transaction costs	In March 2019, the Parliament of València passed a new law to introduce further incentives and a framework for land mediation and consolidation. This facilitates agreements for joint land management scheme.
Cooperatives	Collective decision-making costs and social capital	Social capital and collective action are improved by deep discussion, consensus and commitment by the coop board of patrons. The plans were discussed and agreed upon at the general meeting. Training sessions were carried out with all staff.
Local Councils/Agencies	Agency costs	Local councils in the region were informed about the initiative and disseminate it among potential leasers of land. This helped to build trust on the role of the cooperative as a aggregator and mediator.
Layer 3		
Multi-actor framework extended to foundations, research, rural banks, rural federations, NGOs	Product and process innovation	A multi-actor operational group funded by the European Innovation Partnership EIP-AGRI was built to: -Act as an innovation intermediary. Within the group, Rural San Vicent is introducing new citrus varieties, under the guidance of a second layer cooperative (Anecoop) and Cajamar Foundation, which is linked to a cooperative rural bank that provides credit for new plantations. Universitat Politècnica de València provides a framework for formulating, monitoring and evaluating the land consolidation processes.
	Social capital/trust	-Further enhance transparency and trust in the process. The Valencian Cooperative Federation (Cooperatives Agroalimentaries), a member of the operational group, is raising awareness of the need

(*continued on next page*)

Table 3 (*continued*)

Actors	Key variables	Tasks
		for land groupings. The project is being disseminated and scaled up to other cooperatives. Cooperatives Agroalimentaries, the Universitat Politècnica de València and Cajamar Foundation are encouraging the exchange of best practices and knowledge, which is valuable to build trust.
	Social and environmental values	-Farmland recovery of abandoned fields is at the forefront of the operational group. There are non-commercial goals that these initiatives can contribute to achieving. On the one hand, joint cropland management offers a feasible social alternative for coping with demographic challenges and the need for generational renewal in rural areas (Valero and López-Marco, 2019). On the other, land preservation, linked to the potential sustainable cultivation, is clearly linked to the environmental objectives of the new Common Agricultural Policy.

Source: Produced by the authors.

organizations and the multi-actor collaboration framework.[5]

Prior to signature of any agreement, information meetings were held between cooperative board members and technical staff, plus UPV and Cajamar, on the one side, and small numbers of landowners on the other side. These meetings served to explain the leasing agreements and the cooperative plans to landowners. In addition, the landowners had a permanent communication channel with the cooperative after the meetings to address any question on the arrangement.

Current farmers who were in touch with the cooperative to opt for a) option also were aware about the conditions of this option, via information channels developed. Besides, all the cooperative members have regular and formal information on the production and commercial plans of the firm.

The regional government -acting as the state agency in this case- did not formally participate in this initiative. However, the regional government passed Law 5/2019 that, among other measures, sets a regulatory framework for common land management initiatives in the Valencian Community, including specific measures that can support initiatives like the one described in this article. This regulation was designed and passed while the cooperative initiative was ongoing, in a parallel process, and received numerous inputs from the agricultural sector.

Considering the collective decision-making costs and the social capital, this consolidation initiative was discussed and agreed by the board of patrons of the cooperative, and subsequently agreed by the general meeting of the cooperative. In addition, to strengthen support inside the cooperative, staff members were made aware and trained regarding the functioning of the initiative. It was a noticeable decision as there are frequent non-formal contacts between staff and landowners or members, and the board of the cooperative wanted to send a common message on the initiative.

[5] See https://goinnoland.wordpress.com

Also related to inform properly about the initiative, the local councils of some towns in the area were met by the cooperative board members and technical staff, plus UPV and Cajamar. They were not collaborative at first. However, further experiences in other areas in the region have started to attract local councils interested in the multi-actor framework.

Related to the participation of external agents in the initiative, it is worthwhile to mention the role played by the second layer cooperative ANECOOP in the development of the production and commercialization plan and Cajamar by loaning new plantations according to this plan.

5.2. *Results of the case study*

The most tangible outcome is that during the first year of the project (2016), Rural San Vicent merged approximately 40 ha from 23 different landowners in Benaguasil, starting from about 65 land plots. This area has been restructured and put into production again. Ownership has not changed hands, but a major asset (i.e. the farmland itself) has been preserved. Although this figure may not seem impressive, this region is characterised by a huge number of tiny plots (often less than 0.5 ha each). So another result is that the multi-actor approach builds trust in this process, and as some of the abandoned plots were restructured, a snowball process began in the forthcoming years.

Considering the demonstrative effect of this experience on other cooperatives facing similar challenges, it is being disseminated through workshops throughout the region. The project has been well received within the cooperative sector and amongst professionals in the agri-food sector. It may therefore contribute to the experiences and proposals designed to revive the sector and tackle the challenges of an ever-changing society. After the first year of the project, the idea has begun to spread across the Region of Valencia, with several cooperatives in the region in the process of formulating similar land consolidation plans.

Although the project began in the Region of Valencia, other institutions in Murcia, Andalusia, Castilla-La Mancha and elsewhere have shown an interest. The Operational Group within the agricultural European Innovation Partnership (EIP-AGRI) is elaborating a practical toolkit to promote farmland consolidation in a flexible way. This project is also supporting the dissemination of cooperative-managed joint cultivation projects at its core. The Innoland Operational Group is forging a network to develop common land strategies to promote joint farmland cultivation. The standardisation of these projects through protocols (Tudela-Marco and Garcia-Alvarez-Coque, 2016) provides a method for social innovation that is crucial to share experiences with other cooperatives.

6. Concluding remarks

The experience described in the paper aims at bringing cultivation back to plots of land that have been abandoned or are under threat of abandonment so that they can become fully preserved in the long term and also contribute to cooperatives' sustainability.

Moreover, joint management models can be proposed without the need to change ownership patterns. According to the results of the survey carried out, these joint management models are perceived as an opportunity to tackle land abandonment and its subsequent effects like loss of profitability of cooperatives.

The multi-actor approach proposed in this study is an attractive way of promoting social innovation for joint farmland management initiatives. The process of diagnosis and implementation of the project is endorsed by participation from cooperative members, the cooperative's management team, credit institutions, social scientists from universities and local communities to share contacts and information.

To put it simple: a crucial aspect that led to the initial success of the case study was the accompaniment by external agents to the coop. Both in-coop agents (members, staff, some landowners) and external agents (other landowners, regional government) stated that the presence of all the other external members increased their confidence and gave

credibility to the initiative, allowing for a smoother launch. Consequently, the process can create trust between landowners and cooperative users, reduce transaction costs, avoid collective action problems, ensure that land is preserved and provide appropriate compensation to landowners.

Successful and failed experiences in joint land management and flexible consolidation practices must be documented and exchanged so that fresh and socially acceptable models can be proposed. As a multidisciplinary approach, sharing lessons learnt from different regions and initiatives is an essential part of promoting innovation.

In spite of this encouraging approach, the experience described here is not free of some limitations. The first refers to the relatively short time span since the described experience and other similar begun. As the experiences evolve, their conditions change and new financial and operational challenges arise, so the experiences need a continuous reshaping.

The second limitation refers to the scope of the benefits brought by land consolidation as a means of concentrating supply by agricultural organizations. The approach described in this paper has proven to be helpful to explore new strategies to reverse land abandonment; however the lack of profitability of farms that has triggered the land abandonment is a complex farming problem that requires an integrated analysis and a set of different recipes to tackle it, some of them out the scope of the cooperatives and farms. Therefore, the multi-actor arrangement can be understood as one of the possible strategies to bolster cooperatives; this arrangement has to be accompanied by other policies and measures to reverse land abandonment.

CRediT authorship contribution statement

José-María Garcia-Alvarez-Coque: Conceptualization, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Victor Martinez-Gomez**: Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing, Funding acquisition. **Lorena Tudela-Marco**: Investigation, Data curation, Validation.

Declarations of interest

None.

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