

Symbiotic relationships, knowledge management, and sustainable value at the nexus between family businesses, cooperatives, and rural communities

Abstract

The creation of value is a key theme in knowledge management. Researchers have identified that in rural communities, many family businesses are members of cooperatives or other consortia. Yet, there is limited understanding about how family businesses associated with a cooperative create and appropriate value. Based on an embeddedness perspective we argue that intertwined relationships between family, business, cooperative, and rural communities could create, appropriate, as well as destroy economic and social value, which can influence sustainability. We rely on a multiple case study approach of family businesses associated with a cooperative in Cyprus. Such an approach and setting are important, as they provide an opportunity to examine multiple contextual interactions. Our findings reveal the role of knowledge construction, knowledge transfer, and symbiotic relationships at the levels of family business, rural cooperative, and local community in powering processes of economic and non-economic value creation, appropriation, and balance, which are important for community sustainability. Implications for researchers, practitioners, and policymakers, as well as future research opportunities, are presented.

Keywords: Family Business, Knowledge Management, Rural Communities, Symbiosis, Value Creation, Cooperatives

I. INTRODUCTION

There is scant understanding of the unique knowledge management practices, that is, processes, by which any organization can generate value through creating, sharing, transforming, and applying knowledge to maximize the effectiveness and growth [1], [2] of rural communities [3], particularly by family businesses [4]. Rural communities, defined as “*agglomerations of people that interact in non-urban settings*” [5, p. 369] have been found to harbour family businesses, that is, firms where family and business objectives intertwine [6]. Numerous studies have recognized that knowledge management is critical for family businesses [7] to support a rural community’s sustainability [8]. Yet, the sustainability of rural communities may depend not only on family businesses providing services that generate value [9], but also on knowledge management and appropriate knowledge infrastructures in creating and appropriating value [10] that attends to the needs and pressures of diverse stakeholders [11].

Prior studies have relied on geographical perspectives to explain the way in which firms may bring value to rural communities [8], [12]. Yet such perspectives, focusing on resource access and dependency, have atomized the family firm and overlooked that family firms may create and appropriate economic and social value through collaborations with diverse stakeholders [10], [13], including other local family businesses and associative organizations such as cooperatives [14] [15]. As family firms are firmly and deeply ingrained in a context, then perspectives that unpack how knowledge management influences value creation by firms that are embedded in a rural place, that is, located and influenced by the social environment around them, are relevant for this study for several reasons. First, an embeddedness perspective highlights cooperatives as relevant because value creation is linked to firms embedded simultaneously in multiple social, institutional, and spatial contexts [1]. Second, cooperatives are a context through which knowledge is created, disseminated, and leveraged [16], based on the joint efforts and resources of locally embedded members [13], impacting job creation, economic development, and social capital for any setting.

Finally, studies hint that cooperatives may rely on a co-created approach to knowledge management practices to generate value not only for their members but also for their immediate environment [17], [18]. Yet, how (whether) knowledge management allows rural family businesses to create and appropriate value for themselves, their rural communities, or a cooperative, remains elusive. Thus, in this study, we aim to provide insights into the question of *how do family businesses in cooperative associations create and appropriate value in and for rural communities through knowledge management?*

To answer our research question, we draw on a multiple case study approach of family businesses [19] within a food cooperative in Cyprus. Cyprus is relevant as a cultural context where cooperativism thrives [14]. Case studies of seven family businesses, members of a cooperative, were built from 69 interviews, plus documents and observations. Our partially-grounded approach [20] revealed interdependent processes that we conceptualize as symbiotic relationships. Symbiotic relationships emerge as an illustration of complex relations between rural family businesses, a community, and a cooperative supported by knowledge management. Symbiosis denotes the relevance of embeddedness, close physical proximity, and sharing of common space between organizations [21]. Symbiotic connotations that were found included mutualism, commensalism, predation, parasitism, and competition [22], and are related to interfunctional coordination in family firms [23]. Our analysis suggests that family businesses who emphasize value creation tend to co-construct knowledge as a symbiotic relationship [24] and work in mutually beneficial relationships with their cooperative and community. Knowledge is then effectively transferred to create value at the firm, cooperative, and community level. Yet, we also find that symbiotic relationships in rural communities are not always as mutually beneficial as is sometimes assumed [25].

Our contribution is fourfold. First, it introduces symbiosis to conceptualize the nature of relationships that are conducive for knowledge and value creation, and as a result transfer to

community sustainability. Second, it elucidates the role of knowledge management in value creation, appropriation, and balance across institutions in which the family business is embedded [26]. Third, by providing a unique integration of the concepts of multiple embeddedness, value creation, community sustainability, and knowledge management, we offer a processual and multi-layered model of how embedded family businesses contribute to rural community sustainability [27]. Fourth, we offer new knowledge on embedded value-centred practices and processes of rural business families linked to community sustainability [28].

The paper continues as follows: First, we conduct literature analysis on sustainability, knowledge, family business, and rural community sustainability. Then, the methodological approach is presented before the findings, discussion, and conclusions. Finally, limitations and future research paths are detailed.

II. LITERATURE REVIEW

B. Sustainability and rural family businesses link to knowledge management.

While there is no single definition of sustainability, it broadly relates to “enduring into the long-term future ... [and] to systems and processes that are able to operate and persist on their own over long periods of time” [29, p. 3]. Such systems and processes may relate to the way knowledge, that is, “information that is relevant, actionable, and based at least partially on experience” [30, p. 113] and that can be related to “a justified belief that increases an entity’s capacity for effective action” [31, p. 109], allows the creation of value. In family firms, knowledge is likely to be created, stored, and leveraged through intergenerational interaction and succession [32]. Sustainability is linked to the way knowledge is managed, as it relates to practices by which firms balance environmental integrity, social equity, and economic prosperity to secure intergenerational equity [33], and thus relates to the way knowledge is created, managed, and leveraged by several stakeholders.

Since family firms are relevant actors in rural communities [28], family firms have had – and continue to have – a key role in the diverse concerns of sustainability, as they are renowned for having a heightened sense of responsibility to the communities in which they operate [34]. The way knowledge management is approached by family firms is then not only a critical lever as they influence their local communities' sustainability, but also a key factor in our understanding of their complex relationship with the way value is created – or co-created – and appropriated when they work with others [4]. Such an approach needs to consider the context of cooperatives.

B. Cooperatives and knowledge management

Cooperatives are a common associative form in rural communities [16], [35] and thus relevant in understanding the way knowledge is managed through collective action [35], given that their functioning often depends on ideas collectively exchanged and exploited by its member base [14]. A knowledge management approach through a cooperative merits attention, as it represents an alternative to develop knowledge capacities through improving the procurement of products and engaging in knowledge processes, including access to cutting-edge technology, technical assistance, and inputs [16].

Recent works suggest that knowledge management needs to consider diverse processes, stakeholders, and contexts [36] in terms of processes such as knowledge creation or construction, knowledge embodiment, knowledge sharing, and knowledge use. Knowledge construction or creation deals with the social construction of knowledge as it is embodied within the organization, not just through explicit programmes but through a process of social interchange. Further, there is a process of dissemination of the socially created knowledge throughout the organization and its environment. Finally, the knowledge becomes applicable to generate economic value for members [37, p. 318]. Cooperatives need to have a knowledge infrastructure supported by a technological, structural, and human resource capability [10]. A technological capability relates to the ability to capture, store, retrieve, and share knowledge within members' activities, by developing business

intelligence, knowledge mapping, and collaboration, generating further opportunities for members [10]. A structural capability will relate to the cooperative hierarchy and geographical spread, while a human resource capability relates to the way individual members share useful business information with other stakeholders to create and transfer knowledge [10].

In the family business field, attention has been paid to knowledge sharing, related to activities by which individual family members make their knowledge sources accessible to others [4]. Time and effort are required to construct and share knowledge, with the intention of allowing mostly trusted family members or others to have access to something valuable [38]. Yet, one feature that has received scant attention is the co-construction of knowledge. Knowledge co-construction would explain processes whereby individuals engage in a collective and interactive examination and shaping of each other's ideas, which in turn would lead to a collective and communal form of knowledge building [39]. Disagreements are expected to be minimized through interaction and discussion, thereby achieving a communal cognition that facilitates co-construction [39]. Knowledge co-construction is supposed to be facilitated by networks of contacts who interact frequently and are strongly supported by embeddedness [40].

C. An embeddedness perspective

Embeddedness is a key concept through which to understand the way knowledge is created and managed in rural communities [26]. Embeddedness relates to a quality of being firmly and deeply ingrained or fixed in a place or context [41]. It involves dependence on the environment where social actions take place, and is broadly defined to include institutional, social, cognitive, or cultural aspects, capturing the idea that actions individuals choose and are influenced by the social relations within which they function. The concept is grounded in the perspective that the functioning of any economy cannot be understood if it is distanced from the social world in which it is embedded [42].

Within rural communities, embeddedness is crucial, providing a two-way process of gaining credibility, knowledge, and experience. The conceptualization of value creation through embeddedness incorporates economic and social concerns in rural communities, elucidating the links between business owners and local stakeholders, and how they create and appropriate value [43]. In rural communities an inter-dependence of community and family business can be expected [44]. Embedded social relations in a rural setting may allow family business owners to procure and leverage diverse types of knowledge (e.g., tacit or experiential), which may be created or constructed as a result of social interactions (e.g., customers). The embedding process is crucial in our understanding of the creation and appropriation of value, as it embodies the maintenance of relationships that determine levels of embeddedness [45].

D. Family business embeddedness, cooperatives, and rural community sustainability

Types of embeddedness relevant to family businesses' role within a rural community may be structural, relational, or local [46], [47], [48]. Structural embeddedness refers to network structure and ties, centrality [49], and the appropriation of ties across contexts (e.g., from the family to the business) [47]. Relational embeddedness refers to the quality of relations and normative conditions that frame relationships within networks [46], [49]. Family plays an important role in building relations and trust, within and outside the rural business, contributing to business cohesiveness, the procurement of knowledge from various networks, and collective action [50]. Local embeddedness emphasizes the importance of the local context and interactions with local stakeholders [48]. Local embeddedness is important for family businesses, cooperatives, and other organizations establishing and nurturing relationships with economic (e.g., suppliers) and social actors (e.g., social associations) to obtain knowledge resources [48].

Social and economic exchanges are inextricably linked and largely situated within the locality where a family business may operate [51]. Family businesses in rural communities can be

strongly embedded in the local context and are rarely isolated from others [52]. A family business where the controlling family lives locally, or cooperatives that depend on local suppliers, are likely to be more embedded within networks in the vicinity [53]. Spatial proximity promotes more frequent face-to-face interactions, building up trust and strengthening relationships to increase legitimacy, knowledge resources, and reputation [54]. Local embeddedness could positively impact family business and community continuity, as family business owners associated with a cooperative may devote time and resources nurturing long-term relationships within the business and wider community [45], contributing to employment, economic value generation, social rejuvenation, and related infrastructure [55]. In a cooperative setting, the level of embeddedness may depend on the depth of exchanges between members and influence from stakeholders [11].

We speculate that a process that influences not only individual members' capabilities or performance, but also group capability and performance, could operate in tandem with processes that allow knowledge to be co-constructed and transferred. It is against this backdrop that we argue that embeddedness may allow the unpacking of how family businesses in cooperative associations create and appropriate value in and for rural communities through knowledge management. Next, we describe a context where such dynamics could be further explored.

III. METHODOLOGY

A qualitative multiple case study design was appropriate, as it allowed the building of theoretical understanding of social and process-like phenomena [19], [56], [57]. By focusing on rural family businesses associated with a cooperative we were purposefully seeking cases where '*the processes being studied are most likely to occur*' [58, p. 370]. A partially-grounded approach provided space for novel emergent insights, allowing the concept of symbiosis to emerge and be combined with concepts of embeddedness, community sustainability, and value creation [20].

A. Research context, sampling, and data collection

In Cyprus, located in South-East Europe, the vast majority of firms in the country are family businesses (approx. 90%) [59], with a large percentage embedded in rural areas where cooperatives are widespread [60]. Many rural family firms, especially in the agricultural and grocery sectors, choose to join a cooperative to compete and survive [14]. Thus, Cyprus presents an ideal context in which to examine value-creating practices of family businesses associated with cooperatives in relation to rural communities.

The study drew on purposive sampling to collect data suitable for theory building [56], [57]. In line with the purposive sampling strategy, case firms were selected based on a priori criteria [61]. First, cases needed to be (organizational) members of a rural cooperative organization that encompassed value-creating initiatives. Second, cases needed to be multigenerational family businesses, located in rural villages¹ and providing variation in size and location.

Following an investigation² in line with the first selection criterion, Alpha Co-op (anonymized) was selected (see Table 1). Alpha Co-op operates in the grocery sector, has a record of increasingly high profitability and value-creating initiatives (e.g., own-brand products, new ways of marketing, IT infrastructures, new processes, new markets for sourcing raw materials, etc.), and all its associated members are family businesses. The director of Alpha Co-op provided access to family businesses, fulfilling our second selection criterion [62]. Seven family businesses were selected, including 1st, 2nd, and 3rd generation firms, with turnovers between €1 million and €3.5 million (see Table 2). A case-by-case analysis was engaged until an additional case would not provide additional significant data, fulfilling the theoretical saturation principle [57].

[Insert Table 1 about here]

¹ A rural village is an archetypal rural habitation with less than 2,500 inhabitants, usually defined in terms of population size, availability of basic amenities, and main economic activity in the area [63].

² Using secondary sources (e.g., a list of cooperatives from the Cypriot Cooperatives Commissioner Office, websites of cooperatives, press releases, and articles), conversations with officials at the Cypriot Cooperatives Commissioner Office, and discussions with directors and/or members of various rural cooperatives.

[Insert Table 2 about here]

Data were collected via in-depth interviews, complemented by observations and document study [64]. Observations were carried out in participating family businesses and the Alpha Co-op head office once per month during the research period. Document study involved the collection of documents from multiple sources. The type and number of documents are listed in Table 3.

[Insert Table 3 about here]

Interviews were undertaken between March 2015 and January 2017. Interviews were semi-structured and in Greek, the native language of the participants [65]. In total, 69 in-depth interviews were conducted with family business members, non-family employees, community actors (e.g., town mayors, community council members, community citizens, and stakeholders from community-serving organizations), and Alpha Co-op administrative staff (e.g., the general manager). Table 4 details the profiles and numbers of participants per case. The number of interviewees by case was determined by a process of recursive data analysis and collection [66]. The interviews were transcribed verbatim and translated from Greek into English by a bilingual translator [67].

[Insert Table 4 about here]

B. Data analysis

Data analysis drew on a partially-grounded approach, blending emergent understandings with existing literature throughout the analytical process [64]. Manual coding, aligned with principles and processes of a partially-grounded logic [68], was engaged. First, open coding analyzed transcripts sentence by sentence, leading to a large number of first-order concepts adhering to informant terms yet lacking structure [68]. Second, axial coding grouped first-order concepts into fewer (second-order) categories by iterating between first-order concepts, second order categories, and relevant literature, asking ‘What’s going on here?’ Third, selective coding distilled second-order categories into a few ‘aggregate dimensions’ to frame findings theoretically [66], via a

comparison between codes, categories, and literature [66], [68]. Symbiosis emerged from the data analysis as theoretically important. Figure 1 illustrates the data analysis process.

[Insert Figure 1 about here]

IV. FINDINGS

A. Value Creation through symbiotic relationships: the role of knowledge co-construction

Analysis highlighted family members creating value whilst embedded within multiple institutions – family, business, cooperative, and community – as shown in Table 5. Value creation relates to how members of a family in business influence practices that generate additional value for the family, the business, the cooperative, or the community.

[Insert Table 5 about here]

The ability to initiate, organize, and execute value-generating activities relied on family members embedded in what can be described as symbiotic relationships, characterized by close physical proximity and sharing of common space [54]. Data analysis revealed that in most cases, relationships were based on mutualism, with both benefitting, but other types of symbiotic relationships were also present (commensalism, predation, parasitism, and competition) (see Table 6).

[Insert Table 6 about here]

Being embedded within multiple institutions (i.e., family, business, cooperative, and community), the family members in business were exposed to place or location-based relationships with several actors. In such relationships, data analysis revealed a strong notion of belonging by the participants (see Table 6). By belonging to a family, those leading or managing the family business cared for and interacted closely with other family members, such as offspring or spouses, who were not involved in the business. Members of a family in business perceived their family as a separate institution, which was independent from their business, and one carrying its own

tradition and recognition within the community. Kritonas, the expected successor of the Xylouri store, stated:

We do things as a family [...] we like to be involved and support the community. It is like a tradition for our family.

By belonging to the same business, family members nurtured strong ties with one another. The cooperative offered a common place for families from different member-businesses to establish and develop close bonds, which supported mutualism and collective projects. The cooperative became another sphere of 'belongingness'. Family members perceived the cooperative as an institution belonging to them, and thus a critical resource to sustain across generations. Rikkos, the expected successor of the Anogia store, stated:

We are the owners of this cooperative. It is essentially on us to continue this organization [Alpha Co-op] and this is what we all want. Each member has a role to play. I would say that there is high commitment from all parties, to share ideas and discuss in a constructive way to make the best choices, be it new suppliers from Greece, new products under the [Alpha] Co-op label, or even expansions of the central warehouses of the cooperative.

The data revealed that the community was perceived historically as the place in which members of a family in business interacted with others in their locality. Participating businesses were operating within rural communities in which the rural business families historically belonged. Consequently, 'belongingness' in a family, business, and community enhanced feelings of mutualism between family members and the local community. Iosif, the owner-manager of the Alona store, stated:

This business rests at the heart of the village in which we grew up. Approximately two thirds of the members of this community are our customers. This blends business and community life. We are also active outside the business, helping whoever asks for our support in the community.

A notion of 'belongingness', identified as a feeling of connectedness with others within a social system, such as a family, a community, or a workplace [69], [70] was relevant and important

in strengthening mutualism between family members and business, cooperative, and community. Our analysis supports the notion that belongingness and embeddedness are intertwined, as the feelings of social connectedness were usually nurtured within and towards the place in which people lived or worked [71]. Prior studies have highlighted the role of belongingness in facilitating the mutualism and collectivism of family members within a business (e.g., [72], [73]). Yet, data analysis suggests that family members' mutualistic relationships within the community and the cooperative are also driven by their sense of belongingness.

Further, data analysis suggests that belongingness was underpinning mutualism, which contributed through different types of interactions to economic and social gains at the levels of family, business, cooperative, and community. Members of a family in business would act mutualistically and initiate value creation at each level, whilst being embedded in multiple institutions (see Table 6). Yet, the findings reveal that interactions at different levels (i.e., family, business, cooperative, and community) would materialize into value creation through relevant knowledge co-construction. For instance, at the level of the business, value was created through multigenerational interactions and the construction of knowledge between members from different family generations. Specifically, by belonging to the same family and business, different family generations would interact together and create knowledge through a joint process of idea generation, negotiation, and refinement focused on novel and useful ideas for the creation of economic value to support their business. Michalis, from the Orini store, elaborated:

My children make a lot of experiments in the business, and I actively encourage them through my knowledge and experience, since what we all recognize is the need to support the business. We are a good team in the business. My son Antonis had, lately, an idea to change the configuration of the grocery section of the store. He discussed with the rest of us, we disagreed on certain parts, but we improved the concept. The outcome was a success and customers keep telling us how much better and more convenient the layout is now.

Leandros, from the Orini Store, provided an example of mutual social value creation in the business through a process of knowledge co-construction between different family generations:

With my father and siblings, we are trying to pursue the business and build it together to something bigger. By doing things together, dealing with problems together, and learning side by side in the business, we have been able to bond more between us and generate better relationships.

At the level of the cooperative, value creation emerged through the desire of families from member firms to collaborate and co-construct knowledge. Regarding knowledge construction, the findings illustrate that by belonging to the same cooperative, family members from diverse businesses would engage in idea generation, discussion, and refinement to generate novel and useful concepts for value-added activities at the level of the Co-op. For example, Periklis from the Petra store talked about an entrepreneurial initiative that was conceived and successfully implemented through collaboration between families from various Alpha Co-op enterprises. This (economic) value-adding initiative, which helped the cooperative to improve coordination of processes and activities, resulted from new knowledge that was generated through interactions between family members from diverse businesses. Periklis stated:

We have just implemented a sophisticated ERP (enterprise resource planning) system to support [Alpha] Co-op operations. A while ago we [member-firm families] realized that we needed a more sophisticated system, which would be close to the needs of the diverse businesses in the cooperative and more conducive to their idiosyncratic operations [Alpha]. Before communicating our requirements to the IT company, we [Co-op delegates] had numerous meetings – researching, reporting, discussing, and deciding on the functions of this system so that it can fit our circumstances.

Patroclos, from the Chorio Store, emphasized the social gains from cooperative interactions and knowledge co-construction between members of a family in business, at the Co-op level:

Both as a business and as a family, we have contact with everyone in the Co-op. We discuss very frequently in meetings in the headquarters, in one of the stores, or over the phone, which gives us the opportunity to exchange ideas and solve problems together. All these strengthen the friendship between business owners and their families. As a consequence, you will see many of us gathering together for a dinner and pursuing opportunities to meet each other socially.

At the level of the community, members of a family in business contributed value-adding events and initiatives in cooperation with community actors such as charity foundations. The findings illustrate the role of community belongingness in realizing cooperation at this level, where members of a family in business would add value as true representatives of both their family and business institutions. Again, knowledge co-construction had an intermediate role between social interactions and value creation. Stamatis (the Orini store) offered an example of economic value, which family members generated in cooperation with a charity, highlighting multi-embeddedness within family, business, and community. Stamatis also elaborated on the role of knowledge co-construction in (economic) value creation, emphasizing that initiatives at this level depended on the negotiation, refinement, and achievement of shared understandings between their family and members from the charity. Stamatis stated:

Every summer we hold an event in cooperation with the people at the 'Faros' charity, whom we know well because they are people from Orini Village, like us. At the start of Spring, together with my father and brothers we will meet with the people from Faros to discuss the planning of the event, to discuss changes and improvements. We brainstorm a lot and reach a consensus on the theme and content of this two-day event, which runs in July and is focused on raising funds to help this charity.

Kritonas, from the Xylouri Store, highlighted that they (family) were motivated by their joint presence in both the family and business institutions, whilst pursuing social value creation with community actors such as cultural centres:

Our business and family support financially and physically the cultural centre. Without this centre there would not be any activities for the children, and the older people go there; this is an essential thing of keeping the community going.

Nevertheless, relationships within the cooperative were not all mutualistic. Where members of a family in business placed individual benefit above mutual benefit, competitive behaviors developed and undermined collaboration and knowledge co-construction between

family businesses in the cooperative. Occasionally, members of a family in business within the cooperative also engaged in predatory behaviors. Iosif, from the Alona Store, elaborated:

While we started off as a family for the mutual benefit of the cooperative, it seems we cannot proceed without problems and misunderstandings between us. Today we had a conflict with the latest member of the cooperative. Although we had discussed and agreed in the past that each store has a specific area to promote and we should not disturb each other's area, he came and gave out advertizing leaflets in Alona from Mylos.

Less obviously, competition between generations could arise as family dynamics bled out into the business. Intra-family competition emphasized gaining or retaining decision-making power. Disagreements between generations would sometimes obstruct the co-construction of new knowledge and together the exploitation of profitable opportunities, stymieing value creation or reducing value from existing successful initiatives. Stamatis, from the Orini store, mentioned:

My father is old-fashioned and this sometimes comes at a cost. We have just finished with the renovation of the grocery section, creating more capacity for fruits. My brother and I suggested bringing products right before their season start, for example melons at three euros a kilo, which we know would sell well, and we have the space to stock quantities. My father would kill the initiative, refusing to discuss any further, not even to experiment. He would just say it's not the season for watermelon and we should wait another month.

The depiction above suggests that not all members of a family in business were sharing common family goals and aspirations, which would lead to commensalism behaviors within the family. For instance, the younger generation would benefit financially by being in a business family, and also by acquiring essential expertise through part-time work in the family business. Yet, certain members of the younger generation lacked interest in the family business, wishing to pursue their own careers outside the business. Iosif, from the Alona store, mentioned:

I have a son, 35 years old, who has finished accountancy and a Master's and whatever he has done, and is working in the Ministry of Finance. So, he is not interested. He said if I do something in the private sector, I will do an office. I don't want your business, I don't love it. I was bringing them when they were younger to help me out here and there, but they do not want it now.

Our data analysis shows that members of a family in business can create economic and social value at the level of the family, business, cooperative, and community, whilst being embedded in multiple institutions (Table 6). The family, business, and community [74] have been central to family business embeddedness literature. Our analysis shows that family members can simultaneously generate economic and social value in the multiple contexts where they are embedded. Further, the cooperative has received scant consideration as an embeddedness arena, while social value creation has been largely linked to family firms' community embeddedness [60], [74]. Consequently, our results offer a novel multi-embeddedness understanding of a family firm's (social and economic) value creation. Table 6 shows that knowledge co-construction is important in value creation, which is enhanced in the presence of symbiotic relationships within multiple institutions. This offers a novel understanding of knowledge management as a critical mechanism between (multi-) embeddedness and value creation .

B. Value Appropriation: the role of knowledge transfer

Data analysis suggests that the family members' mutualistic symbiotic relationships and knowledge transfer across the various institutions were critical to the transfer of value across institutions through value appropriation. Family members created knowledge and value jointly with others within a particular institution (business or cooperative or community), and at the same time borrowed some of this knowledge to generate value in other institutions. Appropriation enabled knowledge cross-feeding across institutions, leading to the creation of sustainable value at the community level. The build-up of community sustainability did not follow a particular sequence. Value was appropriated bidirectionally and concurrently, outwards (e.g., from business to cooperative or community) and inwards (e.g., from community or cooperative to business).

In outward value appropriation, family members were instrumental in transferring knowledge from the business to broader institutional levels. This knowledge was important in

creating value within the Co-op or the community. Rikkos (the Anogia store) provided an example of value appropriation from business to cooperative:

Do you see this wooden shelf, where customers can buy a variety of different nuts and dried fruits in bulk? It was an idea we thought of at the family table. We brought a carpenter and he did this just for us. To understand the collective climate within the [Alpha] Co-op, we wanted to share this knowledge with friends having other groceries. They came here, they saw it and got excited. We advised them, we even asked the same carpenter to do the same for them.

Stamatis (the Orini store) talked about how knowledge acquired in business was useful for generating value at the community level (i.e., value appropriation from business to community):

Some things that you learn at work, such as organizing or promoting, can be useful elsewhere. When we came to organize this [community] charity event, which I referred to, most knowledge was already there [from the business].

Inward appropriation involved initiatives at the community or cooperative level transferring knowledge to the family business. Such knowledge transfer was important in value creation within the family business. Periklis (the Petra store) provided one example of value appropriation from the cooperative to the business:

The cooperative is a place where we come to share ideas with other people and take decisions about expansions, new suppliers of the cooperative, and so on, all essential to the growth of the [Alpha] Co-op. Both my son and I get fresh ideas and knowledge, which sharpens our thinking and makes us more alert to opportunities that are important for the expansion of our own business.

Our data suggest that family business members viewed long-established relationships as friendships, characterized by high levels of trust. Friendship enhanced the opportunities to transfer knowledge across institutions, and thus enable the creation of economic and social value across institutions. Petros (the Anogia store) elaborated on the way friendship facilitated outward appropriation of knowledge and (economic) value from business to cooperative:

Friendship comes also with [Alpha] Co-op membership, not only business. Managers and store owners from the cooperative are coming to my shop to see how we do business and to get some knowledge on things that we do well. I do the same. It became a norm. We are friends, and as a result we discuss very frequently, and we exchange knowledge between us to help each other.

Theodoros (the Petra store) noted how his relationship with his father became more one of equals as he became friends with new people within the cooperative, exemplifying social gains appropriated inwards, from cooperative to business:

We are present in most of the [Co-op] board meetings, both my father and me. We like to mingle with people. Having the chance to meet and discuss with different people, it also fulfils us at a personal level. It also changed the way we behave to one another in the business. We are more of a team now, I would say.

The examples so far are of mutualistic approaches to value appropriation. Occasionally, family businesses would appropriate knowledge from the cooperative but contribute very little, suggesting a form of parasitic symbiosis. When the relationship is parasitic, one party aims to utilize the other at the other's expense. When two parties, such as the rural family firm and the cooperative, both benefit from their cooperation, they tend to stay connected as long as possible, adapting specifically to each other. Harmful parasitic relationships are a different matter. Here, the cooperative does not continue the relationship willingly; it is an aggrieved partner. This suggests that like in nature, when a relationship shifts from mutualistic to harmfully parasitic, one party may react or adapt to counter such an approach and/or remove the parasite. Examples included non-board members attending cooperative meetings and obtaining knowledge on successful initiatives that they then went on to implement in their own business.

Competitive symbiosis is another instance of harmful relationships, which would also occur in the context of knowledge transfer and value appropriation between institutions. For example, while member firms were benefitting from collective marketing material such as grocery flyers, which were developed from the Co-op (i.e., gains appropriated inwards, from cooperative

to business), occasionally this knowledge would be used competitively by member firms (usually from adjacent villages), by targeting the same customers. Kyriakos (Monsfyli store) stated:

While we try to avoid it, there may be some competition between us, such as when some owners may give out flyers to our areas and we may do the same, which can cause friction between us. They send, we send, and the customer can choose where to shop.

Both knowledge transfer and value transfer have been mainly examined in relation to the preparedness of the next generation in the family business [32], [75]. Our findings suggest that friendship, which promotes collaboration between family and non-family members, can be associated with knowledge or value transfer practices [76]. Our data analysis elucidates on the transfer of value across the contexts in which family businesses are embedded, and the role of knowledge transfer and friendship in realizing this goal.

C. Value Balance

Our data analysis suggests that institutional sustainability requires balancing economic and social value creation and appropriation across institutions. The role of knowledge construction and knowledge transfer is key in achieving this balance. First, knowledge constructed within an institution (such as the business) to generate economic value appears to be important in simultaneously generating an important portion of social value. Rikkos (the Anogia store) elaborated on a mutualistic approach by family members, where the knowledge co-constructed by these members to generate economic gains (profitability, growth) was ultimately simultaneously leading to important social gains (bonding between family members) within the business:

We stick together in the business; we explore together new ways to take it to a next level. We learn jointly as a team and use this learning to expand our business. This helps the business to grow, but on the other hand it helps us get closer together as a family. We always consider how these two elements [referring to business economic prosperity and family bonding] can coincide in the business.

Second, knowledge transferred between institutions (such as the business and the Co-op) to generate economic value across institutions is again important in simultaneously generating an important portion of social value. The findings highlight the role of friendship and ‘giving back’ as important mechanisms of knowledge transfer and value balance across institutions. Periklis (the Petra store) explained the intertwining of business and friendship, and specifically how economic value appropriation opportunities arose from knowledge-exchange between member-firm owners, which was simultaneously strengthening the socialization between families across the Co-op:

We can frequently gather in a tavern with our families to discuss business. Many ideas and knowledge have been exchanged in these gatherings, which have brought successful results for the Co-op and our firms. But these exchanges are also offering an opportunity to get to know each other better at the family level. Business and friendship in one.

The family members’ ability to balance economic and social value was also underpinned by a commitment to ‘give back’ to the community and other institutions in which they were embedded. The findings highlight the commitment of family members to use profits from their business to support social causes within their institutions, such as the improvement of life conditions of fellow community members. They also highlight that as part of their willingness to ‘give back’, family members would transfer knowledge from their firm to the cooperative to generate social value. Kritonas (Xylouri store) mentioned:

Our business is a living organism, it takes money. This is not our family’s end. We make sure that a fraction of this money is given back to the people and manifests into better lives for people in our community. This incentive makes us active in the community. We constantly look for opportunities and use our business knowledge to realize initiatives, such as a fundraising event, which can provide value to our community.

Prior studies have suggested that family business owners wish to give back to their community as part of their firm’s philanthropic actions [8], [77]. Our findings extend knowledge on the role of ‘giving back’, which goes beyond an instrumental motivation to contribute to the community. Our analysis reveals the concept of ‘giving back’ as a critical mechanism, which

draws on knowledge transfer to generate social value and thus balance that value within family, business, cooperative, and community.

V. DISCUSSION

Our findings have highlighted that rural families and their businesses, rural cooperatives, and local communities overlap with elements of nesting and embeddedness in relation to one another. The findings reveal the role of knowledge construction, knowledge transfer, and symbiotic relationships at the levels of family business, rural cooperative, and local community in powering processes of economic and non-economic value creation, appropriation, and balance, which are important for community sustainability. A framework that can explain how community sustainability is influenced by knowledge management mechanisms of multi-embedded rural family businesses is offered (Figure 2).

[Insert Figure 2, about here]

Our findings reveal that families in business (as a central unit) create value through knowledge co-construction whilst being embedded within multiple institutions – family, business, cooperative, and community. ‘Belongingness’ [69], [70] strengthens the mutualistic relations of family members within these institutions and contributes to knowledge co-construction, which is a prerequisite of value creation. Our findings also reveal that value is appropriated (outwards or inwards) across the institutions of business, cooperative, and community through relevant knowledge transfer. Where family members nurture mutualistic relationships across institutions, knowledge and value flows benefit each institution and contribute to long-term sustainability. Friendship plays an important role in accelerating (outward or inward) appropriation of knowledge and value [76]. Finally, our findings highlight that value is balanced through the simultaneous co-generation of economic and social value within and across institutions through knowledge

construction and knowledge transfer processes. Friendship and ‘giving back’ [74], [77] can accelerate the knowledge construction within and knowledge transfer across institutions, and together improve the balance between economic and social value for sustainability.

A. Theoretical Contributions

Our study provides four important theoretical contributions to the family business, value creation, knowledge management, and community sustainability literatures. First, in terms of knowledge management, we introduce the new perspective of symbiosis to conceptualize relationships, knowledge management mechanisms, and value creation processes leading to community sustainability [21], [22], [23]. Our study provides evidence that mutual dependence by different actors such as a cooperative, community, and a rural family firm creates a symbiotic social engagement network, where transactions are based on relationships, and knowledge co-construction and transfer across institutions are likely to be enhanced. Through knowledge co-construction and transfer [78], mutualistic symbiosis is more likely to accelerate the generation, appropriation, and balance between economic and social value that facilitates community sustainability. Our results also suggest that the country context (i.e. Cyprus), characterized by high collectivism [14] [60], may influence mutual symbiosis for sustainability in a rural context.

A second contribution, related to the literature of value creation, involves the novel conceptualization of the linkages between knowledge management and value creation, which are critical for community sustainability [26]. Our findings elucidate the role of knowledge management as a key mechanism in value creation, appropriation, and balance across multiple levels in rural communities. Specifically, knowledge co-creation appears as a key underlying mechanism of both economic and social value creation within institutions embedded in a rural context, such as a family business, a cooperative, and a community. Knowledge transfer is another key mechanism, which accelerates the transfer of this value across rurally embedded institutions. Our study explains how the knowledge management practices of knowledge construction and

transfer [7] underly the sustainability of the broader institutions or organizations in which the family business is embedded within a specific context [26].

A third contribution, in terms of rural communities, involves the unique integration of the theoretical concepts of multiple embeddedness, entrepreneurship, community sustainability, and knowledge management. While community sustainability has been studied extensively [27], the linkages between multi-embedded entrepreneurial practices, knowledge management, and community sustainability have been absent so far. It is important to recognize that family businesses in rural communities do not exist in isolation. By examining the multiple contexts of business, place, and community in which family business members are embedded simultaneously [54], we gain understanding on the knowledge mechanisms (i.e., knowledge construction and transfer) that underpin the interdependent processes of value creation, appropriation, and balance, which are central to sustainability in rural communities.

Fourth, in terms of the family business field, we expand conversations in terms of knowledge management around embedded value-centred practices and processes of rural business families, which lead to community sustainability [28]. Prior studies have referred to the embeddedness of family businesses in communities and an inter-dependence of community and family business [44]. The present study sheds light on the way that knowledge co-construction and transfer influences and are influenced by shared practices, abilities, and locally embedded behaviors of rural business families, are enacted in interlinked contexts, and lead to the generation, appropriation, and balance between economic and social value for rural communities.

B. Practical Implications

The findings of our study have important practical implications. First, family business owners within rural businesses that acknowledge that their survival and sustainability are connected to the sustainability of the broader institutions or organizations in which the family business is embedded will recognize the importance of cooperatives and local community associations. This inter-

dependence should encourage family business owners and/or managers to establish relationships that are conducive to the co-creation, appropriation, and balance of economic and social value within the local institutional ecosystem in which family businesses are embedded. Our study has highlighted the importance of creating social value as well as economic value. Sustainable practices and behaviors within a family business will contribute social and economic value, encouraging family business owners and managers to consider the positive contribution of their family business to the context in which they are embedded.

Second, our study underscores that cooperatives provide a structure to share ideas and co-construct communal knowledge, which allows members to engage in collective actions whilst controlling excessive value appropriation by individual member institutions. Family business members who realize their role as social value generation agents need to engage in activities that promote mutualistic values, such as unity and solidarity across the family, the rural community, and the cooperative. Third, rural family businesses can benefit from an organizational culture that fosters the values and norms of ‘giving back’, ‘friendship’, ‘belongingness’, and ‘mutualism’. Such a culture can support effective knowledge management practices (e.g., knowledge co-construction and knowledge transfer), enhancing economic and non-economic gains by family firms.

Lastly, for policymakers, our findings suggest that policies that encourage the creation of cooperative alliances amongst small rural family businesses might promote sustainability at multiple levels: business, cooperative, and the rural community. Relevant policies can be coupled with funding schemes that foster the creation of new cooperatives whilst offering mentoring, training, and support to nurture mutual symbiosis and social value generating mechanisms.

C. Future Research and Limitations

Future research can extend our findings by examining the processes, interactions, learning, and sense-making practices of family members in business, including their collective actions and

behaviors, which lead to the generation of sustainable value within the business's institutional ecosystem. Additional data collection comparing pre- and post-crisis contexts (e.g., Covid-19) may be relevant to conduct further comparison related to the shocks that family businesses embedded in different institutions experience [79] and how they cope [13]. Additional studies are needed around the role and influences of family members on sustainable practices across these institutions. Future qualitative work may uncover further dynamics and processes in the context of community sustainability.

Additional qualitative research in other countries where cooperatives exist may support, challenge, or expand the findings of this study, particularly around the mechanisms that can facilitate knowledge co-construction and transfer [80] [81]. Further insights will contribute to our understanding of the dynamics leading to sustainability within a context where family businesses overlap with cooperatives and rural communities. Recent studies have advanced conversations in terms of smart villages [82], where aspects of digitalization may provide further insights into the dynamics we have identified in this study [83]. Such dynamics may include how symbiotic relationships develop between family members and community as succession processes ensue [44].

Our study has some limitations. First, while our qualitative study drew on a significant number of interviews, the sample is still small and non-random, thus not permitting generalization of the results to a broader population. Second, the study was conducted in a single country (Cyprus), and further research is needed before results might be inferred to other countries. Cooperatives and family businesses intertwine in many rural economies and developing countries; further studies could test the wider applicability of our findings around the context-dependent nature of value creation and sustainability. Third, further exploration of the reality of family businesses in rural communities is needed to understand in more detail the impact of knowledge management on such settings. Lastly, whilst we draw on data that have been collected six years

ago, the survival of these firms to date suggests that items identified in our study would support how and why knowledge management practices matter, yet further studies need to be conducted.

VI. CONCLUSIONS

This study has found that rural family businesses are key actors in the creation and appropriation of value at four levels, namely family, business, cooperative, and community, which were collectively instrumental to community sustainability among our sample businesses. In doing so, this study has revealed the central role of knowledge co-construction and knowledge transfer mechanisms that enable the creation, transfer, and balance of economic and non-economic value across institutions, impacting rural community sustainability.

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