RIVISTA DI ECONOMIA AGRARIA

REA

ITALIAN REVIEW OF AGRICULTURAL ECONOMICS

Poste Italiane spa - Tassa pagata - Piego di libro
Aut. n. 0722/DCB/FI1/VF del 31.03.2005

Vol. 73 | n. 3 | 2018

FIRENZE UNIVERSITY PRESS

Italian Review of Agricultural Economics

Vol. 73, n. 3 – 2018

Firenze University Press

Registrazione al Tribunale di Bologna n. 4549 del 5 maggio 1977

ISSN 0035-6190 (print)
ISSN 2281-1559 (online)

Available online at:
http://www.fupress.com/rea

Published by Firenze University Press
Università degli Studi di Firenze – Firenze University Press
via Cittadella 7, 50144 Firenze
http://www.fupress.com/

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Italian Review of Agricultural Economics, Vol. 73, n. 3, 2018: 5-15

Editorial

The value creation in the food chain has become more and more the heart of the agricultural economics and the REA has always dealt with this issue with a systemic approach based on key words such as sustainability, multifunctionality, safety and health that address and generate value in the chain. Nowadays, it is crucial to better define old and new paths in the agri-food sector and to help policy makers in developing effective strategies and tangible policies.

In fact, there is a strange fate that "affects" some concepts coined and used, over time, by agrarian economists.

The latter are *lexical expressions* born *young* and *endowed with great charm* and that, over time wear out, because of the abuse of the same scholars and operators, starting to be perceived, by the readers and by the same academy, as abused conceptual forms. These expressions lose their scientific importance, still valid, and risk to become ambiguous concepts and, in some cases, even contradictory and equivocal.

Nowadays, this fate happened in the past to concepts such as: *planning, programming, territory, district and many others* risks extending even to the concept of *supply chain*.

Therefore, the SIDEA and SIEA goal that intended to pursue, when they decided the issue to be addressed in this their first *joint conference*, was precisely that of wanting to make "new" a concept that risked to appear increasingly "old" and inflated and gradually to lose the authentic and original meaning of its scientific value.

All this happens in a historical moment in which agriculture is coming back, with great difficulty, in order to acquire a central role in human life, in economic systems and in the labour market.

On the other hand, consumers are becoming increasingly aware with safety, quality and nutrition issues: scholars develop analysis and organizational models for the construction and management of various agri-food chains that appear different and new respect to those of the past.

Therefore, a first merit that should be entrusted to all the authors attending this *call for paper of the REA* is precisely behaving like the property owner of Matthew's Gospel: "*… who draws from his treasure new things and ancient things*" (MT, 13, 52).

Therefore, these scholars have been able to implement a new approach, capable of making current and useful the use of an "old" concept.

DOI: 10.13128/REA-25101
ISSN (print): 0035-6190
ISSN (online): 2281-1559

Published by Firenze University Press
www.fupress.com/rea

In this perspective, the selection of papers, for this *special issue*, had the objective of identifying those works that highlighted, within the concept of supply chain, the ancient teachings of our discipline, by proposing analysis suitable for *making new all things* (Revelation, 21, 5).

In other words, these works are characterized by their ability to be able to highlight how current EU agricultural cohesion policies can promote horizontal and vertical relations among the different actors in the food supply chain and encourage the implementation of cooperation tools in rural areas.

In fact, the development of new organizational models of cooperation among small farmers, transformers and distributors, such as a different way of conceiving and managing the *Agricultural Producers Associations* and their relationship with the *process* and the internal and external actors of the so-called *technological transfer* is crucial. These models are suitable to have a key role, especially in areas characterized by higher quality forms of agriculture and smaller quantities of product, and aimed at achieving sufficient production and aggregation volumes, in terms of organoleptic and qualitative characteristics, to allow producers an acceptable remuneration from a wider market and not just a niche market.

The scientific effort of the young generations of agrarian economists should be addressed toward this direction: making available to the concrete operators and rural territories a set of "new" tools, capable of improving local development, consolidating, and spreading the transfer of knowledge.

This has to be an old and always new task of our discipline, often sacrificed in favour of an empty and ineffective econometric modelling, that is often free of solid roots to the productive reality and to the economic and territorial contexts in which some scholars claim to apply it.

On the other hand, farmers ask agricultural economists to know how to develop suitable strategies aimed at intensifying the exchange of knowledge and sharing, through the 'thickening' of collaborative contact points among the different stages of the value chain.

At the same time, farms must also become more collaborative and open to transposition of novelties, to change and to be a richer place, inside and outside their business boundaries.

Basically, new realities capable of creating social, human and economic value: a harbinger of results and positive and functional implications for the growth of *smart territories*, capable of strengthening their connections and networks of food relations.

This is the effort carried out by the two scientific societies by means of the SIDEA - SIEA first joint conference, held in Bisceglie from 13th to 16th, September 2017.

The title: "Cooperative strategies and value creation in sustainable food supply chain" was, therefore, in line with the objectives outlined and aimed at

stimulating scientific and human debate, highlighted above, as an indispensable asset to be faced, in a winning way, the new challenges.

The principles of circular economy of the various scientific works presented was the ideal *fil rouge* to reach this aim: food waste, distribution along and inside the supply chain, sustainability and humanity of agricultural systems, fragility and degradation of the territories thus highlighting the "new-old optics" that will have to animate and pervade future studies on the supply chain.

In fact, nowadays the economy is fundamentally linear: it mainly uses energy from fossil sources; it does not care about *the end of life* of its products, it recycles a little, or concentrates and disperses waste in the environment creating local problems of management and pollution.

In the agri-food sector, this factual reality could be aggravated or attenuated according to the behaviour of the multiplicity of sectors and subjects involved (manufacturing companies, agricultural system, scientific research, public and private institutions).

Therefore, the effort of agricultural and agri-food economists will have to focus in the future on the development of new organizational systems and new models of supply chain contracts more and more based on the circular economy principles capable to implement all the virtuous mechanisms of interaction and cooperation already present in the current economic system. The idea is to support a model of economy that can promote the use of renewable resources and make vertical the dimension of the food chain.

The think tank was addressed in this way: *regional laboratory of citizens on the net* opened the SIDEA-SIEA first joint conference, precisely with the aim of outlining a possible integrated system among university, research and society. This can seem to be the only way to generate a new deal to get out of the crisis.

In light of the above considerations, the present *special issue* of the REA collects 7 papers that deal with many aspects of this process of new and renewed value creation within the current agri-food system.

The first paper: *The impact of the CAP on organizational arrangements in Italy* by Gabriele Chiodini, Stefano Ciliberti and Angelo Frascarelli, aims at exploring and evaluating the effects of the application of some institutionalized collective agreements in three agricultural sectors heavily subsidized and/or regulated for decades, thus providing new information on this theme.

The second one, titled: *Feasibility of a mutual fund to stabilise the income of farms belonging to a dairy cooperative*, by Samuele Trestini and Eleonora Chinchio, deepens the role of the so-called Omnibus Regulation (The reg. (EU) 2393/2017) and the adoption of risk management tools such as insurance, mutual funds and the income stabilization tool (IST).

The paper: *The role of the raw materials in the development of a Tuscan craft beer chain* by Veronica Alampi Sottini, Maria Cipollaro and Sara Fab-

brizzi, analyses the chain of Tuscan craft beer highlighting the preferences of a niche of consumers attracted by products characterized by a strong link with the territory and by high quality. Therefore, the document also focuses on the risks related to the "craft" lines of multinational companies and to the new craft breweries, which are not characterized by the quality standards of microbreweries.

The social aspects of the food supply chain, on the other hand, characterize the fourth paper it deals with *Immigrants in Agricultural Sector in Sicily: the Experience of "Sicilia Integra" Project* by Giuseppe Timpanaro, Paolo Guarnaccia, Gabriella Ricciardi, Giovanni Dara Guccione and Dario Macaluso. The *Sicilia Integra* project (under the patronage of the United Nations) aims to integrate young immigrants in urban agriculture who have illegally landed on the Sicilian coasts. The results show that legal employment in agriculture can be a significant tool for integration and evolution of local food systems in a sustainability, solidarity, democracy and pluralism and support key.

The paper: *Social Farming in Italy. An «inclusive model» analysis* by Francesca Giarè, Patrizia Borsotto and Ilaria Signoriello, carries out a qualitative analysis that involves the various social actors of agriculture selected on the basis of the results of the multivariate analysis on the National Survey with the aim of drawing strengths and weaknesses in the framework of the current welfare system and rural development.

In line with the recent evolution of local food systems analysed in the previous article, the special issue presents the sixth work: *Social farming and policies, between social innovation and path dependency* by Francesco Di Iacovo, Roberta Moruzzo and Cristiano Rossignoli, Jalan Batu Maung, Batu Maung - Bayan Lepas, Penang. The study deals with social agriculture that connects multifunctional agriculture and innovative social services to urban and rural areas. The focus is on social farming as a social innovation in a political game context and the starting point is the Tuscany region, where the discussion about *Social Farming* began.

The last paper *Regional nodes in European areas to boost innovation transfer and knowledge uptake. A social network analysis of building relationships in "Short Food Supply Chain Knowledge and Innovation Network (SKIN)" – H2020 project* by Gianluigi De Pascale, Fedele Colantuono, Piermichele La Sala and Francesco Contò, focuses on the evaluation of good practices in the short food supply chain (SFSC). The main characteristics of these good practices are the structured networks that emerged within the EIP-AGRI Focus Groups. Networking is an important opportunity to exploit the benefits of cooperation and to identify critical points within the reports describing the network.

I would like to close my brief introduction, citing Pietro Gobetti's sentence (1918), recently also present in a book by Carlo Cottarelli, to be addressed to

all Italian agricultural economists, especially young people (heirs of Serpieri, Rossi Doria, Medici and many other illustrious Masters of the past): "As the ancient glories are not enough to give us the present greatness, so the present defects are not enough to take away the future greatness, if we know how to want and if we sincerely want to renew ourselves" (Piero Gobetti, 1918).

This was and remains the wish, and I hope also the result that the conference in Bisceglie delivers to new generations of scholars of our discipline and to all categories of stakeholders in the food chain that attended and enriched it with their analysis and, why not, also with their critical observations, appreciations and incentives to move forward.

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Editoriale

La creazione di valore nella filiera agroalimentare sta diventando sempre più il cuore dell'economia agraria e la REA si è sempre occupata del tema con un approccio sistemico basato su parole chiave come sostenibilità, multifunzionalità, sicurezza e salute che indirizzano e generano valore nella catena. Oggigiorno, appare cruciale definire meglio vecchi e nuovi percorsi del settore agroalimentare e aiutare i responsabili politici ad elaborare strategie efficaci e politiche concrete.

Infatti, c'è uno strano destino che "*colpisce*" alcuni concetti coniati ed usati, nel corso del tempo, dagli economisti agrari.

Sono "*espressioni lessicali*" che nascono "*giovani" e dotate di grande fascino* e che, con il passare del tempo si usurano, a causa dell'abuso che gli stessi studiosi ed operatori del settore ne fanno, iniziando ad essere percepite, dai lettori e dalla stessa accademia, come forme concettuali abusate.

Finendo col perdere quell'importanza scientifica, tuttora valida, e rischiando di trasformarsi in concetti ambigui e, in certi casi, persino contraddittori ed equivoci.

Questa sorte, toccata in passato a concetti come: *pianificazione, programmazione, territorio, distretto e tanti altri ancora*, rischia di estendersi, oggi, anche a quello di "*filiera*".

Pertanto, l'obiettivo che Sidea e Siea hanno inteso perseguire, quando hanno deciso la tematica da affrontare in questo loro primo *joint*, è stato proprio quello di volere rendere "*nuovo*" un concetto che rischiava, con l'andare del tempo, di apparire sempre più "*vecchio*" e inflazionato e di perdere, progressivamente, il senso autentico ed originario del proprio valore scientifico.

E tutto questo, proprio in un momento storico in cui l'agricoltura sta tornando, con molta fatica, ad acquisire un ruolo centrale nella vita umana, nei sistemi economici e nel mercato del lavoro.

D'altra parte, i consumatori stanno diventando sempre più consapevoli ed attenti alle tematiche della sicurezza, qualità e nutrizione: stimolando gli studiosi a mettere a punto analisi e modelli organizzativi, per la costruzione e la gestione delle varie filiere agroalimentari, diversi e nuovi rispetto a quelli del passato, cui si faceva riferimento in precedenza.

Pertanto, un primo merito che va dato a tutti gli autori che hanno partecipato a questa *call for paper della REA,* è proprio quello di essersi comportati come quel *padrone di casa* del Vangelo di Matteo: "*… che estrae dal suo tesoro cose nuove e cose antiche» (MT, 13, 52).*

DOI: xxxxxxxxxxxxxxxxxx
ISSN (print): 0035-6190
ISSN (online): 2281-1559

Published by Firenze University Press
www.fupress.com/rea

Studiosi, quindi, che hanno saputo implementare un approccio nuovo, capace di rendere attuale ed utile l'utilizzo di un concetto "*vecchio*".

In questa ottica, la selezione dei paper, per la presente *special issue*, ha avuto l'obiettivo di individuare proprio quei lavori che evidenziavano, all'interno del concetto di filiera, gli antichi insegnamenti della nostra disciplina, riuscendo a proporre analisi idonee a "*fare nuove tutte le cose*" (Apocalisse, 21, 5) studiate ed analizzate con tale approccio.

In altri termini, questi lavori si connotano per la loro capacità di avere saputo mettere in evidenza come le attuali politiche agricole di coesione dell'UE possono promuovere relazioni orizzontali e verticali tra i diversi attori della catena di approvvigionamento alimentare ed incoraggiare l'attuazione di strumenti di cooperazione nelle zone rurali.

Infatti, è proprio la messa a punto di nuovi modelli organizzativi di cooperazione tra piccoli agricoltori, trasformatori e commercializzatori, come ad esempio un diverso modo di concepire e gestire le *Associazioni dei produttori agricoli* ed i loro rapporti con il *processo* e gli attori del cosiddetto *trasferimento tecnologico*, interno ed esterno alla stessa filiera: idonei ad avere un ruolo chiave, soprattutto nelle aree caratterizzate da forme di agricoltura di maggiore qualità e minori quantità di prodotto, e finalizzati al raggiungimento di volumi di produzione ed aggregazione sufficienti, in termini di caratteristiche organolettiche e qualitative, ad assicurare ai produttori un'accettabile remunerazione da parte di un mercato più vasto e non solo di nicchia.

In questa direzione, va orientato lo sforzo scientifico delle giovani generazioni di economisti agrari: mettere a disposizione, degli operatori concreti e dei territori rurali, tutta una serie di *nuovi* strumenti, capaci di migliorare lo sviluppo locale e di consolidare e diffondere il trasferimento delle conoscenze.

Un vecchio e sempre nuovo compito della nostra disciplina, spesso sacrificato sull'altare di una vuota ed inattuale modellistica econometrica, molte volte priva di solidi ancoraggi alla realtà produttiva ed ai contesti economici e territoriali in cui alcuni studiosi pretendono di applicarla.

Gli agricoltori, invece, chiedono agli economisti agrari di sapere mettere a punto idonee strategie per intensificare lo scambio di conoscenze e condivisione, attraverso l'*ispessimento* dei punti di contatto collaborativi tra le diverse fasi della catena del valore.

Contestualmente, anche le aziende agricole devono divenire più collaborative ed aperte al recepimento delle novità, per cambiare ed essere un luogo più *ricco*, dentro e fuori dei propri confini aziendali. In sostanza, nuove realtà capaci di creare valore sociale, umano ed economico: foriero di risultati e di implicazioni positive e funzionali alla crescita di *territori smart*, capaci di rafforzare le loro connessioni e le reti di relazioni alimentari.

Questo è lo sforzo che le due società scientifiche hanno avviato con questo loro primo convegno congiunto, SIDEA - SIEA, tenutosi a Bisceglie dal 13 al 16 settembre 2017.

Il titolo: "Strategie cooperative e creazione di valore nella catena di approvvigionamento alimentare sostenibile" era, quindi, in linea con l'obiettivo delineato e mirava a stimolare proprio quel dialogo scientifico e umano, prima evidenziato, quale asset indispensabile per affrontare, in modo vincente, le nuove sfide.

Per fare ciò, il ricorso ai principi dell'economia circolare, costituiva l'ideale *fil rouge* da enucleare all'interno dei diversi lavori scientifici presentati: spreco alimentare, distribuzione lungo e all'interno della filiera, sostenibilità e umanità dei sistemi agricoli, fragilità e degrado dei territori.

Evidenziando, così, quella "nuova-vecchia ottica" che dovrà animare e pervadere i futuri studi sulla filiera, da parte degli economisti agrari.

Infatti, l'economia oggi è fondamentalmente lineare: usa prevalentemente energie da fonti fossili; non si cura *"del fine vita"* dei suoi prodotti, ricicla poco e, o concentra i rifiuti in un luogo, creando problemi locali di gestione e inquinamento, o li disperde nell'ambiente creando un inquinamento diffuso.

Nel comparto agroalimentare, questa realtà fattuale potrebbe essere aggravata o attenuata in funzione del comportamento della molteplicità di settori e soggetti coinvolti (imprese manifatturiere, sistema agricolo, ricerca scientifica, Istituzioni pubbliche e private).

Pertanto, lo sforzo degli economisti agrari ed agroalimentari dovrà in futuro concentrarsi nella messa a punto di nuovi sistemi organizzativi e di nuovi modelli di contratto di filiera sempre più fondati sulla "logica" che anima la circular economy. Capaci, cioè, di attivare ed implementare tutti i meccanismi virtuosi dell'interazione e della cooperazione già presenti nel sistema economico attuale; al fine di sostenere un modello di economia che sappia promuovere l'uso delle risorse rinnovabili e rendere la dimensione verticale della filiera agroalimentare, nei fatti reali e non solo in quelli della pura analisi economica: un *asset* fondamentale per il successo di questa *forma* di rappresentazione dei *rapporti che "agiscono"* nella realtà fattuale.

In questa logica, si è mosso anche il think tank: *"laboratorio regionale dei cittadini in rete"*, che ha aperto la prima conferenza congiunta SIDEA - SIEA, proprio con l'obiettivo di delineare un possibile sistema integrato tra università, ricerca e società. Unica via idonea a generare un nuovo *patto* per uscire dalla crisi.

Alla luce delle precedenti considerazioni, il presente *numero speciale* della REA raccoglie 7 paper che trattano molti aspetti di questo processo di nuova e rinnovata creazione di valore all'interno dell'attuale sistema agro-alimentare.

Il primo lavoro: *L'impatto della PAC sugli accordi organizzativi in Italia* di Gabriele Chiodini, Stefano Ciliberti e Angelo Frascarelli, mira a esplorare e

valutare gli effetti dovuti all'applicazione di alcuni accordi collettivi istituzionalizzati in tre settori agricoli fortemente sovvenzionati e/o regolato per decenni, così da fornire nuove informazioni su questo tema.

Il secondo, intitolato: *Fattibilità di un fondo comune per stabilizzare il reddito delle aziende agricole di una cooperativa lattiero-casearia*, di Samuele Trestini ed Eleonora Chinchio, approfondisce il ruolo del cosiddetto Regolamento Omnibus (Il reg. (UE) 2393/2017) e l'adozione di strumenti di gestione del rischio come assicurazioni, fondi comuni di investimento e lo strumento di stabilizzazione del reddito (IST).

Il lavoro: *Il ruolo delle materie prime nello sviluppo di una filiera della birra artigianale toscana* di Veronica Alampi Sottini, Maria Cipollaro e Sara Fabbrizzi, analizza la filiera della birra artigianale Toscana evidenziando le preferenze di una nicchia di consumatori attratti da prodotti caratterizzati da un forte legame con il territorio e dall'alta qualità. Quindi, il documento si focalizza anche sui rischi relativi alle linee "artigianali" delle multinazionali e ai nuovi birrifici artigianali, che non sono caratterizzati dagli standard di qualità dei microbirrifici.

Gli aspetti sociali della filiera agroalimentare caratterizzano, invece, il quarto lavoro che tratta di *Immigrati nel settore agricolo in Sicilia: l'esperienza del progetto Sicilia Integra* di Giuseppe Timpanaro, Paolo Guarnaccia, Gabriella Ricciardi, Giovanni Dara Guccione e Dario Macaluso. Il progetto *Sicilia Integra* (sotto il patrocinio delle Nazioni Unite) ha lo scopo di integrare i giovani immigrati nell'agricoltura urbana che sono sbarcati illegalmente sulle coste siciliane. I risultati evidenziano che l'occupazione legale in agricoltura può essere uno strumento significativo di integrazione e un'evoluzione dei sistemi alimentari locali in una sostenibilità, solidarietà, democrazia e pluralismo e chiave di supporto.

Il lavoro: *Agricoltura sociale in Italia. Una analisi del «modello inclusivo»* di Francesca Giarè, Patrizia Borsotto e Ilaria Signoriello, effettua un'analisi qualitativa che coinvolge i diversi attori sociali dell'agricoltura selezionati sulla base dei risultati dell'analisi multivariata su National Survey con lo scopo di trarre punti di forza e di debolezza nel quadro dell'attuale sistema di welfare e dello sviluppo rurale.

In linea con la recente evoluzione dei sistemi alimentari locali analizzati dal precedente articolo, lo *special issue* presenta il sesto lavoro: *Agricoltura e politiche sociali, tra innovazione sociale e path dependency* di Francesco Di Iacovo, Roberta Moruzzo e Cristiano Rossignoli, Jalan Batu Maung, Batu Maung -Bayan Lepas, Penang. Lo studio si occupa di agricoltura sociale che collega l'agricoltura multifunzionale ed i servizi sociali innovativi a favore delle aree urbane e rurali. L'attenzione si concentra sull'agricoltura sociale come innovazione sociale in un contesto di gioco politico e il punto di par-

tenza è la regione Toscana, dove la discussione intorno alla *Social Farming* ha avuto inizio.

L'ultimo paper: *I nodi regionali nelle aree europee per promuovere il trasferimento dell'innovazione e l'assorbimento della conoscenza. Un'analisi del social network delle relazioni di costruzione in "Rete di conoscenza e innovazione della catena di approvvigionamento alimentare a breve (SKIN)" - progetto H2020* di Gianluigi De Pascale, Fedele Colantuono, Piermichele La Sala e Francesco Contò, si concentra sulla valutazione delle buone pratiche nella filiera corta (SFSC). Le caratteristiche principali di tali buone pratiche sono le reti strutturate emerse nell'ambito dei Focus Groups EIP-AGRI. La costruzione di reti rappresenta un'importante opportunità per sfruttare i benefici della cooperazione e per individuare punti critici all'interno delle relazioni che descrivono la rete.

Desidero chiudere questa mia breve introduzione, rifacendomi ad una citazione di Pietro Gobetti del 1918, esattamente di cento anni fa, recentemente ripresa anche in un libro di Carlo Cottarelli, che vorrei rivolgere, come auspicio, a tutti gli economisti agrari italiani, specie ai giovani, eredi di Serpieri, Rossi Doria, Medici e di tanti altri illustri Maestri del passato: "Come non bastano le antiche glorie a darci la grandezza presente, così non bastano i presenti difetti a toglierci la grandezza futura, se sappiamo volere e se vogliamo sinceramente rinnovarci" *(Piero Gobetti, 1918).*

Questo era e rimane l'auspicio e, spero, anche il risultato che il convegno di Bisceglie consegna alle nuove generazioni di studiosi della nostra disciplina ed a tutte le categorie di stakeholder della filiera agroalimentare che hanno partecipato ad esso e che l'hanno arricchito con le loro analisi e, perché no, anche con le loro osservazioni critiche, gli apprezzamenti e gli stimoli ad andare avanti.

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Italian Review of Agricultural Economics, Vol. 73, n. 3, 2018: 17-35

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Keywords: CAP, hybrids, NIE, agri-food, Italy
JEL codes: D23, Q13, Q18

The role of the CAP in fostering the diffusion of institutional hybrid arrangements: three case studies from Italy

The last reforms of the CAP have promoted the diffusion of new regulatory tools to improve the coordination of decisions along the agri-food supply chain. Interbranch organizations, protection consortia, the regulation of the supply for PDO products and the extension of rules represent solutions aimed at fostering the diffusion of institutionalized collective arrangements in the presence of an increasing uncertainty surrounding transactions. In light of New Institutional Economics, this paper describes and evaluates some interesting case studies that refer to some strategic sectors for the primary sectors in Italy: wine, tobacco and cheese. The results highlight that CAP can play a central role in depicting a regulatory framework that provides room for meso-institutions to foster the diffusion of hybrid forms of collective arrangements, especially in sectors that are highly regulated or subsidized.

1. Introduction

Agricultural products have always raised problems with coordination across the different stages of the supply chain, with high transaction costs as a consequence. Over the past few decades, the increasing deregulation of the European agricultural market, on the one hand, has increased the degree of uncertainty surrounding transactions, while on the other hand, it has further sandwiched farmers between the immense market power of upstream input suppliers and downstream food processors and retailers (Buckwell *et al.*, 2017; Chatelier, 2011).

As a reaction, European authorities have provided new regulatory solutions to improve coordination and increase transparency along the supply chain (Frascarelli, 2012). In this regard, a better functioning food supply chain has become one of the main aims of the Common Agricultural Policy (CAP).

Under the lens of New Institutional Economics (NIE), this paper aims to describe and highlight how the institutional environment established by the CAP affected the establishment of specific organizational solutions aimed at improving the coordination of decision-making and rights along the supply chain of specific agri-food sectors in Italy (Ciliberti and Frascarelli, 2017;

DOI: 10.13128/REA-25102
ISSN (print): 0035-6190
ISSN (online): 2281-1559
Published by Firenze University Press
www.fupress.com/rea

Chiodini and Frascarelli, 2016). The NIE perspective is adopted since it has recently introduced the concept of institutional embeddedness of organizational arrangements and, therefore, may guide the analysis of the interaction between the regulatory framework established by both European and national authorities and the diffusion of specific forms of organizational arrangements in the agri-food supply chain in the last decade. Particular attention is paid to some specific policy tools that have gained momentum thanks to reg. (EU) 1308/2013 (i.e. Common Market Organization regulation, CMO): the extension of rules[1] granted to interbranch organizations (IBOs) and the regulation of the supply of protection consortia for PDO products[2] and wines. In this regard, this paper aims to contribute to the public debate on the evaluation of these instruments, providing insights to both policymakers and scholars.

The paper is organized as follows. Section 1 reports the theoretical framework of NIE, which is adopted in order to analyse and describe the effects of the recent changes introduced by the CAP in Italy. Section 2 briefly describes the methodology adopted and the source of information used to describe the cases under analysis. Then, the latters are reported and described in Section 3 to shed light on the functioning of the policy tools under investigation. Finally, Section 4 discusses the results and offers useful insights for the debate on the role of public institutions in fostering the adoption of hybrid forms of collective arrangements.

2. Theoretical framework

Having in mind the rules of thumb of transaction cost economics (TCE) – which state that a transaction-specific governance structure is more fully developed where transactions are recurrent, entail idiosyncratic investment and are executed under greater uncertainty – a new awareness is emerging in the NIE field: the institutional embeddedness of a variety of organizational solu-

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[1] Article 164 CMO Regulation (n. 1308/2013) provides for the possibility that rules adopted by an IBO can be extended to non-members of the IBO. The member state can only extend such rules for a limited period of time and upon request of the IBO. The extended rules should not cause any damage to other operators in the member state concerned or the union.

[2] Article 164 CMO Regulation establishes that member states are allowed, under certain conditions, to apply rules to regulate the supply of PDO/PGI cheeses upon request of a producer organisation (PO), an interbranch organisation (IBO) or a PDO/PGI group. This measure is aimed at ensuring the value added and quality of cheeses with a protected designation of origin (PDO) or protected geographical indications (PGI), which are particularly important for vulnerable rural regions.

tions (Ménard, 2014b; Williamson, 2000). Deeply rooted in the Coasian tradition, the Williamsonian approach is aware that organizational arrangements are embedded in their institutional rules. Williamson (1993) certainly recognized that, since there are strategic feedback mechanisms at stake, the macro-institutions matter in influencing the governance of contractual relations. Moreover, it must be considered that, for an arrangement to be implemented and to remain sustainable, there is the need to gain institutional legitimacy on which also depends the capacity to enforce the rules of the game (Royer *et al.*, 2015).

Consequently, the set of rules, laws, policies, customs and norms that determine the rules of the game has to be taken into consideration since organizational arrangements are embedded and enforced in this institutional environment (Davis and North, 1971; Ménard and Valceschini, 2005). Such a topic deserves particular attention where governance forms are highly affected by macro-institutions, as is the case for the agri-food sectors.

Mènard (2012; 2017) clearly gives the example of the macro-institutional rules regarding agriculture that are defined at the level of the European Union through the "Common Agricultural Policy" and are therefore embedded into national laws according to the "subsidiarity" principle. However, since rules are also translated, adapted and implemented through specific institutional arrangements, the concept of meso-institutions is properly introduced. Meso-institutions can be understood as "the set of mechanisms and devices through which general rules and rights established at the macro level are translated, interpreted, adapted and implemented, thus framing the domain within which alternative organizational arrangements, the micro-institutions, draw and operate transactions and through which they transmit their expectations and requirements to the macro-level". It follows that meso-institutions differ on the one hand from macro-institutions, in that they strictly operate within the general rules defined by the latter, and, on the other hand, from the micro-layer at which other organizational arrangements operate. Indeed, they do not implement actual transactions: they do not produce and deliver actual goods and services that are inputs to other organizations or that are delivered to consumers.

In this sense, some meso-institutional arrangements (such as POs, IBOs, protection consortia) are private in nature and get their legitimacy from the institutions that delineate their role through general rules. They also share a distinctive property since they establish and enforce contractual arrangements identified as "hybrids", as they combine self-regulation mechanisms operated by private partners along the supply chain with a legal framework that determines the conditions and modalities under which these mechanisms operate (Royer *et al.*, 2015).

What is under investigation is if these meso-institutions, by opting for hybrid forms of collective arrangements, are able to establish optimal conditions for an appropriate alignment between rules of the game established through the CAP and organizational choices in order to reduce transaction costs. Such a process mostly concerns European efforts to improve the functioning of the agri-food supply chain and to address the increasing exogenous uncertainties surrounding transactions in agriculture that make agreeing on price, quality and volume more complex.

In this sense, an organization is very often the way to implement and operationalize the rules of the game, as they are defined by the institutional environment, and this process somehow gives birth to "hybrid forms" (Ménard, 1995). Recent decades have seen an increasing interest in the development of these nonstandard modes of organization in agri-food networks, particularly in Europe where agricultural production is purposefully embedded in various and changing institutional environments, yet producers compete in increasingly global market (Mènard and Klein, 2004). Hybrids are a class of arrangement included by Williamson between market and hierarchies. Such a mode is characterized by semi-strong incentives and an intermediate degree of administrative apparatus (Williamson, 1991). Indeed, modes of collective organization of the hybrid type have spread everywhere in the agri-food industry. Despite the apparent heterogeneity of hybrids, some main characteristics allow us to identify such governance forms: i) parties pool part of their resources while keeping property rights and associated decision rights distinct because they expect higher performance; ii) higher performances can be obtained through reduced uncertainty thanks to risk sharing, joint efforts to master complexity and benefits from spill over effects that not only affect shared assets but can also benefit those assets held separately; iii) mutually advantageous benefits can be obtained thanks to modalities of governance based on a durable relationship through which reputation is built so that the identity of the parties matters; iv) shared rights and decisions do not preclude competition among partners; v) the overlap of rights, the grey area surrounding the usage of shared resources, and the expected externalities make the definition and implementation of rent sharing rules particularly challenging; and vi) the main mechanism implemented for coordination is contractual (Mènard, 2018; Ménard and Valceschini, 2005).

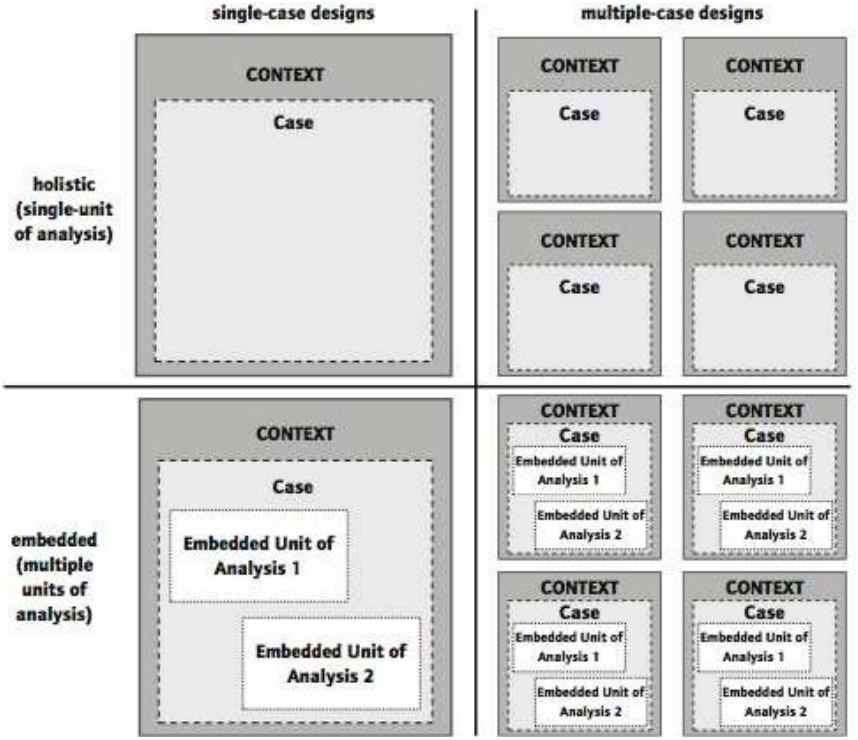
However, more effort is needed in order to shed light on the role of meso-institutions as "chains of transmission" between the institutional environment and hybrid arrangements in an agri-food supply chain faced with increasing and widespread uncertainty (Ménard, 2004; 2014a).

3. Material and methods

Due to its descriptive nature, the most suitable method to pursue the aim of the paper is the case study approach. Specifically, based on the number of case studies under analysis (Fig. 1), a multiple-holistic case study design is adopted (Yin, 2009).

The research design is composed of case studies related to three different sectors (tobacco, cheese and wine). Criteria of selection were twofold. First, these sectors have been highly affected by the transition from an interventionist-CAP (characterized by a high level of subsidies and rules) to a deregulated-CAP (characterized by a low level of subsidies and less prescriptive rules) that increased the role of uncertainty in affecting economic transactions; second, they are all strategic sectors for Italian agriculture (under both the social and

Fig. 1. Types of design for case studies.



Source: Yin (2009).

the economic point of view) and are characterized by a high level of specific investments (for technology, marks, machinery and so on). In more detail, the units of analysis are the following:

- the IBO "Tabacco Italia" is a unique case of an IBO at the European level in the tobacco sector, representing more than 80% of the tobacco contracted in Italy, and benefitting from the possibility of applying the extension of rules contained in a specific contractual agreement to non-members (Ciliberti and Frascarelli, 2017).
- the protection consortium of "Grana Padano PDO" for the cheese sector is one of the few cases of the application of binding rules for the regulation of supply for PDO/PGI cheese which was established by the European Union (Chiodini and Frascarelli, 2016).
- the Protection Consortia for the wine sector represents an interesting case study since in Italy as they can perform functions that are granted to Producer Organizations (POs) and Interbranch Organizations (IOs) at the European level, including the possibility to extend erga omnes the effectiveness of their rules (Paoloni and Gioia, 2017).

With respect to materials, the reliability of the case studies is substantiated by means of the triangulation of evidence (Yin, 2009). This method entails the convergence of empirical evidence from multiple sources of data in supporting the event or fact under investigation. Information gathering was conducted from April 2015 to July 2017 using three main sources of evidence: documents, multiple (direct and participant) observations and open-ended interviews. As concerns the documents, they were mainly collected thanks to direct access to both private documents (such as statutes, memoranda, internal regulations) as well to public regulation and official study reports. With regard to direct observation and open-ended interviews, they were carried out by means of direct contact with key stakeholders and privileged witnesses, such as the National Secretary of IBOs Tobacco Italia, the President of the protection consortium of PDO Grana Padano and some directors of the consortia for the protection of Italian wine. In more detail, observations consisted of site visits and participation in formal activities, such as job meetings, briefings, and assemblies. During the aforementioned meetings, members were interviewed and asked their opinions regarding the topic under investigation. In some cases, interviews were repeated in order to update information and data.

4. Cases under analysis and descriptive findings

Case studies are presented in this section, paying attention to the impact of CAP rules on the establishment of specific forms of institutionalized hybrid

arrangements. For each case under analysis, the evolution and the main aspects of the regulatory framework – both at the European and national levels – are analysed and their effects on the organization regarding transaction and allocation of both property and decision rights are described. In this regard, it must be noted that, according to the principle of subsidiarity, member states have a certain degree of freedom in laying down specific rules for the implementation of CAP at the national level so that the objectives of an action can be sufficiently achieved.

4.1 The IBO Tabacco Italia

The EU's Common Market Organization (CMO) provided unlimited support for European tobacco production, making this crop the most highly subsidized in relation to the area under cultivation. More recently, the CAP reform 2014-2020 removed all of the justifications for fostering the adoption of contracts between producers and the industry in order to regulate provisions regarding tobacco (Ciliberti and Frascarelli, 2014). Thus, it follows that the absence of a specific incentive may generate two main issues for the tobacco supply chain in Italy, namely, a further decrease in tobacco production, especially in less suitable and less developed areas, and a greater uncertainty about deliveries to first processors and manufacturers. This condition could threaten the functioning of the entire tobacco industry in Italy because without a competitive supply stage that guarantees stable deliveries, no subsequent stage will function effectively. Therefore, to address such a dangerous situation, shareholders have exploited the new rules of the CAP 2014-2020 reform and, more specifically, reg. (EU) 1308/2013 (CMO). This approach resulted in the founding of the IBO *Tabacco Italia* (OIT) in 2015, which aims to reorganize the entire supply chain by fostering a tight and effective coordination between farmers and the industry due to an Interbranch agreement (IA) that oversees the main aspects of deliveries including price, quality, and other factors.

Members of the IBO Tabacco Italia are representatives of both producers (UNITAB and ONT) and first processors (APTI)[3]. The OIT was formally

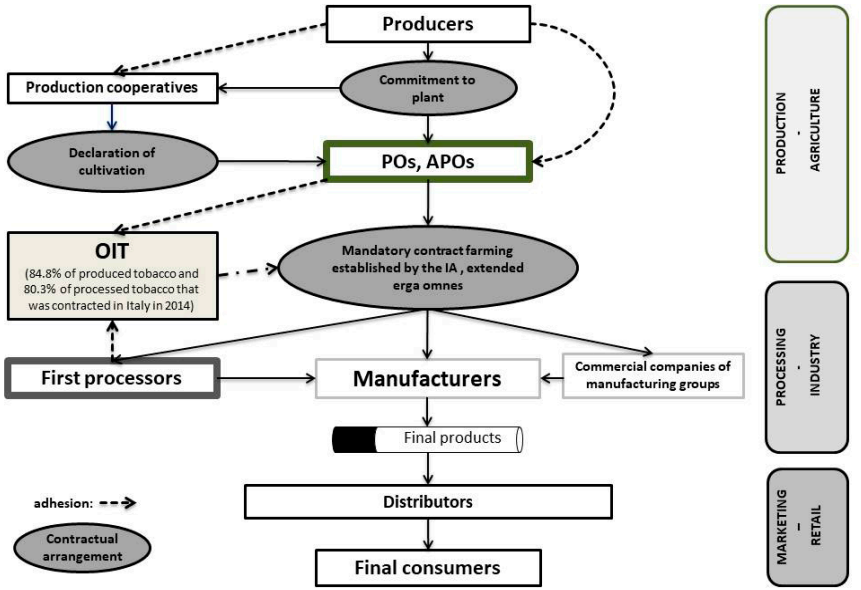
[3] Specifically, the UNITAB is an association of Italian producers that are also members of the European association of Tobacco Growers. The ONT was founded in 2002 and was legally recognised by the MAFFP in 2010; it includes tobacco POs from Campania, Umbria, and Tuscany and represents more than 60% of Italian production by volume. Finally, the APTI represents both Italian first processors and exporters. Its members are the biggest firms in this sector (e.g. multinational enterprises as well as cooperatives) and process approximately 75,000 tonnes of tobacco every year (that is, approximately 60% of the national volume processed).

recognized under the legislation previously in force, and in 2015, the newly adopted framework confirmed their recognition. Moreover, according to Article 157 of reg. (EU) 1308/2013, the OIT pursues specific aims that entail the following activity areas: i) organization of supply and market control, ii) coordination of supply chain relationships, iii) quality of production and competition policy, iv) research and development, and v) environmental compliance and sustainable production. The OIT elaborated on two agreements (the so-called interbranch agreement, IA) for the periods of 2015-2017 and 2018-2020, which have been approved by the MAFFP (Ministry of Agricultural, Food and Forestry Policies). The IA established a comprehensive framework for the conclusion of cultivation contracts of raw tobacco and minimum quality requirements for tobacco products. They represent collective arrangements that control many aspects in order to foster the coordination and marketing of raw tobacco in Italy. The IA defines the main elements of contract farming between producers and processors/manufacturers (article 2) as well as qualitative requirements for raw tobacco (article 3). More specifically, the IA shows a model of the contract[4] valid for the period 2015-2017 and 2016-2019, which involves on the one hand PO and/or APO and on the other hand first processors or manufacturers (Fig. 2).

Furthermore, since it regroups more than two-thirds of the production volume, the MAFFP has allowed IBO Tobacco Italia to extend the rules set out in the agreement to non-members, allowing the payment of a financial contribution (extension of fees) by non-members with a view to finance their institutional objectives and, in particular, to promote the relevant sector, product or product category. As a consequence, the relevant IBO rules are legally binding on all business operators in the sector. Finally, the enforcement of such an extension of rules is ensured by the Central Institute for Food Quality and Food Fraud Repression (ICQRF), which is part of the MAFFP. Sanctions in the form of financial penalties may range from 1,000 EUR to 50,000 EUR. When a non-member fails to comply with IBO's rules regarding the applica-

[4] Furthermore, according to article 168 of reg. (EU) 1308/2013 and article 62 of decree law 24 January 2012 ("Cresci Italia" Decree), the OIT establishes that every delivery of raw tobacco in Italy by a producer to a processor must be covered by a contract among the parties and that the first purchasers (processors/manufacturers) must make an offer for a contract (Ciliberti and Frascarelli, 2013). Furthermore, any contract or offer for a contract shall be made in writing and shall be made in advance of the delivery as well. Contracts must include, in particular, the following elements: i) the price, ii) the quantity and quality of the products and the timing of deliveries, iii) the duration of the contract, iv) details regarding the payment period, and v) arrangements for collecting or delivering products. However, it should be noted that all elements of contracts for the delivery of agricultural products concluded by producers, collectors, processors or distributors shall be freely negotiated between the parties.

Fig. 2. The Italian tobacco supply chain and the role of the IBO Tabacco Italia.



Source: Ciliberti and Frascarelli (2017).

tion of standard contracts that regulate the purchase of agri-food products, the application of sanctions amounting to 10% of the value of the contracts concluded in breach of those rules is implemented.

4.2 The regulation of supply for the PDO Grana Padano

EU quality policy aims to protect and promote products with unique characteristics linked to their geographical origin as well as traditional know-how. Products can be granted a "geographical indication" (GI) if they have a specific link to the place where they are made. The GI recognition enables consumers to trust and distinguish quality products while also helping producers to better market their products. PDO is a GI that guarantees that the product is from a specific region and follows a particular traditional production process. More specifically, PDO implies that every part of the production, processing and preparation process must take place in the specified region.

In the dairy sector, the so-called "milk package" (reg. (EU) 261/2012 integrated in the reg. (EU) 1308/2013) introduced a specific regulation for the

supply of PDO or PGI cheese. It allows the establishment of a set of rules with the purpose of checking the flow of cheese into the market. More specifically, upon the request of a PO, an IBO or a protection consortium, member states may lay down, for a limited period of time, binding rules for the regulation of supply of a PDO/PGI cheese.

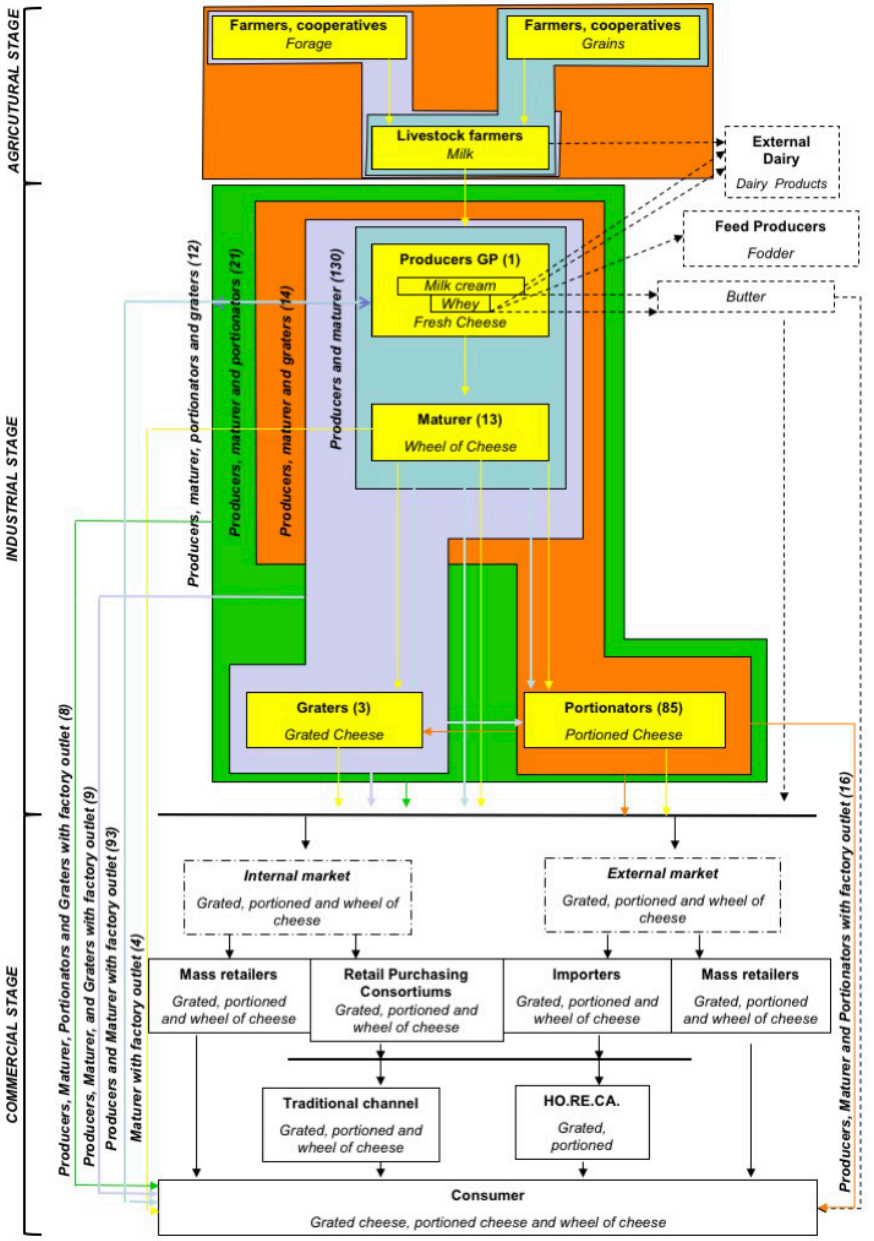
The European and Italian regulatory framework clarifies how to realize productive plans for the regulation of supply. Specifically, article 150 of the CMO states that the regulation of the cheese supply with a protected designation of origin can be introduced upon request by a producer's organization, an IBO or a protection consortium and must comply with the given restraints to avoid violating the rules of competition. This regulation was enforced in Italy through a decree by the Ministry of Agriculture, Food and Forestry on 12 October 2012. It listed the guidelines for devising plans for the regulation of supply.

Regulation of the cheese supply in Italy has been introduced for some cheeses (Grana Padano PDO, Parmigiano Reggiano PDO, Asiago PDO and Pecorino Romano PDO). Among these, regulation of the supply of Grana Padano PDO (Fig. 3) is the most interesting because this regulation has been in effect the longest.

This supply regulation scheme underwent several changes over the years; however, the idea of the consortium for the safeguarding of Grana Padano paved the way for the introduction of this tool in the EU. The supply regulation scheme adopted by Grana Padano includes the certification system that characterizes most of the products with PDO and PGI. The current Grana Padano PDO plan covers the planning period from 2016 to 2018 and strives to control the supply in order to align supply and demand by means of consolidating the presence of the product in the main markets and the acquisition of new marketplaces, quality promotion and safeguards (Chiodini and Frascarelli, 2016). Specifically, regulation of the supply plan utilizes the following four tools:

1. Regular contribution based on the global production level of Grana Padano. The Consortium has assigned a reference point (RP) to each dairy farm to which a so-called "regular contribution" corresponds. Over the course of a year, each dairy farm pays a regular contribution on a monthly basis, on average 5€/wheel (the range varies from 4,82 €/wheel to 5,48 €/wheel, according to the weight of the wheels) for the number of wheels produced per month;
2. Differential contribution. When the production of one or more dairy farms exceeds the reference point assigned, the consortium will levy additional contributions in consideration of the greater allocation of resources for qualitative and promotional improvements to market the surplus produc-

Fig. 3. The supply chain of the PDO Grana Padano: actors and stage.



Source: Martino *et al.* (2016).

tion. This system is called "differential contribution". The differential contribution grows by 1% according to the production levels, with a charge increasing by 7,5 €/wheel per level. Above 8%, each wheel's differential contribution is 60€;

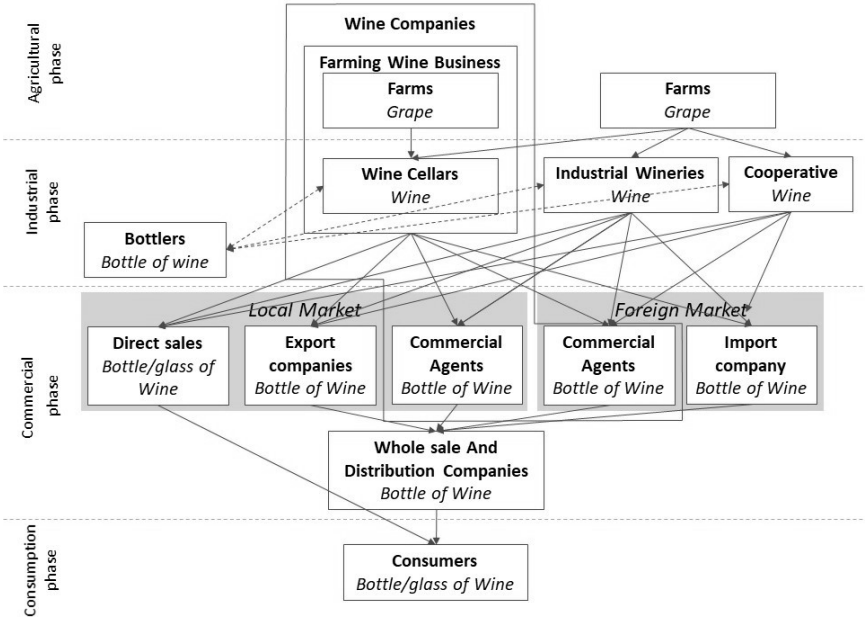
3. Redistribution of the wheels. The consortium, above the set differential contribution, redistributes a given number of wheels, which will proportionally decrease when the threshold is not achieved;
4. Quality prize. To valorise quality, the consortium has established a quality valorisation criterion as follows: If the percentage of the dairy farm's premium cheese is higher than 80% of the total, there is a 25% increase in the distribution of the wheels. If the percentage of premium cheese is 90%, there is a 10% reduction in the contribution charge in addition to the abovementioned bonus.

4.3 The consortia for protection of Italian wine

The Italian wine production system is strongly fragmentated and a large majority of vine area is still managed by small farms with fewer than 10 hectares. The supply chain of the wine sector (Fig. 4) is characterized by a structural duality since, on the one hand, there are thousands of small farms that often produce for their own consumption and, on the other hand, there are companies with high levels of professionalism and high production of wine (Gori and Alampi Sottini, 2014). For processing, there is a very high number of wine processors that are divided into three different typologies: i) farm wine cellars, which convert grapes produced on the farm; ii) industrial wineries, which exclusively process wine grapes purchased on the market; and iii) cooperative wine cellars, which process both grapes from their members and those purchased on the market. This latter type is the most relevant in terms of wine production, even though farm wine cellars are the most numerous. Moreover, there are also several bottlers because bottling is often a not profitable production stage for small farm wine cellars. All in all, strong fragmentation in both the production and processing stages causes relevant problems of coordination along the wine supply chain with negative consequences for sales.

Against this framework, over the past few decades, the number of Italian wine farms as well as the land used for viticulture has greatly decreased. In the same period, however, it must be noted that areas cultivated for certified wine (PDO and PGI) have increased. In Italy, PDO and PGI wines are classified into four categories: *Denominazione di origine controllata e garantita* (DOCG) e *Denominazione d'origine controllata* (DOC) for the former and *Indicazione geografica territoriale* (IGT) for the latter. These geographical indi-

Fig. 4. The supply chain of wine.



Source: own elaboration.

cations mean that the grapes have to come exclusively from the geographical area where the wine is made. Most importantly, these wines are safeguarded by protection consortia that are also allowed to define and enforce specific internal management policies. As of now, 120 consortia have been recognized in Italy, mainly for PDO wine.

Regulation 1308/2013 (CMO) has opened up new and important perspectives for consortia. The EU legislation has finally provided the definition of IBOs that was later made into law in Italy and assigned for the first time to the consortia. As a matter of fact, reg. (EU) 1308/2013 stated that IBOs can be acknowledged as representatives of the economic activities linked to the production and at least one of the phases of processing or trade. Since consortia are indeed currently represented by categories of growers, winemakers and bottlers, it follows that each of the wine consortium, as an inter-professional organization, is responsible for the designation, the rules (production specification) that are the basis of its identity and its evolution and adaptation to consumer's tastes. Based on article 41 of law 238/2016 (that substituted art. 17 of legislative decree 61/2010), the consortia pursue specific objectives and

Tab. 1. Case studies: main findings.

	Grana Padano PDO	Consortia for the protection of wine	IBO Tabacco Italia (OIT)
EU regulatory framework	Art. 150 reg. (EU) 1308/2012	Art. 167 reg. (EU) 1308/2013	Art. 164 reg. (EU) 1308/2013
IT regulatory framework	MAFFP decree n. 15164/2012.	Art. 41, Legge 12 dicembre 2016, n. 238 (ex-Art. 17, D.Lgs. n. 61/2010)	D.D. n. 2858 del 07/08/2015
Right holder	Protection Consortium	Protection Consortium (IBO, acc. to point (5) of art. 1 of Ministerial Decree, December 16th, 2010)	IBO
Member (no.)	- Cheese factories: 130 - Responsible for cheese-curing: 155 - Exporter: 51	- Wine growers - Bottlers - Winemakers	- Tobacco POs: 2 - First processors: 1 (association)
Capacity	Define and coordinate a productive plan for the regulation of the supply of cheese benefiting from a protected designation of origin or from a protected geographical indication.	- Define policies for the regulation of supply and plans for quality improvement; - organization and coordination of the activities of who is involved in production and commercialization; - act to protect and to safeguard the PDO or PGI and to protect producers' interests and rights; - perform supervision, protection and safeguarding of denomination predominantly during the commercial Phase.	- Organization of supply and market control; - coordination of supply chain relationships; - quality of production and competition policy; - research and development; - environmental compliance and sustainable production.

	Grana Padano PDO	Consortia for the protection of wine	IBO Tabacco Italia (OIT)
Representativeness for extension of rules to apply (minimum percentage required)	Two-thirds of the milk producers or their representatives representing at least two-thirds of the raw milk used for the production of the cheese, and, where relevant, at least two-thirds of the producers of that cheese representing at least two-thirds of the production of that cheese in the geographical area.	40% of the vine grower and 66% of the production of registered vineyards within their PDO or PGI, calculated on the declared amount produced in the preceding two years.	Two-thirds of the volume of the production of, the trade in, or the processing of the product or products concerned.
Tool	Plan for the regulation of supply, submitted to the MAFFP.	Production management policy submitted to the MAFFP.	IBO agreement submitted to the MAFFP.
Associative cost	Variable (based on production)	Variable or fixed or mixed	Fixed
Definition of a contract scheme	No	No	Yes
Extension of rules	Who is inserted in the control system	Who is inserted in the control system	All
Level of application	Cheese producers	Grape producers and bottlers, with or without grape processing	Primary producers and primary processors
Tool extension	Relevance area of geographical indication	Relevance area of geographical indication	National
Controls	CSQA	Various subject	ICQRF

Source: our elaboration.

may perform several activities for this purpose. Specifically, they are responsible for the managing of production in respect to the market (also providing, in agreement with the region, restrictive yield measures), stock management, and new registration of vines to a DO at the Land Registry. Finally, they are responsible for increasing the value of the product and for protecting the designation.

Another important aspect is related to the so-called "erga omnes" authorization. National legislation (art. 17, par. 4 of the abovementioned legislative

decree n.61/2010) specifies that consortia demonstrating a higher level of representativeness (at least 40% of winegrowers and at least 66% of the production of registered vineyards within their PDO or PGI) can get further ministerial authorization to carry out such extended functions towards all subjects included in the control system, even to the ones that are not members of the consortium. Consortia that have received the "erga omnes" authorization are allowed to implement supply management policies, to improve the organization and coordination of stakeholders along the supply chain and to undertake judicial or administrative autonomous acts for the protection of the designation.

As concerns the specific actions aimed at managing production, in order to safeguard the quality of the wine as well as to improve the marketing of products, the following rules related to the management of production can be extended to non-members of a consortium that has obtained the extension of rules:

- Storage of a percentage of the production during favourable years to address potential lack of production thereafter;
- Reduction of the maximum grapes/wine yield for PDO/PGI wine (or the maximum yield of grape per hectare) in order to ensure a market equilibrium;
- Control of registration in the "vineyard register" that allows the procurement of the PDO/PGI;
- Establishment of other systems to ensure a proper management of available wine volumes in order to regulate both the supply of grapes and storage.

To sum up, this case study highlights how European and Italian regulation (respectively, by means of article 167 of reg. (EU) 1308/2013 and art. 41 of law 238/2016) allows protection consortia to play a relevant role for guaranteeing the quality of production as well as for managing and regulating the supply of PDO wines (Paoloni, 2012). Most importantly, based on consortia requests, such rules can be extended thanks to specific actions undertaken by administrative regions. What emerges is that consortia for the protection of Italian PDO and PGI wines can take advantage of the European and national regulatory framework to ensure proper management and coordination of the supply of wine. In this regard sense, consortia may enforce a strict internal regulation, based on the limitations of the registration of the vineyards in the "vineyard register for PDO/PGI" with the aim to avoid overproduction.

Finally, Table 1 summarizes the main findings related to the case studies under investigation. It reports information on the regulatory framework that defines specific rules for the establishment and the functioning of the organizational arrangements analysed.

5. Discussion and Conclusions

The new regulatory framework introduced by the CAP has offered some solutions to improve the coordination of decisions along the agri-food supply chains. What emerged in the sector under investigation is the diffusion of specific meso-institutions (e.g. IBO, consortia) that promote hybrid organizational solutions based on contractual arrangements (e.g. IA, regulation of supply) extended to non-members that mix autonomous adaptation, as in markets, and cooperative adaptation, as in hierarchies. These institutional-embedded hybrids are aimed at making parties cooperate since they pool part of their resources while keeping their property rights and decision rights distinct in order to reduce both endogenous and exogenous uncertainty (risk sharing) that increasingly surrounds transactions, realize higher economic performance, benefit from reciprocal learning effects, establish durable relationships that ensure the stability of supply, build a positive reputation and, last but not least, reduce the risk of rent sharing.

What emerged in the three case studies under analysis is that CAP has attributed an increasing role to meso-institutional solutions that promote the diffusion of hybrid forms of collective arrangements. However, this paper also shows that these latter forms mainly spread in the presence of both specific investments surrounding transactions. This is the case in the sectors investigated since these investments would allow the minimization of the costs of governance in the presence of an increasing uncertainty. In other words, these embedded hybrids developed when partners found some advantages in linking some of their investments and in establishing and accepting mutual dependence; that is most likely when asset specificity is high, and uncertainty is gaining momentum.

Finally, some interesting implications for policymakers also emerge. First, the CAP has promptly fostered the diffusion of collective arrangements aimed at addressing increasing uncertainty due to the dismantlement of market interventions (such as the milk quota system for the cheese sector, vineyard planting rights for the wine sector and deficiency payment and coupled support for the tobacco sector) that created several problems of coordination along the agri-food supply chain. Against this backdrop, it is important to note that, in order to foster the diffusion of other hybrid organizational arrangements in the agri-food supply chain, it is strategic that the process of institutional embeddedness of meso-institutions established by the CAP continues.

However, the paper also has some limitations since it is clear that the case studies are descriptive in nature and cannot provide empirical evidence of the effectiveness of the organizational arrangements promoted by the CAP. Further studies supported by quantitative analyses are needed in order to explore

this knowledge gap as well as to investigate and compare similar experiences in member states with long-standing traditions in the use of such policy instruments.

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Simulation of a mutual fund to stabilise the income of farms belonging to a dairy cooperative

Keywords: Income Stabilisation Tool, dairy farms, risk assessment, mutual funds, cost index
JEL codes: G32, Q12, Q18

In the last years, the high volatility of the dairy market has exposed farmers to a strong income risk, which is expected to increase. In this context, with the reg. (EU) 1305/2013, European Union tried to encourage the adoption of risk management tools such as insurance, mutual funds and the Income Stabilisation Tool (IST). The IST is a mutual fund that compensates farmers for severe income losses, but nowadays it is still very little applied. The reform of reg. (EU) 1305/2013 by the so-called Omnibus Regulation, introduced relevant innovation allowing for sector-specific IST, a reduced threshold (20%) and the use of indexes. The simulation of a sector-specific IST under Omnibus Regulation is performed on 167 farms belonging to a dairy cooperative in Veneto Region (Italy).

1. Introduction

While price variation is both desirable and inevitable in all free markets to some degree (O'Connor *et al*., 2015), exceptional price volatility in agricultural commodities and products represents an important risk factor for producers (Adinolfi *et al*., 2011). During the last years, both political (e.g. changes in agricultural policies), economic (e.g. changes in supply and demand) and environmental factors (e.g. adverse weather conditions, plant and animal diseases) have put at serious risk market stability. Evidence shows that price volatility increased since 2005 and it is likely to remain a major concern in the coming decades, leading to a number of negative consequences (EPRS, 2016; Tangermann 2011).

Talking about the dairy sector in particular, price dynamics in the EU have been deeply affected by the changes of EU Common Agricultural Policy (CAP) that have occurred in recent years (O'Connor *et al*., 2015). With the Luxembourg agreement in 2003, the focus was shifted from the maintenance of high and stable prices to a greater market orientation, through the reduction of market intervention prices and the introduction of income support via the Single Payment Scheme (SPS) (O'Connor *et al*., 2015). This brought the EU

DOI: 10.13128/REA-25103
ISSN (print): 0035-6190
ISSN (online): 2281-1559

Published by Firenze University Press
www.fupress.com/rea

dairy prices more in line with world prices (which were historically and significantly lower than EU prices), thus increasing price variability, reducing farmers' ability to invest in future production (Bergmann *et al.,* 2015; Bergmann *et al.,* 2016) and exposing them to the risk of failure (Meuwissen *et al.,* 2003; Capitanio, 2010; El Benni and Finger, 2013).

The increased market instability showed its first biggest effect with the 2009 crisis, when European milk prices had a substantial fall, dropping under the 0.30€/l (EPRS, 2016). To respond to this crisis, the Council and the European Parliament adopted the so-called "Milk package" with reg. (EU) 261/2012 and now integrated in the reg. (EU) 1308/2013. This plan includes different measures aimed to strengthen the bargaining power of agricultural producers and to prepare the sector to the new market environment. However, the package did not face the problem of price volatility (Pieri and Rama, 2016), for which it was necessary to implement appropriate risk management measures, as witnessed by the emergency of a new crisis in 2015. Consequently, with the reg. (EU) 1305/2013, risk management tools were introduced for the first time in the second pillar of the CAP, giving the possibility to EU Member States, or their regions, to include these measures in their Rural Development Programmes. Specifically, the aim was to:

1. help farmers to cover the premiums they pay for crop, animal and plant insurance (art. 37);
2. encourage the setting up of mutual funds (i.e. financial reserves based on the contributions of the participant, who chooses spontaneously to deal with and share the risk) (Borrelli *et al*., 2013) used for compensating farmers experiencing serious production losses caused by adverse climatic events, the outbreak of animal or plant diseases, pest infestation or environmental incidents (art. 38);
3. help farmers in case of a severe drop of income through the Income Stabilisation Tool (IST) (art. 39).

The introduction of this last instrument is particularly interesting, because it focuses on farmer's income, combining all farm's insurable risks into a single contract (Pigeon *et al*., 2012) and thus representing an overall coverage to all risks (Capitanio *et al*., 2016). Specifically, the IST provides financial support to mutual funds that compensate farmers affected by a serious drop of income (i.e. income loss higher than 30% of the average annual income in the preceding three-years period or five-years period excluding the highest and lowest years), providing contributions to the administrative costs of setting up these mutual funds and to the amounts they pay to farmers. Payments by the mutual fund shall compensate for less than 70% of the income reduction. Mutual funds can profit for a public contribution limited to 65% of the cost of indemnities paid under IST rules. Income shall refer to the sum of revenues

that the farmer receives from the market, including any form of public support, deducting input costs.

Despite the advantages related to the IST, which, being based on a mutual fund, permits to reduce typical insurance issues like moral hazard and adverse selection, it is actually little applied, such as mutual funds in general. Insurance schemes remain the most diffused risk management instruments, while IST has been actually activated by only two Member States (Italy, Hungary) and one region (Castilla y Léon in Spain) (EPRS, 2016). The major current limit of the IST is that it requires the precise measurement of farm incomes and costs, which are often unavailable because farmers have not the obligation to keep track of their entrances and losses. In addition to this, the fact that the detailed IST design is left to the Member States, sets some other important limits from the operational point of view, regarding mainly the absence of guidelines to define the reference income, the membership costs and trigger levels (Finco *et al.*, 2013; MIPAAF, 2015; Trestini *et al.*, 2017b). Lastly, it has been seen that in Europe mutual funds struggle to attract a sufficient number of participating farmers (EPRS, 2016).

From this picture clearly emerges that the IST is still an immature tool that needs to be improved. In September 2016, through the so-called Omnibus Regulation, the Commission proposed the introduction of a new sector-specific Income Stabilisation Tool (EC, 2016), characterized by a reduced threshold of income loss (20%) to access to the resources of the fund. This proposal followed Member States' requests for the dairy and meat sectors, which were affected by a severe crisis. In fact, it is well known that economic risks do not affect all the agriculture sectors in the same way (Vrolijk and Poppe, 2008; Enjolras *et al.*, 2014). The debate on the IST has continued in the early 2017, with a draft opinion of the Committee on Agriculture and Rural Development proposing the use of indexes to estimate the annual income loss. Its final goal is to achieve a sufficient degree of simplification (one of the main objective of the new CAP), in the hope that mutual funds will represent a safety net against market instability for farmers.

The Omnibus Regulation – reg. (EU) 2393/2017 –, which amends reg. (EU) 1305/2013, confirms the support of sector-specific IST (article 39a), the application of a threshold of at least 20% and the possibility to use indexes to calculate farms' annual loss of income. Moreover, public support has been increased to a maximum of 70%. Beside the administrative costs and the amounts paid by the mutual fund as financial compensations to farmers, the support can be addressed also to the initial capital stock of the mutual fund and to supplementing the annual payments into the fund.

The IST needs to be developed and tested, in order to become an effective risk management tool for farmers. During the last years, attempts were made

to evaluate the IST potentiality. Finger and El Benni (2014b) focused on its feasibility on Swiss farms, while in Italy some preliminary studies were carried out by Dell'Aquila and Cimino (2012) and Finco *et al.* (2013). Capitanio *et al.* (2016) and Severini *et al.* (2018) debated issues about general strategies on IST implementation while the understanding of farm risk profile and resilience has been discussed by Trestini *et al.* (2017b). Furthermore, a hypothetical sector-specific IST has been discussed by Trestini *et al.* (2017a). Finally, concerning dairy farms, Trestini *et al.* (2018) presented some first attempts to estimate farms' risk profile and resilience to income drop.

The aim of this research is to simulate a mutual fund to stabilize the income of dairy farmers belonging to a cooperative, proposing a methodology using indexes for the calculation of the reference income, the level of indemnities paid to farmers and their annual payments to the fund. To our knowledge, this is the first study simulating the functioning of a sector-specific IST, able to support farmers and their associative forms to build a mutual fund under the current IST rules. Being dairy cooperatives a strong reality in Italy (they represent the 19% of turnover of milk sector and more than 60% of the three main PDO cheeses – MIPAAF, 2017), the result of this research could facilitate the application of this new instrument. This because farmers associated to cooperatives are already sharing mutual interest and cooperatives aggregate a relevant number of potential members.

2. Methodology

2.1 The case study description

The case study we analyse is about one of the biggest cooperative in Veneto, with actually more than 350 members (10% of regional dairy farmers) providing the 11% of the regional production of milk. The cooperative produces different kind of dairy products, mainly PDO cheeses like Grana Padano and Piave.

The data collected from the cooperative database include: (i) the number of cows, (ii) the quantity of milk supplied to the cooperative and (iii) the annual price paid to farmers, related to each member, within nine years (2008-2016). To our purpose, we selected only the farms continuously active for the considered years, which were 172. These data allow to quantify farms' revenue. With the aim of quantifying income value and variation, section 2.3 proposes a methodology to model feed costs based on information extracted from Farm Accountancy Data Network (FADN), indexed on farm's characteristics and market prices.

2.2 Income definition

The first step to build a mutual fund according to reg. (EU) 1305/2013 is the definition of the reference income by which to evaluate the income variation. Regulation reports that reference income of a certain year can be (i) the average of the previous three years or (ii) the Olympic average of the previous five years. Here, we opted for the first option; this choice, allowing for the observation of two years more, is consistent with Finger and El Benni (2014a), who observed no significant differences between the two methods. In line with the US Dairy Margin Protection Program (Bozic *et al.*, 2012), our study adopted the Income Over Feed Costs (IOFC) as reference income. This index, that represents the milk margin above feed costs, is a good approximation of the farmer income, considering that feed cost alone accounts for more than 40% of revenues. Furthermore, the uncertainty in milk and feed prices represents a major source of business risk in dairy farm (Valvekar *et al.*, 2010).

Compared to income definition of reg. (EU) 1305/2013, public aids and costs different from feed were not included in the income calculation. Due to the stability over time of direct payments and costs different from feed, we expect that our approach may represent faithfully the functioning and the riskiness of a milk sector IST. Additionally, the inclusion of the other costs in the income calculation, may lead a higher number of farm to a negative reference income compare to IOFC, compromising the possibility to apply IST.

2.3 Estimation of feed costs

This section proposes a methodology to estimate feed costs for dairy farms belonging to the mutual fund. This approach aims at simplifying feed costs estimation in a way to improve fund's efficiency in estimating income variation reducing information asymmetry problems. Thus, the proposed approach is looking for a model able to explain feed costs considering data availability to the fund. Data to be considered should have the following characteristics:

- availability: to quantify income variation and the potential farms' compensations, data of a specific year need to be available when compensation are expected to be quantified and paid;
- independence: to avoid moral hazard, data in the model cannot be affected by farmers;
- representativeness: model should represent fund members.

Based on this, the model for feed cost has been estimated using FADN information in the period 2008-2015 and official commodity prices. Observed feed cost of a sample of farms located in the provinces where the dairy coop-

Tab. 1. Descriptive statistics of the FADN sample (n=498).

Variable name	Variables description	n.	Mean	St. Dev.
feed_cow	Feed expenditure per cow		1,469	473
milk_cow	Milk production per cow		70.0	21.1
province	Administrative province where each farm is located			
Belluno		23		
Padova		105		
Treviso		161		
Venice		39		
Vicenza		170		
year	Year of observation			
2008		97		
2009		95		
2010		58		
2011		58		
2012		61		
2013		56		
2014		38		
2015		35		

Source: own elaborations on FADN data.

erative operates has been explained on cows' productivity (FADN), feed prices (Bologna commodity exchange - AGER) and farms location (FADN). Bologna prices are assumed representative of Italian prices (Revoredo-Giha and Zuppiroli, 2013).

Linear and log-linear functional forms have been both tested. Log-linear guarantees both higher R^2 and lower sum of squared for residuals. Log-linear function is also coherent with the shape of average cost, assuming a profit maximisation behaviour (Beattie and Taylor, 1993). The model can be represented as follows:

$$ln\ (feed\_cow_{it}) = \alpha + \beta_1 milk\_cow_{it} + \beta_2 milk\_cow_{it}^2 + \beta_3 province_i + \beta_4 prices_t + \varepsilon \quad (1)$$

where:

- *feed_cow* is the feed expenditure per cow of the farm "*i*" in the year "*t*",
- *milk_cow* is the milk production per cow for the farm "*i*" in the year "*t*",

Tab. 2. Average commodity prices (*prices*) included in the model in the period 2008-2015 (€/ton).

Variable name	Variables description	Mean	St. Dev.
corn	national feed corn price	191.10	33.06
soybean	imported soybean non GMO price	371.72	50.69
alfalfa	local alfalfa price	216.99	17.44

Source: AGER.

- *province* is a set of dummy variables accounting for the administrative province where the farm "i" is located,
- *prices* is a set of average yearly prices for corn, soybean and alfalfa for the year "t" observed in Bologna commodity exchange.

Farms in the FADN dataset have been selected within the sample of Veneto in coherence with the dimension (between 3 and 300 milk cows) and the productivity (between 1.5 and 12.8 ton of milk per cow per year) of farms belonging to the dairy cooperative, and within the province covered by the cooperative members. Therefore, the final sample consists of 498 observations. Table 1 reports descriptive statistics of the sample and Table 2 reports prices in the period.

2.4 Farmers' income variation, indemnification and participation costs

Consistent with the choice of Finger and El Benni (2014b) and Trestini *et al.* (2018), we excluded farms that showed at least one negative reference income. The Regulation does not provide any specific rule for this case: e.g. also in the Canadian AgriStability Program (Kimura and Anton, 2011) farms with negative incomes are treated separately. Therefore, the final group consists of 167 farms.

Table 3 shows descriptive statistics of the farms (n=167). Looking at milk prices, it is particularly evident the effect of the two crisis (2009 and 2015-2016). Relatively higher prices compared to spot market are easily justified by the high share of milk devoted to the production of PDO cheeses.

Income variation is calculated for each farm as the difference among IOFC observed in each year and the reference income calculated over the previous three years. According to the methodology proposed by Trestini *et al.* (2018), each farms' reference income has been standardised on the number of cows observed in the current year. This allows to avoid a misleading estimation of the income variation due to a change in herd dimension.

Tab. 3. Average number of milk cows, milk production, milk revenues and prices paid by the cooperative (n=167).

Year	Milk cows (n.)	Milk per cow (100 L)	Farms revenues (000 €)	Milk price (€/100 L)
2008	37.8	69.3	100.8	38.5
2009	38.9	67.6	92.6	35.2
2010	39.1	71.4	116.2	41.7
2011	40.3	73.3	142.1	48.1
2012	41.0	75.4	136.4	44.1
2013	41.9	74.2	137.1	44.1
2014	42.2	77.9	139.6	42.5
2015	42.7	79.0	129.4	38.4
2016	42.7	79.8	127.1	37.3
Average	**40.7**	**74.4**	**124.6**	**41.1**

Source: own elaborations on dairy cooperative data.

According to the Omnibus Regulation, one farm can be indemnified by the fund when its income loss is greater than 20%, compared to its reference income. The fund pays the 70% of such income reduction.

By the simulation of income losses suffered by farmers in the period 2011-2016, the total amount of fund compensations to farms has been quantified. Except from functioning costs of the fund and considering the total requirement of the fund equal to the total entity of the indemnifications paid in the period, it is possible to quantify a hypothetical annual farmer participation cost, expressed as % on the reference IOFC or per revenue. Alternatively, it can be represented as flat fee expressed per farm or per cow or per kg of milk.

3. Results

Table 4 reports the model estimates for equation (1) where variables have been included applying a stepwise regression method with forward selection. The model correctly describes the 43.7% of feed cost variation in the FADN sample with a significant effect associated to the average productivity of cows (*milk_cow*), *province* (reflecting the effect of different territories), and *prices* (incorporating the effect of price changes). *Milk_cow* shows a decreasing effect due to the negative coefficient of the square of the variable. Concerning commodity prices, only corn and soybean show a significant effect on *feed_*

Tab. 4. Model estimates – dependent variable: *ln (feed_cow)*.

Variables	B	SE	t	p-val
constant	5.665	0.154	36.770	0.000
milk_cow	0.019	0.003	5.481	0.000
milk_cow²	-6.2e-5	0.000	-2.505	0.013
province				
Treviso	0.145	0.032	4.516	0.000
Venice	-0.099	0.050	-1.980	0.048
Vicenza	0.084	0.032	2.626	0.009
prices				
corn	1.3e-3	0.000	3.167	0.002
soybean	7.7e-4	0.000	2.937	0.003
$R^2 = 0.437$				

Source: own estimations.

cow. The estimated coefficients are applied to calculate feed cost (*feed_cow*) of each farm belonging to the cooperative in different year: *milk_cow* is the average quantity of milk supplied by each farm to the cooperative; *province* is the province where the farm is located; *prices* are the average annual price, respectively for corn and soybean, that can be observed at the end of each year in the Bologna market. The calculated *feed_cow* multiplied by the number of cows in each farm in a specific year allows to estimate farms' annual feed cost.

Table 5 reports the farm's average feed costs and IOFCs among different years. Here, it is interesting to notice the high incidence of feed costs over milk revenues, which ranges from a minimum of 40.5% in 2011 to a maximum of 51.1% in 2019. Coherently to Valvekar *et al.* (2010), this justifies our choice to use the IOFC as indicator of farm income.

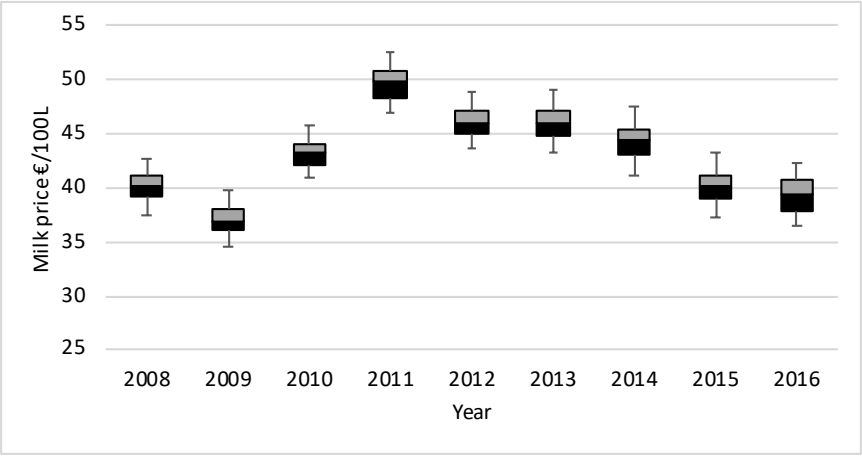
Considering that mean values represent only partially the distribution of individual economic results of the farms along the years, it is interesting to look at the dispersion around the mean of milk revenues, feed costs and IOFC. Milk prices (Fig. 1) clearly show the trend of dairy market in the last years. Values are characterized by a lower dispersion around the mean compared to other variables. In fact, the price paid to farmers by the cooperative is composed by two components: the basic price, that is paid per litre of milk and varies according to the year, and an additional price, based on milk quality parameters defined by the cooperative. While the basic price in a year is constant for all the farmers, the quality premium price is individual, and can

Tab. 5. Average feed costs, IOFC and incidence of feed costs over total milk revenues (n=167).

	Feed costs (€/100L)	IOFC (€/100L)	Feed costs/ Milk revenues (%)
2008	19.4	19.1	*50.4*
2009	18.0	17.2	*51.1*
2010	18.4	23.2	*44.2*
2011	19.5	28.6	*40.5*
2012	21.2	22.9	*48.0*
2013	21.0	23.1	*47.7*
2014	19.4	23.1	*45.6*
2015	18.1	20.3	*47.0*
2016	18.0	19.3	*48.2*
Average	**19.2**	**21.9**	***46.7***

Source: own elaborations.

Fig. 1. Milk prices over years for the sampled farms.

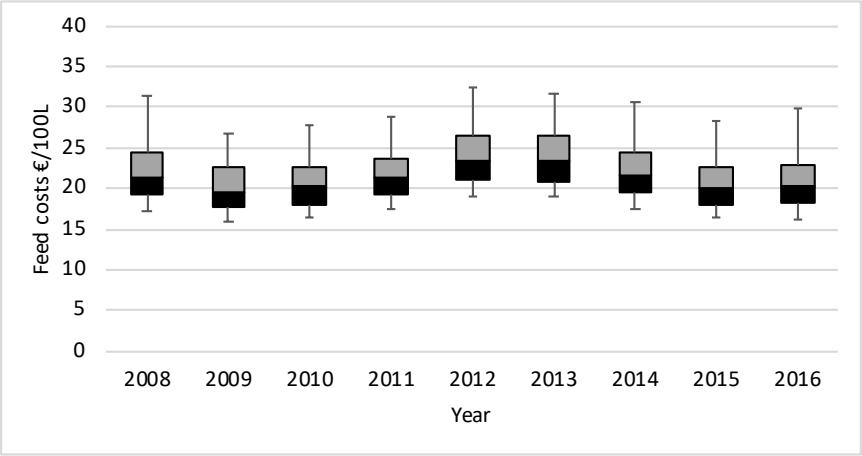


Source: own elaborations on dairy cooperative data.

represent an addition to the basic price, if the milk parameters considered are good, or a detraction, if they are not. Therefore, it is the price quality component that origins prices dispersion through farms in the same year. On the contrary, variability of feed costs is particularly high (Fig. 2), such as that of the IOFC (Fig. 3). Therefore, the variation of IOFC of a specific farm is the combination of two effects: i) milk and feed prices, mainly depending on market factors, out of the control of farmers, and ii) milk quality and cost efficiency, mainly under control of the farm.

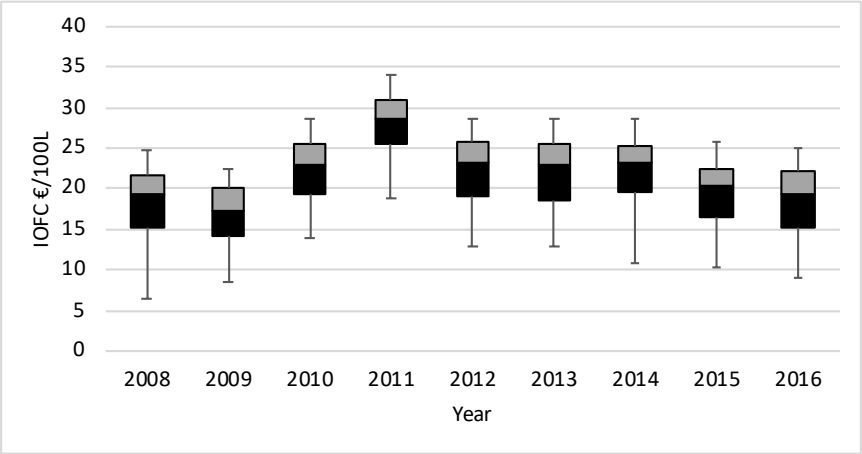
The simulation of the IST showed that the 62% of the sample would have received at least one indemnification during the period 2011-2016 and, between these, the 53% would have been compensated more than once. In Table 6, we can see that the percentage of farms that would have been compensated by the fund varies among the years with a greater incidence in 2013 (24%), 2015 (31%) and 2016 (26%). The IST allows supporting up to the 42% of farms in 2015, at the beginning of the sector crisis (70 farms within the 167). By the way, in the second year of the crisis (2016), only part of these farms could benefit from an additional support of the IST (24 over 51 farms) while 19 new farms would be supported for the first time. This happened because farms suffering a reduction of income lower than 20% experience a reduction of their reference income, reducing the probability of income support by the fund.

Fig. 2. Feed costs over years for the sampled farms.



Source: own elaborations.

Fig. 3. IOFC over years for the sampled farms.



Source: own elaborations.

Tab. 6. Reference IOFCs, percentage of farms indemnified, indemnifications of the fund and incidence on the reference IOFCs (n=167)

Year	Ref. IOFC of the fund (000 €)	% farms indemnified (%)	Indemnifications paid by the fund (000 €)	Indemnifications	
				over ref. IOFC (%)	per farm (€)
2011	10,614	*1.2*	15	*0.14*	90
2012	12,515	*11.4*	139	*1.11*	832
2013	14,081	*24.0*	354	*2.52*	2,121
2014	14,402	*18.6*	274	*1.90*	1,640
2015	13,905	*30.5*	423	*3.04*	2,532
2016	13,557	*25.7*	427	*3.15*	2,559
Average	**13,179**	***18.6***	**272**	***2.06***	**1,629**

Source: own elaborations.

Considering the amount of the indemnifications, and thus the requirements of the fund, we hypothesize an annual participation fee for the farmer (excluding IST functioning costs). The IST applied to this dairy cooperative could work with an average contribution equal to 2.06% of their reference

IOFC (0.62% in presence of maximum public contribution). To have an idea of the amount of farm contribution, the fee for an average farm (42 milk cows in the period) equals to 1,629 €/year, corresponding to 39 €/milk cow, without accounting for public contributions. This contribution, based on the observed trend, should guarantee an amount of entrances to the fund that allows paying the indemnification. In fact, during the first four years of functioning of the fund, the percentage of the indemnification over reference IOFC is structurally below the average fee. This situation allows to the fund to overtake the above mentioned period of crisis (2015-2016) without the need to collect additional capital in the market or reduce farmers' indemnifications.

4. Conclusions

The research proposes, for the first time, the simulation of a sector-specific IST applied to milk sector within the context of a dairy cooperative. Results demonstrate the feasibility of such tool in terms of economic sustainability under the conditions defined by the Omnibus Regulation, also in the years of crisis for the milk sector. The participation cost seems to be affordable, with a value, on average, equals to 39 €/milk cow, without including public contribution (less than 12 € in the case of 70% public contribution). During the period of crisis, income losses do not involve all members systematically, although being diffused among farmers. The condition of financial sustainability for the fund lies on the creation of a capital stock able to support crises. In fact, it should be noted that in our case study the crisis would have had an impact to the fund only in the late part of the considered period, when the fund had created enough capital stock. Similarly, the present period, after a sector crisis, seems to be the right moment to setup a new fund: it can profit from a low reference income, that reduces the probability of a further income drop and farmers are particularly interested to adopt strategy to protect their income. The definition of a strategy to manage the bankrupt risk of the fund is crucial to guarantee its success and survival. In this sense, it is useful to remember the new possibility to profit from public contribution also to setup the initial stock of the fund. Furthermore, the research demonstrate that using indexes to quantify farms income drop, coherently with Omnibus Regulation, it is possible to guarantee the effectiveness of the IST by reducing both administrative costs and moral hazard. Additionally, the use of an index may support the improvement of farms' performances. In fact, indexed feed cost plays as a benchmark for the quantification of farms' income. It tends to overestimate costs for most cost-efficient farms, while underestimating costs for less-efficient ones. Being costs index linked on the whole behaviour of dairy farms,

there is an incentive for a single farm to improve cost-efficiency to maximise its income. From an operational point of view, a public institution (e.g. ISMEA, CREA) may periodically provide an estimation of feed cost indexes or support funds in the application of a shared methodology. On the contrary, the cooperative could always decide to activate the fund privately, to help its members to overcome periods of economic difficulty and to improve its mutual effectiveness.

Further research may investigate about the more efficient method to apply farmers' fee, in particular looking to the effect on cost and benefit of the application of fees based on reference IOFC compared to fees expressed per litre of milk produced or per cow. Furthermore, even if cooperatives seem to be one of the best context where the high commitment towards a mutual interest can be associate to a high participation rate to the IST, sensitivity analysis should be performed to simulate the effect that a lower rate of participation could have on farmers' participation costs.

Acknowledgements

This paper is linked to the Project "Strengthen farms resilience to market volatility through the implementation of the Income Stabilisation Tool (IST) under the CAP Post-2013" (CPDA153138) funded by the University of Padova, Italy.

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The role of the raw materials in the development of a Tuscan craft beer chain

Keywords: craft beer, local products, swot analysis, Tuscany, marketing strategy
JEL codes: O13, Q13, Q18

Over the past two decades, the craft beer sector has developed significantly both in Europe and Italy. Through a SWOT analysis, the research highlights the main critical points of the Tuscan craft beer chain, in particular the use of local raw materials, which are mainly linked to the cereal malting process currently carried out by large non-regional plants.
The research also shows that the high quality and the strong product differentiation are the main strength of the sector, since they meet the preferences of a niche of consumers attracted by products characterized by a strong bond with the territory. The major risks concern the introduction of "craft" lines by multinationals and the entry of new craft breweries, which are not in line with the microbreweries' quality standards.

1. Introduction

Today, the Italian craft brewing sector is a relatively small economic niche dominated by about a thousand small breweries (including microbreweries, beerfirms and brewpubs) (Ravelli and Pedrini, 2015; Amoriello, 2016). In 2015, the average craft beer production was approximately 740 hectolitres, reaching a total of 390,000 hectolitres (equal to 2.1% of the total national supply) (Assobirra, 2016). In the period 2013-2015, the sector showed a rapid growth of 143% (Amoriello, 2016).

The strong concentration in the Italian beer market by multinational companies does not seem to have hindered the entry of new small craft breweries. These craft beer companies implemented differentiation and product focusing strategies (Donadini and Porretta, 2017; Garavaglia, 2009; Fastigi and Cavanaugh, 2017) able to meet the favour of Italian consumers attentive to high-quality products characterized by different flavours and aromas (Aquilani *et al.*, 2015; Donadini and Porretta, 2017).

Tuscany is the fourth region in terms of number of microbreweries behind Lombardy, Veneto, and Piedmont. It is followed by Emilia Romagna and Lazio (Microbirrifici.org, 2018).

DOI: 10.13128/REA-25105
ISSN (print): 0035-6190
ISSN (online): 2281-1559

Published by Firenze University Press
www.fupress.com/rea

In 2015, the Tuscan craft sector consisted of a hundred companies[1] (Menghini, 2016). The presence of beer farms on the regional territory was relevant as it is still today (21 cases, 23% of the total), though the national legislation recognized beer as an agricultural related production only in 2010, with the Ministerial Decree no. 212 of 5thAugust 2010.

In 2015, the production of Tuscan beer fluctuated between 20 and 25 thousand hectolitres. The average production per craft company (Menghini, 2016) was comprised between 100 and 500 hectolitres, below the national average (Assobirra, 2016). Only 16% of the total number of companies produced more than 500 hectolitres.

This study is part of a wider research project on "The craft beer chain in Tuscany" and its purpose is to identify those factors that can be a source of success or may represent critical issues for the development of a cereal-beer chain in Tuscany. The analysis is carried out through a qualitative survey on 13 breweries selected as case studies.

The international scientific literature on beer production is highly specialized. Through laboratory techniques, several authors examined the chemical and physical characteristics of those raw materials that might affect beer quality (Li *et al.*, 2008; Nielsen and Munck, 2003). Other researches focused on the optimization of the production process and its environmental impact (Grassi *et al.*, 2014; Koroneos *et al.*, 2005).

Several economic studies analysed the structure of the market, the competitiveness among beer companies (Day, Lewin and Li, 1995; Horvath, Schivardi and Woywode, 2001) and the phenomenon of the proliferation of microbreweries (Carroll andSwaminathan,2000; Murray and O'Neill, 2012).

At national level, only a few studies carried out analysis on the beer sector. Among them, we can cite some researches on the raw materials (Gianinetti *et al.*, 2005; Mongelli *et al.*, 2015) and on the final product (Giovenzana, Beghi and Guidetti, 2014; Mignani *et al.*, 2013). Moreover, Donadini *et al.* (2016) and Aquilani *et al.* (2015) carried out analysis on consumer preferences for craft beers, Garavaglia (2009, 2015) and Fanelli and Felice (2014) focused on the Italian beer market, and Esposti *et al.* (2017) analysed the entry/exit dynamics of the Italian craft breweries to identify those factors that encourage entry in the sector and determine their survival in the market.

As for the craft beer sector, the development of a production chain represents a real opportunity both for the primary sector and for the beer sector in general (Fastigi *et al.*, 2015). The creation of a cereal-beer chain offers the farms the opportunity to expand the production systems, converting them

[1] Including microbreweries, beerfirms and brewpubs.

into agricultural breweries, and it represents an engine for the development of more sustainable local production models. This evidence explains the interest shown by the academics in the subject (Menghini, 2016; Fastigi *et al.*, 2015), but also by the researches, which analyze the critical aspects and the opportunities related to the creation of both a cereal-beer supply chain (Menghini *et al.*, 2016; Amoriello, 2016; Carbone, 2016) and a hop supply chain (Carbone *et al.*, 2017) in different Italian regions (e.g. Tuscany, Lazio, Marche).

In the current state of knowledge, there is a lack of researches focusing on producers, on the weight that producers attribute to the characteristics of the raw materials at the time of the purchase or on the degree of interest towards the purchase of national or regional raw materials. Lastly, the paper meets specific needs at public level, especially since the introduction of a number of regulations to support the craft beer sector. In particular, law 154/2016 and Ministerial Decree 212/2010 introduced specific typologies of support to stimulate local production of raw materials to be used in the process.

2. Methodology

The characteristics of the companies operating in the Tuscan craft beer sector were analysed through a qualitative survey, as well as the degree of interest in the purchase of regional malt and local raw materials and their willingness to bear any higher purchase costs. Meetings with experts in the sector allowed us to select 13 craft companies that were representative in terms of volume of production, years of activity on the market, use of regional and/or local raw materials. In addition, two agricultural breweries were selected: a farm, which used mainly its agricultural products in the brewing process, and with its own production plant and a craft brewery, which rented land for the production of barley and hop on an experimental level.

The survey was carried out using a questionnaire drawn from the relevant literature on the subject (Bastian *et al.*, 1998; Berni *et al.*, 2004; Palmer and Kaminski, 2013; Fastigi *et al.*, 2015; Food Processing Center, 2001; Hieronymus, 2012). The questionnaire comprised 64 questions and it was divided into 3 areas of investigation:

1) Company structure
2) Raw materials
3) Production cost

The questionnaire was structured with open and closed-ended, dichotomous, multiple and Likert scales questions. Quantitative data concerning the purchase of raw materials were collected with closed-ended questions and were analysed using descriptive statistics.

Multiple and Likert scales questions were used to determine the intrinsic and extrinsic properties of the raw materials to which the producers attribute the greatest importance at the time of purchase. The open answers allowed us to make an in-depth analysis of the opportunities and of the critical aspects related to the development of a cereal-beer chain.

Two researchers encoded the data, autonomously. Then, on the different categories, was tested the inter-coder reliability (Ross *et al.*, 2004), which gave an agreement index higher than 0.8.

Lastly, an interpretation of the results was provided, according to the SWOT analysis model.

3. Results

On average, companies have been on the market for 6 years (with a range between 2 and 14 years), with a single plant. They have 2 employees on average, with a maximum of 6 and a minimum of 1, often it corresponds to the number of the company members.

The owner is a male, in 12 cases out of 13 aged between 32 and 52 years old; he is highly qualified, with a high school diploma in 69% of cases (and a postgraduate degree in 15% of the cases) and he claims to have attended specific training courses on beer production in 62% of cases as well.

In 2015, the breweries surveyed produced a total of 10,290 hectolitres, representing between 41% to 52% of the estimated value of the total production of craft beer in Tuscany (Menghini, 2016). The average annual production of beer is700 hectolitres, for a total turnover that exceeds 300,000 euros. The target market for the craft beer production is polarized: 40% is intended for the local market and 38% for the national market. A small part of total production is destined to the foreign market (around 8%), but half of the companies declare to export their products.

Due to the importance in the potential activation of local supply chains, the survey is focused on the analysis of malt and hop. In addition, an in-depth analysis of the specialties was carried, in view of the role in characterizing the beer and their ability, to create a link between the product and the territory.

Non-malted cereals are used in small quantities and they are predominantly regional or national.

On average, the breweries buy 14,5 tons of malt per year. 84% of the volume of malt purchased is imported, while 11% is domestic. Respondents said they preferred imported malt because it has higher qualitative characteristics than domestic malt. The item "regional/local malt" has been omitted in Table 1, because companies declared that there is currently no market for malt

Tab. 1. Average purchasing volumes of malt by cereal.

Malt	Malt from Farm-produced grains (Kg)	National origin (kg)	Imported (Kg)	Total volumes (Kg)
Emmer wheat		200		200
Wheat	2,000		280	2,280
Millet			10	10
Barley	8,300	20,550	156,210	185,060
Rye			1,000	1,000
Total	10,300	20,750	157,500	188,550
Percentage Distribution	5%	11%	84%	100%

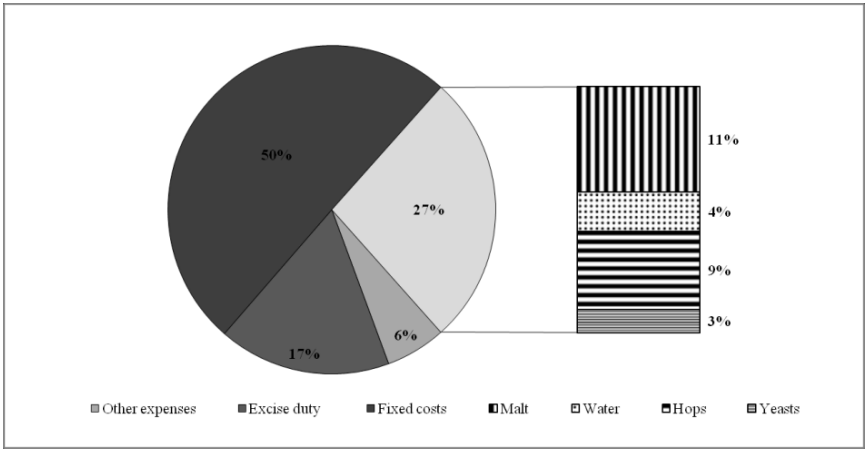
Source: our elaboration.

in Tuscany. However, the two agricultural brewers use self-produced cereals which are malted by third parties.

On average, companies incur a cost of 2.34 € to produce one litre of beer. Raw materials represent 27% of the total cost (Fig. 1). Among the raw materials, the higher incidence on the costs is due to the purchase of malt (43%), followed by hops (32%) and yeasts (9%).

The purchase price for a kilogram of malt ranges between 0.51 and 1.51 €, with an average price of 0.91 €/kg. In Menghini (2016), the results show that

Fig. 1. Incidence (%) of the different costs in the production of 1 litre of beer.



Source: our elaboration.

the cost of the malting processing an experimental micro malt house varies between 1.25 and 1.8 €/kg. This value is considerably higher than buying a standard product on the market, but it can be competitive if the malting process is carried out to obtain special malts.

Eleven breweries out of 13 state that they are willing to bear up to 25% higher costs (about 1.18 €/kg) for a malt produced at national/regional level, compared to the average purchase cost of one kilogram of imported malt with the same qualitative characteristics. Two companies claim to be willing to bear up to 40% higher costs (1.41 €/kg) for a national/regional product. Only 2 breweries are not willing to bear higher costs for national/regional malt. According to them, the cost of transport should have less impact on the final price in the case of regional/national malt, so there would be no justification for a higher price.

On average, the breweries surveyed buy about 440 kg of hops per year. Aromatic hops accounts for about 77% of the total volume. Bitter varieties, on the contrary, are purchased in small quantities (about 23% of the total volume) as they are used in significantly lower quantity in their recipes (Tab. 2).

The hops are 100% imported (from Europe, America and New Zealand). This has an evident effect on prices, which are extremely variable: on average, one kilogram of bitter hops costs 24.5 €, while one kilogram of aromatic hops costs 27.5 €. The average cost ranges between 12 and 50 €/kg for specific high value varieties . All companies state that they are willing to pay a higher price up to 25% (33 €/kg) on average for national/regional hops and three of them even up to 40% (37 €/kg).

Specialties are mainly of national or regional origin. However, breweries face some critical problems in their supply, especially in terms of time and

Tab. 2. Average purchasing volumes of hop by categories.

Pellets	Total volumes (Kg)	Average (Kg)	%
Bittering hops	1,077.50	82.88	*21.19*
Aroma hops	4,007.50	308.27	*78.81*
Total	5,085.00	391.15	
Dried cones	**Total volumes (Kg)**	**Average (Kg)**	**%**
Bittering hops	264	20.31	*41.25*
Aroma hops	376	28.92	*58.75*
Total	640	49.23	

Source: our elaboration.

availability. On the contrary, the quality of the specialties and logistics are rated positively, while the market prices for their purchase vary greatly, depending on the raw material used (organic or quality-certified). However, the quality/price ratio is always considered favourable.

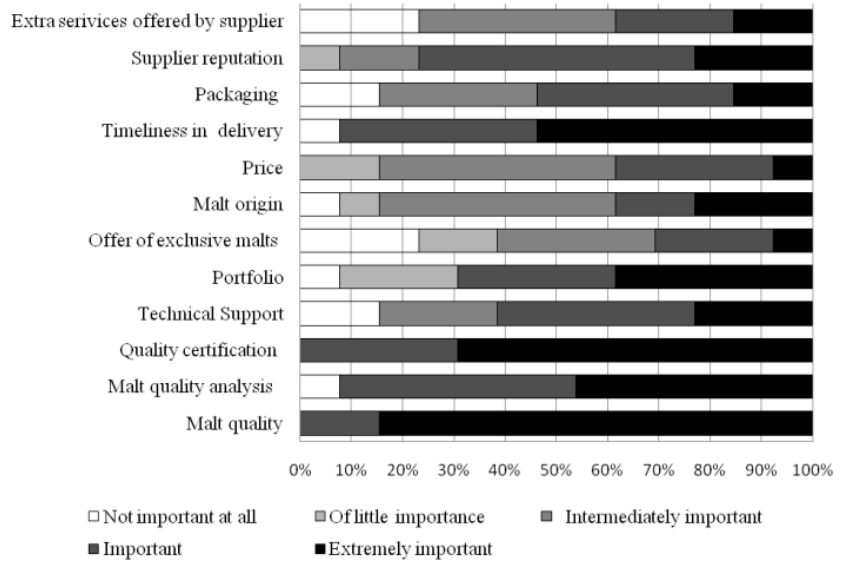
All companies rely on national distributors to purchase their raw materials, with the exception of two agricultural breweries, which produce their own brewing, and one company, which buys online.

Figures 2 and 3 show the respondents' opinion on a number of factors that influence their choice of supplier when purchasing malt and hops, respectively. The results are similar. In both cases, the quality of the raw material is a priority. In fact the value attributed to product quality, chemical product analysis and quality certification range from important to extremely important for almost all the microbreweries.

The origin of the malt is considered to be of intermediate importance by most breweries, while the score given to the range of malt offered by the supplier is polarized. Although most breweries consider this element important or extremely important, some of them do not give importance to it.

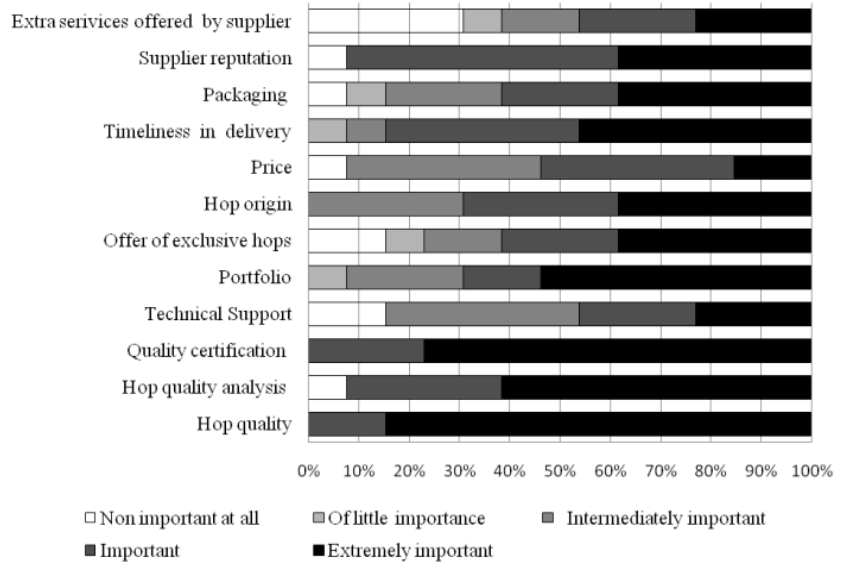
As for hops, the origin, the selection available and the possibility of benefitting from an exclusive range of hops (although the opinions expressed on

Fig. 2. Factors affecting the purchase of malt.



Source: our elaboration.

Fig. 3. Factors affecting the purchase of hop.



Source: our elaboration.

the latter are more variable) are considered to be of intermediate importance or extremely important.

4. Swot Analysis

Local raw materials can increase the typicality of the product, differentiating it from the competitors, and they represent an important element for the development of microbreweries. The importance of the origin of the raw materials is also underlined by a consumer study carried out as part of the project (Menghini, 2016). The study shows that almost half of the 655 respondents believe that the use of local malt has a very positive impact on the quality of craft beer. These results are in line with the literature, which stresses that the consumer is willing to rediscover the authenticity of local raw materials. In fact they establish a link with the specific elements of the territory (Schnell and Reese, 2003) and they confer uniqueness to the product (Favalli *et al.*, 2013). Brewers state that product differentiation and improving company visibility are strongly encouraged through the networking with other local companies.

The use of local raw materials is not perceived as a way of reducing production costs. In addition, some critical aspects are linked to the availability

Fig. 4. SWOT matrix.

Strengths	**Weaknesses**
• Product Innovation • Use of local raw materials • Product quality • Product differentiation • Craft productive process - limited production • Consumer loyalty • Peculiar and easily recognizable image of the packaging (label and bottle)	• High production costs (and sales prices) • Qualitative characteristics of raw materials and timing in their supply • Product availability and perishability • Lack of an industrial regional malt house • Lack of support from the public bodies • Integration difficulties
Opportunities	**Threats**
• Expanding market (for the increase of consumption and for the growing consumption opportunities) • Product innovation • Differentiation of the product thanks to the use of typical Italian products • Improvement linked with the development of a short-production chain	• Increasing number of competitors in the craft beer sector • Significantly higher price compared to industrial and also "craft" industrial beers • Strong market concentration • "Deceptive" marketing of multinational companies • Damage to the craft beer because of poor quality craft products in the market • Non educated consumer

Source: our elaboration.

of raw material on the market that meet the minimum quality standards required by the breweries, in particular malt and hops.

All companies surveyed state that the main obstacle to the creation of a regional cereal-beer chain is related to the difficulties associated with the management of the malting process. In Tuscany there is not an industrial malt house, even if there are some experimental micro malt houses. Unfortunately, their efficiency is greatly reduced by their small size of production, which does not allow the achievement of economies of scale. Moreover, the quality of the raw material processed is variable and it does not guarantee the achievement of a homogeneous and standardized qualitative level of malt. The efficiency of a micro malt house is guaranteed only if the cost of the process does not exceed 1000 euros per ton of malt produced, a value difficult to reach by the single companies investigated (since their volumes of beer production are lower). Therefore, it is possible to affirm that a minimum level of efficiency can be achieved by a micro malt house only if it offers third-party services.

It should be noted that brewers have expressed discordant opinions on the possible creation of a regional or local brand. The main risks associated with the introduction of products strongly linked to the territory or deriving from a short-production-chain are related to the strong competition both on the regional/national market and on the foreign market. Moreover, the situation is even more difficult as large industries, leveraging at very competitive prices,

are adopting specific marketing strategies to promote their "craft" beer and their regional product lines, which attract uneducated consumers.

5. Conclusions

At the national level, the studies filling a gap in economic studies on the production of craft beer. Although this is an exploratory analysis, the results can be a useful tool for public bodies to take effective and efficient actions to support the sector at different levels of governance. Public authorities also play a strategic role in the dissemination of product knowledge. In fact they make the product more recognisable through the promotion of actions related to the territory and the local economy (organization and promotion of fairs and events), and through the support of the creation of a network among the stakeholders of the sector. This network could support the exchange of information and the creation of cooperation relationships (Amoriello, 2016; Carbone, 2016).

In addition, the public sector can support the production of local malt grains, given the interest of beer masters in creating a product strongly linked to the territory. At the regional level, the weak link in the supply chain is the malting process. The economic convenience of breweries to have a micro malt house is linked to the achievement of a profit. Today the profit can only be guaranteed if the final product is characterized by superior quality characteristics, mainly related to the territory. Only in this way the consumer is willing to pay a higher price, able to cover the higher costs of a process of self-produced malt. The building of a malt house managed by a producers' organization at a regional level could represent, as indicated by all the interviewees, a possible solution for the achievement of a cereal-beer chain in Tuscany. Examples of such malt houses are available in other regions of Italy. An example is in Marche, the first region in which a consortium of farmers has set up a malt house together.

This study represents a first investigation into the potential development of a very dynamic and rapidly expanding sector. Moreover, it can encourage the creation of networks among producers in the chain, consumers and local authorities; in this sense, it represents a starting point for further quantitative and qualitative surveys.

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Keywords: immigrants in agriculture, social-employment inclusion, social farming, social innovation, immigrant training
JEL codes: J15, J61, J43, Q01, Q18

Immigrants in agricultural sector in Sicily: the experience of *Sicilia Integra* project

The overview of the most relevant literature on migration, whose main issues were human rights, work in agriculture, cultural and social inclusion, highlighted one common point: the need to foster the legal work of migrants as a driver for social integration. This finding was confirmed by a CREA-PB survey that, after outlining the role of foreign workers in Sicilian agriculture, has emphasised how their state of isolation derived mainly from their bad housing conditions directly connected to illegal employment. The evaluation of the project "*Sicilia Integra*", which was born under the patronage of the UN to include young immigrants in urban agriculture activities in Sicily, was carried out through the SWOT methodology for verifying if it could be spread in the Sicilian region.

1. Introduction

The migratory flow in Sicily is incessant and the consistency of immigrants that arrive on the Italian and, mainly, Sicilian coasts is growing. The phenomenon has repercussions on the territory and in different social aspects (fight on origin rights and fund utilization, rising irregular immigrants, "caporalato" and illegal working, etc.).

Sicily is represented by chronicles as a landing place or a simple passage for immigrants but there is a permanent or semi-permanent component that is strongly linked to the presence of foreign workers engaged in agricultural activities. In any case, immigration data show a constant growth of the migratory phenomenon in the region. The agricultural work of immigrants in Sicily is widespread in the most productive and intensive areas[1], which correspond to land characterized by specialized and value-added agriculture related to the cultivation of vegetables, vines, olives and citrus fruits (Macaluso, 2016). In the Sicilian inland, conversely, the foreign labour is more limited and more often targeted at low-skilled activities, often in the livestock sector.

[1] Especially in the provinces of Ragusa, Syracuse, Trapani and Catania.

DOI: 10.13128/REA-25106
ISSN (print): 0035-6190
ISSN (online): 2281-1559
Published by Firenze University Press
www.fupress.com/rea

In the region a "welcome system" and specific project initiatives are being studied to counteract the emergence of phenomena of discrimination, racism, protest or civil indifference with the aim of finding solutions that contribute to the sustainable development of the territory. There is a territorial vision and shared view of opportunities related to the presence of migrants that could be training in Sicily.

In this context, *Sicilia Integra* project is developed, with a very deep humanitarian value that carries the principles of solidarity, democracy and pluralism; it is focusing on training courses specifically targeted at young immigrants and at the same time young Sicilian unemployed people with training in agricultural sciences. The goal of the project is to prevent discomfort and to encourage the encounter, listening to each other, sharing and integrating through respect for cultural diversity and individual creativity. This initiative constitutes a true "social innovation" in accordance with European policies aimed at protecting and promoting human rights and communities.

At the core of *Sicilia Integra* training course, organized through a participatory design process, the sustainability of organic and regenerative agro-food systems and agriculture as an integral part of the territory. This confirms the role that this sector plays in the economy and society in terms of positive externalities, that is, benefits to the industries and the community. Within the project, a methodology has been developed for problem solving and "cooperative learning", emphasizing the active involvement of immigrant students in group work and group success, methods widely used to improve preparation and education; furthermore, the project will support the students in the acquisition of cognitive skills with the creation of an urban social garden (Guarnaccia *et al.*, 2018).

Therefore, the paper analyses the phenomenon of immigrant workers in agriculture in Sicily and the activity carried out by the case study "Sicilia Integra". This project could represent a model of socio-labour inclusion of immigrant workers in agriculture, that is part of a variegated framework of possible operational schemes experimented in different countries for trying to tackle the complex and articulated problem of social and working integration of migrants.

Sicilia Integra model would create in the next future a partnership between immigrant workers, student's association and Sicilian organic companies with the aim of promote political and cultural changes towards the growth of consciousness and active citizenship and the care of rural areas.

2. Review of the literature on immigration and work in agriculture

The immigration and agriculture binomial has been widely explored in literature, in which it is possible to reach a multitude of contributions made in

different spatial and temporal contexts and with a political, sociological, economic, anthropological and ethical perspective.

All this is due to the fact that every historical era saw the emergence of migratory flows from well defined territorial areas (e.g. Europe v/ s America; Asia v/s Europe; Africa v/s Europe) and for the populations affected by these processes agriculture has represented a sector of easier entry (providing no particular barriers to entry and/ or because traditionally these populations came from poor areas to agricultural vocation), able to offer a precise occasion of social redemption and the possibility of producing typical food goods of the diet of the country of origin.

The different contributions have treated the following themes:

- human rights and migration, with focus on working conditions and the recognition of the universal principles of man (Renaut, 2003; Eurispes-Coldiretti, 2011);
- the right to health and immigration, with attention to the health implications and because of the large migratory flows and the planning of effective interventions of public health (Schenker, 2010);
- contractual rights and immigration, with reference to the forms of labour (regulated and non-regulated areas, the occult and blatant), rights/ duties, duration, protections and exploitation (Amnesty International, 2012; CGIL, 2013; Butti Al Shamsi *et al.*, 2018);
- work in agriculture and cultural integration and social integration of immigrants (Gidarakou *et al.*, 2011; Foti *et al.*, 2013).

In several contributions emerge some common considerations on the use of immigrants in agriculture, even not regular. Agriculture has become the chief side and back door through which most of the immigrants from the world's major countries of emigration came (Martin, 1994), but also as a tool for the development of the agricultural sector (Saloutos, 1976). For these reasons it is important to foster legal employment, a mechanism allowing more significant integration.

The empirical evidences refer to the USA (Taylor, 1992), Spain (Hoggart and Mendoza, 1999), Greece (Lianos *et al.*, 1996) and Italy (Cillo, 2014). It is shown that the immigrant is often selected for agricultural work in low paid and with few competences, in coherence with the maximization of the expected profit by employers of agricultural holdings. In Spain, most African workers are employed in unskilled short-term jobs with low salary often associated with poor social conditions. In Greece the analysis – given the importance of the work immigrant in all sectors – was conducted for the level of skill and status of immigrant workers. In Italy the case studies pointed out how vulnerable is the position of immigrant workers due to a legal gap which exposes them to blackmail from employers to the extent of accepting non-standard

conditions of work, regardless their administrative status (regular and not). Such situations can be observed for illegal workers (hoping to regularize their position), legal workers (who are afraid of losing their job and consequently their residence permit) and seasonal workers (who fear of compromising the renewal of the residence permit for the next year) (Cillo, 2014).

The acceptance of low wage levels is also related to rural areas development in countries with an advanced economy inside of which change facets, languages but also widespread knowledge that end up becoming the spillover of development (Martin *et al.*, 2006; Pulina and Timpanaro, 2012; Scuderi *et al.*, 2014).

In Italy, for its strategic position and the copious flow of immigration, can be observed many situations of serious exploitation of the work during the step of recruitment in agriculture (Ciaperoni, 2011). Most of these factors is mainly attributable to three cases: (a) the growing restrictions to legal entry in Italy for work imposed by immigration policy; (b) the growing randomization of labour relations, exacerbated by the economic crisis; (c) the racial segmentation of the labour market (Cillo and Toffanin, 2014). The route of the exploitation is drawn from the seasonality of crops along Italy and Europe (Basso and Perocco, 2003; De Martino *et al.*, 2016), exploitation is often accompanied by conditions of life "unethical" and from the legal measures to be little effective to control the phenomenon (Colloca and Corrado, 2013). Is then recalled the need for public intervention with a view to integrated multilevel and for achieving higher levels of legality to this market (Conti Nibali and Alteri, 2008; Toffanin, 2009; FLAI-CGIL, 2013). The public support could be aimed, for example, at encouraging a partial re-population of mountain areas abandoned by the indigenous population (Membretti,and Viazzo, 2017). The abandonment of agriculture has inevitably contributed to the abandonment of small agricultural artifacts (terraces, water drains, etc.) that make crops possible and protect soils from erosion (Cavalli, 2016). Furthermore, concrete examples of reception and integration in agriculture and rural areas have been carried forward both by public (Recosol, 2017) and ecclesiastical bodies and by private individuals in regions strongly affected by migratory phenomena, such as Sicily and Calabria (Ricciardi *et al.*, 2018). About working inclusion of migrants in agriculture, an interesting experiment was conducted in Canada, in 2007, through the launch of a pilot project between Community-university to train and involve the senior immigrants in Small Plot Intensive (Spins) - Farming, a commercial approach to urban agriculture (Beckie and Bogdan, 2010). The SPIN method, accurately described in a manual (Satzewich and Christensen, 2005), provides for the reseeding of the soil after harvesting, allowing the cultivation of two/three crops per season. Although organic certification is considered optional in the spin farming approach, it is required to

use organic methods to reduce the costs associated with the use of chemical fertilizers and pesticides and to promote greener production systems, economically and socially sustainable. This approach was considered as ideal to foster the inclusion of senior immigrants in the commercial approach of urban agriculture in the city of Edmonton. The aim of the project was the occupational integration of senior migrants in the urban agriculture (a significant presence in urban Canada is recorded), to tackle some of the economic and social problems of these subjects, contributing at the same time to the evolution of the local food systems and to the creation of community inclusion. The attention towards this age group of immigrants was caused by the significant increase in their presence in Canada, estimated in 2006 in a quarter of the population of immigrants, in turn equal to 19.8% of the total population (Statistics Canada, 2006). The evaluation of the results was carried out with qualitative interviews to senior participants, to the coordinator of agricultural activities and organizers of the Community, following the steps of implementation and training of local groups. The results of the project confirmed on the one hand the health benefits of the elderly who carry out horticultural activities and, on the other, positive socio-economic impacts of urban cultivation in the management of immigrants, providing new knowledge in economic, social, environmental and health aspects.

Other qualitative assessment on the inclusion of migrants in agriculture was made in Greece, where in the last thirty years have been welcomed in rural areas more and more foreigners.

17.5% of immigrants in Greece work in agriculture and represent 90% of wage-labour in agriculture. Strategic and innovative, therefore, appears the role of migrants in the Hellenic rural areas, where the organization of migrant work takes on different connotations according to the different local production systems. Very present in flat areas specialized in intensive agriculture and in the island regions, the migrants have the capacity to adapt and respond to the seasonal needs of the local economy (Lovoi, 2018). A study conducted in two different Greek areas analysed attitudes and perceptions of both the subject of demand and offer of work on various aspects of the migrants' integration into the local socio-economic system. The results show that farmers are positive regarding the contribution of immigrants to agriculture but have points of view "defensive" and attitudes rather ambivalent, ethnocentric in relation to a local multicultural company. Instead, the points of view of immigrants denote a positive perception of their integration into the host society (Gidarakou, 2011).

Finally, another aspect worthy of attention in the literature is that concerning the validation of work integration best practices of immigrants in the agri-food sector. New practices in the inclusion and integration of immigrants

in society are often carried out within well circumscribed territories, through adoption of sustainable agricultural techniques inspired by the principles of agroecology and the valorisation of local agro-biodiversity, the application of the principles of the circular economy and the promotion of initiatives that have a clear employment impact for disadvantaged people, such as migrants (Shreck *et al.*, 2006). Often these initiatives are implemented with innovative training methods, based on the construction of local networks and partnerships, as in the case under study (Depedri, 2012; Bonifazi, 2017).

An interesting pilot action, supported by the ESF and FAMI programming, is represented by the Inside project (*INSerimento Integrazione NordSuD inclusionE*), aimed at experimenting with a model of structured interventions of integration, growth and inclusion of working partners of immigrants holding International protection, hosted in the SPRAR system (Protection System for Asylum seekers and Refugees). Financed in 2016 by the General Directorate of Immigration and Integration Policies of the Ministry of Labour, through *Italia Lavoro* and the National Migration Policy Fund, the project, finished in July 2018, it has been proposed to reinforce the multi-level governance of employment policies, involving reception stakeholders and those dealing with labour policies in order to define a model of intervention replicable for the programming and implementation of socio-occupational integration pathways aimed at holders of international protection. Furthermore it aims to trigger processes of empowerment and autonomization in their context of work and life.

The project has allocated € 3.7 millions for activating 672 internships for socio-occupational insertion providing a contribution of euros 5,500 for placement in a six-month internship project of every immigrant who holds international protection.

The success of the project, which can be considered for the programming of active policy measures intended for vulnerable individuals, consists primarily of the national management of the action and the sharing of the entire route to central level between administrations and those who have competence in the field of socio-occupational policies of the holders of international protection. The project, then, succeeded in encouraging the attainment of housing autonomy, resulting in the escape from the host system and to ensure that the work was not perceived only as a source of income and emancipation, but as a tool to demonstrate the value of their skills and abilities and to gain more visibility in the social context of arrival (Ministry of Labour and Anpal Services, 2018).

Also relevant is the Immigration Initiative promoted by *Fondazione con il Sud*, under the "Special and Innovative Projects" intervention. In 2014, the first edition was promoted, through which around 3.7 million euros were allocated for 13 social and labour integration projects for immigrants in the

southern regions (Basilicata, Calabria, Campania, Apulia, Sardinia and Sicily).

The foundation's objective is to finance projects focused on the socio-economic integration of immigrants and related social emergencies. The main goal of the projects must be the full integration of immigrants, who must be actively involved in project activities so that they can enhance their skills. The financed projects aim on support for self-employment in the agri-food sector, the launching of productive activities on confiscated goods, the creation of social enterprises and the opening of retail outlets or, for example, the creation of reception centres.

3. Consistency of the phenomenon of migrant workers in Sicily

Over the last few years, the immigrants' presence has always shown increasing rates that sometimes have been very high, though they have been dramatically reduced from +44.9% in 2009 to +4.5% in 2015.

Immigrant workers, in addition to agriculture, which is one of the sectors with a higher level of foreign labour, are committed to carrying out mainly low-skilled jobs in different sectors: services (cleaning, catering, domestic collaboration, elderly care), non-advanced tertiary activities (small repair shops, service stations, etc.) and small business.

CREA-PB survey (Tab. 1-2) shows that in 2015, 47,038 foreign workers (both non-EU and new EU citizens, Bulgarians and Romanians in particular) employed in agricultural activities provided a total of 4,750,000 working days. The number of days worked by non-EU workers only, net of those provided by EU workers (equal to about 2,110,000), totalled approximately 2,640,000. 1,334 non-EU workers and 1,919 EU workers, totalling approximately 520,000 days, are employed in processing/ marketing activities and agritourism.

In Sicily, 75% of foreign labour is employed for harvesting, especially in vegetables crops, viticulture and olive growing, with some differences at provincial level depending on production specificities. There is no substantial difference in the origin of workers employed in harvesting and in other operations, while there is a specificity for the livestock sector in which non-EU labour (Indian workers) prevails and it is concentrated mainly in the provinces of Enna (beef cattle breeding) and Ragusa (dairy cattle breeding). Vegetable crops, with about 1,710,000 work days, or 36% of the total number of days worked by migrant workers in Sicily, is the sector where foreign labour is mainly employed: approximately 1,050,000 days for open-air cultivations (22% of the total), and about 660,000 days for greenhouses (14% of the total) (Macaluso, 2016).

So, it is no coincidence that there is a strong concentration of foreign agricultural workers in the province of Ragusa and, in particular, in the munici-

Tab. 1. Non EU workers employment in Sicilian agriculture by sector – 2015 (number of workers).

	Activity									
	Agricultural activities per sector							Agritourism and rural tourism	Processing and marketing	Overall total
	Livestock	Vegetable crops	Tree crops	Nursery	Industrial crops	Other crops or activities	Total			
Trapani	124	840	3,841	170	0	55	5,030	45	90	5,165
Palermo	155	272	495	0	0	106	1,028	192	91	1,311
Messina	106	160	427	202	0	35	930	101	15	1,046
Agrigento	62	150	1,249	0	0	52	1,513	47	26	1,586
Caltanissetta	40	386	174	0	0	30	630	30	20	680
Enna	110	41	60	0	0	31	242	16	10	268
Catania	54	175	2,086	59	0	65	2,439	183	148	2,770
Ragusa	165	8,240	373	230	0	102	9,110	96	105	9,311
Syracuse	86	2,339	77	75	0	42	2,619	65	54	2,738
SICILY	**902**	**12,603**	**8,782**	**736**	**0**	**518**	**23,541**	**775**	**559**	**24,875**

Source: CREA-PB survey.

Tab. 2. New EU workers employment in Sicilian agriculture by sector – 2015 (number of workers).

	Activity									
	Agricultural activities per sector							Agritourism and rural tourism	Processing and marketing	Overall total
	Livestock	Vegetable crops	Tree crops	Nursery	Industrial crops	Other crops or activities	Total			
Trapani	90	350	2,237	44	0	40	2,761	22	89	2,872
Palermo	15	339	690	0	0	90	1,134	98	139	1,371
Messina	25	58	469	349	0	65	966	85	25	1,076
Agrigento	5	442	2,065	0	0	95	2,607	36	36	2,679
Caltanissetta	5	991	236	0	0	190	1,422	31	58	1,511
Enna	47	257	91	0	0	142	537	11	0	548
Catania	5	375	1,944	144	0	140	2,608	141	486	3,235
Ragusa	20	7,634	664	228	0	90	8,636	81	417	9,134
Syracuse	5	2,710	37	44	0	30	2,826	41	123	2,990
SICILY	**217**	**13,156**	**8,433**	**809**	**0**	**882**	**23,497**	**546**	**1,373**	**25,416**

Source: CREA-PB survey.

palities of Santa Croce Camerina, Vittoria, Acate, Scicli and Ragusa, the so-called "transformed strip" where it is concentrated the bulk of vegetable production which is followed by citrus crops (740,000 days, 15.5%), olive growing (642,000 days, 13.5%) and viticulture (730,000 days, divided into 470,000 days for wine grape and 260,000 for table grapes, 10.0% and 5.4% respectively).

Finally, processing and marketing activities and nursery sector do account for about 9% and 8% respectively of the working days. As far as the livestock sector is concerned, which employs 80,000 working days, the prevalent activity is the stable management, while in the farmhouses the most widespread activity is room cleaning and upkeep.

After 2014, which has been a disastrous year for Italian olive production with the consequent fall in labour, there was a 26% increase in the number of working days spent in the sector. For citrus fruits, the increase was even greater (+36.5%), while the rates recorded for vegetables (+4.5%), table grapes (+2.8%) and nursery (+3.0%) are more moderate. The data for the other sectors are actually stable.

Regarding the origin of workers, the North African component, predominantly Tunisians and Moroccans, is a historical presence in the regional agriculture but few years ago new EU workers, mostly Romanian and Albanian and to a lesser extent Bulgarians and Poles, have increased very quickly until 2013. In the last few years a trend shift in new EU workers employment has been observed followed by a rebalancing of the two components (in 2015 a substantial equality in the two groups of workers has been recorded: 23,541 non-EU workers and 23,497 new EU workers). Nevertheless, the conflicts between the two national groups did not stop because EU workers are willing to accept job conditions far from contractual terms, both in terms of wages and working hours. Because of this situation we observed a sharp downsizing of previous labour union's achievements obtained in favour of North African workers. In parallel, the so-called "gray work" has increased, that is the work carried out in presence of a contract – but with wages, number of working days and actual working hours per day far from what has been declared – has risen.

Livestock farming, especially dairy farming, represents a separate case because foreign labour is predominantly, if not exclusively, Indian, whose presence in Sicily is a relatively new phenomenon.

The working period varies depending on the production sector. Since non-EU labour is predominantly employed during harvest phase, the peak in recruitment is recorded in summer-autumn, except for the open-air vegetable crops for which harvesting begins at the end of winter. The working day length almost always goes beyond the contractual one, and it is often more than 8-9 hours (especially in vegetable farms) or even 10 hours as for livestock

farms. So, in most cases, the declared working time is lower than the actual one. Even today, especially in vegetable crops (tomato and potato harvesting in particular), workers exploitation is not uncommon and the illegal work intermediation system, the so-called "caporalato", still persists.

If we consider exclusively non-EU labour force, on average, little more than half is tied to a regular employment contract and receives a remuneration equal to the union wage. For some sectors such as greenhouse crops, fruit and vegetable processing and agritourism, there is a higher incidence of regular contracts but most of non-EU workers is employed seasonally and with remuneration far from the union wage (the effective average wage is around 30 euros per day, with a minimum of 20 euros, in comparison with the union wage that is 48-50 euros).

However, migration flows represent an important resource for the national economy; between 2011 and 2016 the increase in craftsmanship of immigrants (+8.3%), also represented by gardening firms (+74.5%), mostly Romanian and Albanian, has fight the fall in the entire sector (-7.8%). This is linked to the rise of the foreign resident population, which increased about 1.4 million units (+37.5%) between 2010 and 2015, totalling 5,014 million people, equal to 8.2% of the Italian population (Direzione Generale dell'Immigrazione e delle Politiche di Integrazione, 2016). The positive trend is also maintained on the employment front, which in the two-year period 2014-2015 saw an increase in contracts of indefinite employment of more than 34,000 units for foreign nationals of Community origin and more than 30,000 units for non-EU foreigners, which definitely links with the incentives provided by the 2015 law of Stability, art. 1, paragraph 118, and by l. 23/2015.

Foreigners who work regularly in Italy, according to the Organization for Economic Co-operation and Development (OECD) data, are more than a million, and are predominantly made up of people who are transferred to their family or other people of the same ethnicity. From a professional point of view, most immigrants (52%) are employed in the so-called "low skilled" jobs, which involve almost executive tasks. Mostly engaged in subordinate work, in 80% of cases, foreign workers have the status of a worker and only 0.9% have a managerial or framework qualification; 10.2% of non-EU employed persons, on the other hand, carry out self-employment, which is mostly the case for small and medium sized commercial enterprises.

Agriculture represents the productive sector in which the largest number of contracts for foreign workers (+35.7%) is launched in 2015 and in the two-year period 2014-2015 there has been an increase of both Community workers (+17,9 %) and non-EU workers (+13.7%). These data show that the agricultural sector also has many irregular migrant workers. There are several reasons why immigrant labour represents an important proportion of the total number of

workers employed in the agricultural sector: the low-skilled work demand for the activities that immigrants often carried out in the country of origin; the not formal context, where it is not necessary to have an excellent knowledge of the Italian language.

Despite the presence of foreign agricultural workers in Sicily is to be considered historical, we are very far from a true integration of migrants in the social structure. The project "Presidio" of Caritas has highlighted that, where illegal work is prevalent, one of the most serious issues remains the housing conditions (Carchedi *et al.*, 2015). Often the accommodations, where even families with children live, are represented by structures located mostly within the same farm where migrants work (shacks, warehouses, garages with plastic or Eternit coverings void of any habitability requirements). It represents a state of isolation that makes the presence of workers almost invisible, preventing contacts with the local population, and even worse, seriously reducing their ability to access minimum health services.

4. Initiatives for labour inclusion of migrants in agriculture

In the last few years, in order to deal with the extraordinary flow of immigrants in our country, there is growing attention, both from public institutions and private associations, for the improvement of the national reception system and the socio-occupational integration also in the agricultural context. The rural world represents historically the most privileged place for social, educational and/or work-related activities with people in discomfort. By l. 141/2015, which states the provisions on social farming, this type of activity finds regulatory recognition in a dedicated law.

At national level there are increasing numbers of initiatives that offer integration opportunities for immigrants from EU or non-EU countries. These are different depending on the subjects from which the initiative (public or private) and, therefore, from the source of funding, the people to whom it is addressed (women trapped, immigrants who have obtained international protection, etc.) and, finally, of the type of planned activities (direct farming, participation in processing, packaging and trade, urban gardens, etc.).

Because of the importance that this phenomenon has in the Italian context, as a result of the focus and workshops organised on the theme, within the National Rural Network 2014-2020, a specific survey was also initiated to identify National projects of social agriculture aimed at the socio-working integration of immigrants. The survey, initiated in the framework of the project "Eccellenze Rurali", is designed to tell experiences of good use of Community funds in support of rural development, in which agriculture is not only seen

in its economic dimension, but as a thread conductor of a scenario made up of farms and courageous entrepreneurial choices, on the one hand, and life of the local community and territorial context on the other.

There are a lot of initiatives of protection that are born on ideas of individual immigrants. For example, the case of the Benin City Women's Volunteering Association, born out of the will of some Nigerian women to find freedom, challenging their aggressors and abandoning the road. Thus, 15 Nigerian women began to dedicate themselves to tailoring with reusing materials, and then also to engage in other activities such as catering and Nigerian and African ethnic cuisine, and finally a vegetable garden within the "Codifas" urban garden in the city of Palermo; in future projects there is to cultivate an urban garden and to deal with the processing of vegetables.

Faced with the various initiatives promoted by direct stakeholders, there are also the integration projects supported by public institutions and nonprofit organizations. *Sicilia Integra* project, born from a meeting between the London NGO Gaia Education and a professor of Department Di3A of Catania University, is an exemplary case. The guiding idea is to provide an answer to the migrant crisis, supporting its socio-economic integration, providing a training and employment opportunity for young unemployed Sicilian people as well. *Sicilia Integra*, by linking to the 17 UN Sustainable Development Goals, COP21 and Europe 2020, aims to contribute to the fair and sustainable development of Sicily by supporting the integration and active inclusion of young Sicilians and migrants.

This development is based on the idea that migratory flows (humanitarian crisis), as well as the high level of unemployed Sicilians (economic and financial crisis) could be a great opportunity for changing Sicilian economy. Project actions aim to create economic opportunities in organic farming through the implementation of capacity building activities for sustainable communities, agroecology and marketing of organic products.

This project started in December 2015 with training activities focusing on the sustainability of organic agri-food systems; the project has been divided into several actions:

- creating a Sustainable Development Training (ESD) pathway to support the professionalization of migrants and young Sicilians in emerging European organic markets;
- building an inclusive, decentralized and transparent system of governance and long-term relationships between the various actors involved;
- definition of circular economy schemes that can connect local food systems with European buyers and European organic markets.

5. Methodology

The evaluation of the performance of *Sicilia Integra* project was carried out with the help of the SWOT methodology, which, as is well known, is a widely used technique for territorial analyses, the evaluation of regional programs (such as those developed in the EU Rural Development Policy) and strategic and operational marketing.

This analysis, aimed at detecting the main strengths and weaknesses within the project as well as the opportunities and threats outside the project considered, was supplemented by a variant of the adopted SWOT by Roberts and Stimson (1998) and defined by Gambelli (2007) in a study on the Impact of Support Policies for Organic Farming in Italy with the aim of filling the available information sources at a territorial level on a given phenomenon, through the use of knowledge and/ or judgments expressed by different stakeholders involved.

The original study by Roberts and Stimson, which have defined the Multi-Sector Analysis or Multi-Sector SWOT Analysis (MSA), set itself the objective of measuring the competitiveness of drivers contributing to regional development, at sectorial and intersectoral level. The model is linked to the "matrix theory", a widely used theory in mathematics and economics, to represent complex series of information and for simplifying notations (Leontief, 1953; Isard, 1960) and it identifies in Multi-Criteria Analysis (MCA) the best operational tool. The aim is offering to policymakers a valid alternative for the evaluation of multiple objectives that are determined or are measured with more than one traditional criterion. For this reason, MSA was used as a decision support tool to evaluate the results of a project, considering a range of predetermined criteria or variables (Nijkamp *et al.*, 1990; Stimson *et al.*, 2013).

Furthermore, the methodology was used in strategic business planning, marketing and area planning for the EU structural funds (Dolowitz and Marsh, 2000), in assessments where the availability of economic, financial and structural data was particularly lacking (Zanoli, 2007). In the case of the evaluation of a project with a social purpose, such as *Sicilia Integra*, it is quite elaborate to measure objectively the intangibles that make up the invested capital. For this reason, it is necessary to manage the process in different steps: defining the field of analysis, using more criteria, identifying stakeholders, mapping and highlighting outcomes, evaluating impacts and results. In the case of planning linked to socio-occupational inclusion of migrants, it is more appropriate to overcome the assessment dimension linked exclusively to monetary value (Mulgan, 2010, Arvidson *et al.*, 2013) and open to a social perspective (such as in the case of the Social Return On Investment - SROI). Finally, with the prospect of integrating multiple analytical approaches for the evalua-

tion of the impact of the project of labour inclusion of migrants, has been realized the present study, based on the interaction between social subjects (interactive social research or action research), to integrate the currently available knowledge and plan subsequent analytical analyses (Elg *et al.*, 2015).

Operatively, we first proceeded to collect all the information available about Sicilia Integra project through a specially prepared questionnaire (general characters such as mission, vision, donor collaboration, etc.; organizational and management aspects, such as period, participatory planning, subjects, methodologies used, etc.; experience in creating a social garden, etc.). Based on this information, a few factors have been defined to describe the phenomenon investigated in a unitary manner both from the internal and external point of view and as a possible constituent factor. These exogenous and endogenous variables were collected within a new questionnaire submitted to various public and private subjects involved in the participatory design process, followed by *Sicilia Integra* and similar initiatives, invited to participate in a focus group, in which they have met with great attention on the problems of the general political climate, the participatory design process, the project's operational performance, the project results, etc.[2]

The invited experts were also asked to assign a score for each variable, ranging from 1 (= insignificant) to 5 (= very important), preceded by a + sign (= strength/ opportunity), - (= weakness/ Threat) and 0 (no weakness/ no threat). During the focus group activity, was paid attention to the containment of the emergence of any opinion leaders (the latter option to avoid) that could affect the judgment of other research participants. To verify what is said there is a Contrast Index (Gambelli, 2007), which varies between 0 = convergence in the evaluation and 1 = absolute divergence in the evaluation, calculated as follows:

$$IC_i = \left[Max_j(V_{ij}) - Min_j(V_{ij}) \right] / (V_{\max} - V_{\min})$$

Where i = 1, ..., n; J = 1, ..., and (n = number of variables; e = number of experts; Vmin and Vmax = minimum and maximum evaluation). In this way even a single contrasting evaluation (if ICi> 0.5) was detected and submitted to a subsequent individual interview. Through this set of qualitative judgments about the importance of each variable, we got the determination of numerical indexes by appropriate standardization.

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[2] The questionnaire was sent to various stakeholders involved in the design process, with the aim of collecting judgments and evaluations of the project, effects on the territory and about its prospects.

Two sets of indexes for assessing the influence of the internal micro-environment (strength/ weakness analysis) and the external macro environment (opportunity/ threat analysis) have been developed so that the analysis aims to forecast possible future scenarios through two synthetic indicators whose value varies between 0 and 1, and are the Strength-Weak Index (IFD) and the Opportunity-Threat Index (IOM):

$$IFD = \sum_{f=1}^{F} pp_{pi} / (F * P_{\max}) \qquad IOM = \sum_{i=1}^{R} pp_{pi} / (R * P_{\max})$$

Where: pp_{pi} = score assigned to the i-th variable strength-weakness and risk-opportunity; F = number of variables for strength/ weakness; R = number of variables for risk/ opportunity.

6. Analysis of the main results

6.1 General characteristic of the project

To date, the project, funded by foundations and private subjects for a total of 91,000 euros, offers interesting results in the three lines of intervention envisaged and carried out at the *Il Nodo* Migration Centre in Catania.

The training courses, some in English, have highlighted the lack of training knowledge on the languages used (Italian and English), which did not, however, prevent the acquisition of practical skills and knowledge.

The methodology used was based on theories and methods developed within a network of good practices within Fairtrade, Sustainable Education, Ecovillage and Agroecological Movements. Sustainable Development Training (ESD) approaches have helped migrants and young Sicilian unemployed to reflect and act to achieve food security by promoting quality food and healthy diets, strengthening local economies and supporting small businesses and the viability of small businesses agricultural. Training-on-the-job activities have enabled migrants and young unemployed to develop new skills, improve their social status, and get in touch with the reality of regional organic farming.

The recipients of the training activities were 93 subjects, including 23 young unemployed Sicilians and 70 migrant asylum seekers and refugees received in the SPRAR system, including 26 unaccompanied minors in charge of social services (14 boys and 12 girls). Migrants came from the following countries: Bangladesh, Nigeria, Burkina Faso, Senegal, Gambia, Mali, Ghana, Pakistan, Afghanistan, Egypt, Guinea-Bissau, Guinea-Bissau, Tunisia, Somalia, Ita-

ly, Germany, Greece and Romania. Overall, the group consisted of 19 women (20%) and 74 men (80%), divided into the following age classes:

- up to 18 years: 26 (migrant minors);
- 19-24 years: 51;
- 25-30 years: 7;
- 31-36 years: 3;
- over 36 years: 6.

Training lessons were kept, 60% in the classroom and 40% in the lab; lessons were articulated in individual activities (80%) and group activities (20%), such as plenary meetings, reflection activities, sharing of experiences and witness, ideas presentation and group design.

The place where cultural and social exchanges between the participants took place was a 3,000 square meter garden, given in concession by Consortium *Il Nodo* to the children who attended the 3rd course, pending the establishment of Cooperative. The garden, abandoned for over 20 years, has been the home of theoretical lessons and field activities that have led to the design and rehabilitation of the urban garden. The migrants and Sicilian youth learned how to develop a productive garden oasis system using minimum water and maximum fertility retention, and various microclimate opportunities. They recovered an old orchard with lemons, oranges, prickly pears and medlar trees and, by utilizing various composting techniques, established a vegetable garden with lettuce, onions, tomatoes, cabbages, broccoli, eggplants in an integrated design. The products obtained are sold to a purchasing group made up of employees of the Consortium itself. The course graduates, now empowered with design for sustainability skills, are planning to establish their own cooperative for organic garden management services, with some becoming trainees on urban garden design. The constitution of new cooperative is scheduled for September 2017.

6.2 Evaluation of the project results

The SWOT questionnaire was submitted to a sample of stakeholders (public and private) who had contributed to the participatory design process, which saw the birth of the *Sicilia Integra* project or experienced in the management of solidarity initiatives and Including immigrant subjects or professional engagement in centres of first reception of immigrants or public entities responsible for the organization of social gardens in the territory of the metropolitan city of Catania. So were involved with AIAB, the Sicilian Social Farming Network, administrative officials of the territorial areas involved in the project, national and international circular economics experts, university professors, sustainability experts and alternative cultural methods, of subjects

belonging to them to the onlus and SPRAR worlds, etc.; the survey involved 12 subjects and was carried out between September 2016 and March 2017.

The subjects involved showed a tendency for convergence on the variables considered as possible strengths/weaknesses, while greater contrast was found within the discussion and evaluation of considerable variables/ threats, as shown in Figure 1.

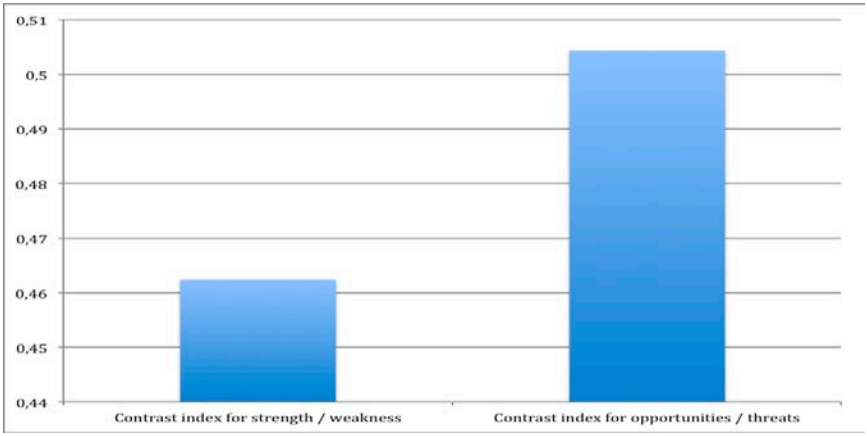
The discussion was animated and diverged on aspects related to the evaluation of external factors affecting the results of the *Sicilia Integra* project and related to a context related to well-known "immigrant" issues and possible causes (political or economic) and/ or solutions (Scuderi *et al.*, 2018).

As for strength/weakness performance indicators, the realization of the study/ job inclusion training project benefited from specific financial support (+1 index), the support of administrative entities responsible for its operation (+1 index), a high degree of involvement of foreign and local subjects (+2.66 index), high operating performance levels (+1.67 index), as shown in Figure 2.

Some weaknesses should be attributed to the "quality" of the regulation, to the degree of openness to the initiative gathered on the territory, to the system of relations between immigrants and locals, often restricted by linguistic and religious barriers, to the professionalism and the adequacy of the subjects involved, distinct cultural and professional backgrounds.

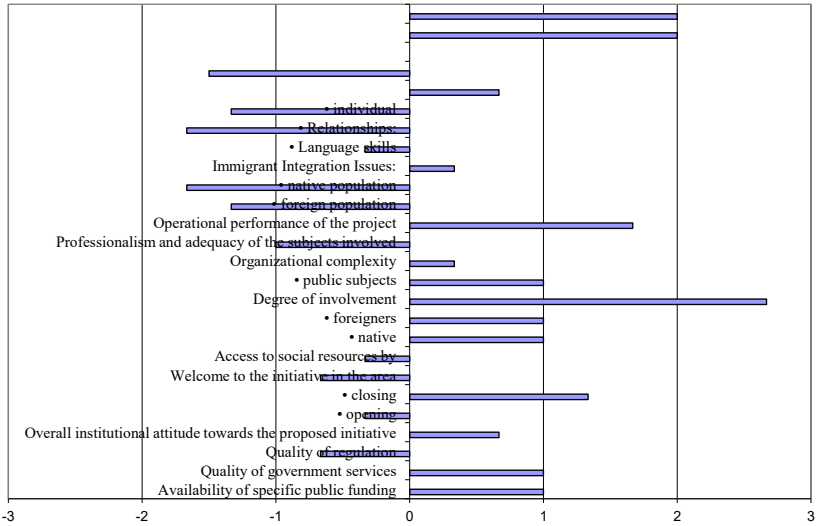
The qualifying aspect of the project was, as stated, the creation of social capital, aimed at stimulating entrepreneurial skills and involving the work of immigrant and local people. The creation of the garden laid the basis for an

Fig. 1. Contrast index in the sample detected (2017).



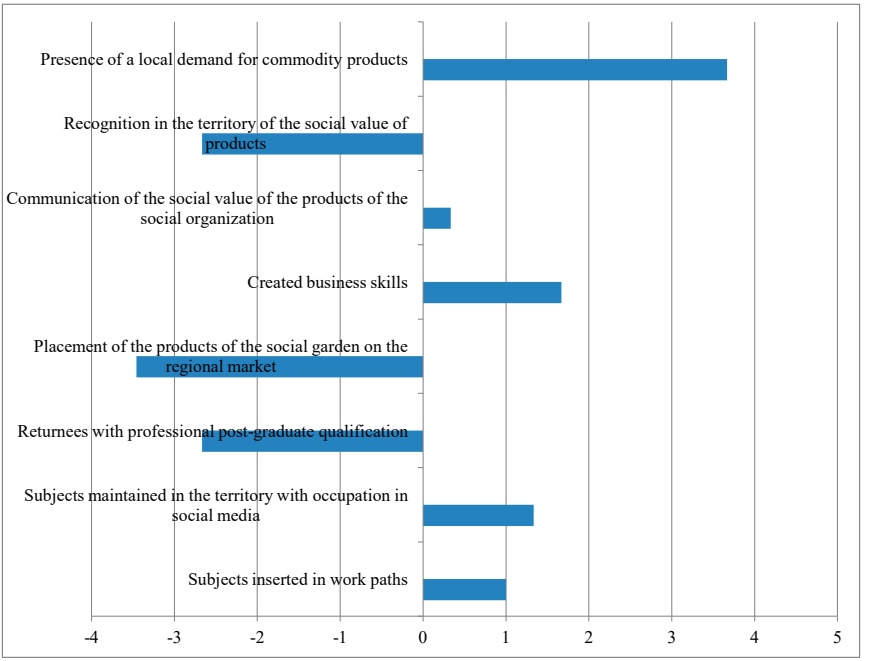
Source: own calculations based on data from survey.

Fig. 2. Performance index strenght and weakness.



Source: own calculations based on data from survey.

Fig. 3. Performance index opportunities and threats.



Source: own calculations based on data from survey.

assessment of the influence of a series of variables outside the project and referring to the territorial context of reference (Fig. 3).

In this case, the project has contributed positively to the creation of entrepreneurial skills, has contributed to the communication of positive values, linked to social aspects that let you see a possible integration of the subjects involved, including by job insertion. Negative evaluations are related to the concrete possibilities of returning qualified people to the home country, the positioning of the organic vegetable products on the regional market (limited to a natural physical proximity) and the recognition around the social value of the products produced.

7. Conclusions

Sicily continues to be the target of an ever-growing flow of political and economic immigration, representing the Italian and European shores of the main Mediterranean destination. It results in political, economic and social issues that, with modest means and resources, the EU tries to deal with an immigration policy not yet fully defined in its content and purpose.

In this context, *Sicilia Integra*'s initiative tries to build, together with other similarities, an integration model where the implementation of a training process aimed at the creation of entrepreneurial skills, which are considered useful and prerequisites for an effective immigration policy. This initiative, coming to the second implementation cycle, is well within the framework of the "social" role recognized in advanced agriculture countries for building a more inclusive, innovative and reflective Europe.

The training and information aimed at supporting forms of autonomous entrepreneurship in the agricultural sector made with the project *Sicilia Integra* have specifically offered opportunities for social and cultural development of migrants, formed on the themes of business management, on the rights and duties of citizens and on the creation of opportunities for personal and professional growth. The path has allowed the enhancement of skills acquired both in a formal way (courses) both informally (work of production and collection). They have been provided to the recipients of the know-how and know what necessary to the creation of the company.

The project also served to establish relationships on the territory and meetings between subjects with different needs (social operators, institutions, companies, researchers, etc.), thus expressing interest in the active participation in the civil life and issues related to migration processes. The debate activated thanks to *Sicilia Integra* also served to know aspects related to the impact of the migration flow on the current economic cycle of our country and the ter-

ritorial differences, on the labour market and related segmentation on a local basis, on the policy migration, on the characteristics of migrants and on the influences and choices of companies, able to determine competitiveness or complementarity between indigenous workers and immigrant.

The results show that farmers are positive regarding the contribution of immigrants to agriculture but have attitudes "defensive" against a local company multicultural that tends to assert itself in some agricultural areas. In these however it is true that the immigrant labour contributes in a structural way and decisive for the agricultural economy. The points of view of immigrants denote, conversely, a positive perception of their integration into the host society.

Ultimately, the project acted as spokesperson for changes of an environmental nature linked to a horizon of change in the style of life and consumption, beyond that of a social nature because agriculture is found at the base of the generation of reports in the Community.

In the perspective, the relationship between social farming models and cross-border cooperation measures needs to be assessed to borrow positive experiences and effectively counteracts the widespread illegality that revolves around this system.

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Keywords: socio-working inclusion, social farming, social innovation, connective agriculture
JEL codes: O35, P32, P46, Q01

Social Farming in Italy. Analysis of an «inclusive model»[1]

The growing understanding of potential role of agricultural and rural resources to enhance the social, physical, mental and economic well-being draw the attention of an increasing range of stakeholders on Social Farming.
The contribute discloses the main results of a study focusing Social farming in Italy: actors, activity, networks of relationships within which the initiatives are implemented, agreements among heterogeneous actors, etc. The main aim is to provide a whole analysis of the possible processes of social and working inclusion in agriculture activities, including purposes and methods, highlighting the strengths and weaknesses in the framework of the current welfare and rural development systems.

1. Introduction

Social farming (SF) practices employ agricultural spaces and activities to provide benefits (inclusion, health and well-being) for vulnerable people. The debate in Europe (Braastad and Bjornsen, 2006; Hassink and van Dijk, 2006; Gallis, 2007; Dessein, 2008; Haubenhofer *et al.*, 2010a; Haubenhofer *et al.* 2010b; Dessein *et al.*, 2013) still presents different definitions of Social Farming, using heterogeneous conceptualizations, both amongst academics and the actors involved (farmers, users, service sector, public administration, etc.). There is no unique, precise definition of the concept nor a consent about the range, differences or intersections with other associated terms such as Green Care, Farming for Health, Green Therapies, Animal Assisted Therapies, Horticultural therapy, etc. (Hassink and van Dijk, 2006; Hine *et al.*, 2008a; Sempik *et al.*, 2010; Hassink *et al.*, 2012).

[1] The article is a revision and progress of the paper "The socio and working inclusion of disadvantaged people in agriculture: the "model" of Social Farming in Italy" presented at the 1st Joint SIDEA-SIEA Conference "Strategie cooperative e creazione del valore in una filiera alimentare sostenibile", Bisceglie – Trani, 13 – 16 settembre 2017

DOI: 10.13128/REA-25107
ISSN (print): 0035-6190
ISSN (online): 2281-1559
Published by Firenze University Press
www.fupress.com/rea

Nevertheless, it must be considered that Social Farming is not a harmonized concept but a changing and evolving one, that has a high visibility in some countries as a recognized and formalized activity, but it has developed spontaneously assuming different connotations in different local contexts.

The farm context, from our point of view, is the core of SF, not only for the wide range of activities that this sector offers, but especially for the possible networks with heterogeneous actors: farmers, workers, customers, suppliers, etc.. Therefore, an agricultural perspective seems useful to analyse SF in order to consider it not as merely "hobby farming" or conceptualize as a minor economic activity helping in diversifying the farm business (Leck *et al.*, 2014).

To define SF, then, it is necessary going beyond a generic description and adopting an alternative approach. In Europe, three categories were suggested, in the past years, to conceptualize these issues: multifunctionality of agriculture, public health and social inclusion (Dessein and Bock, 2010). These categories do not affect at the same time and in the same way all farms, but are an instrument to analyse how SF has developed in several contexts and responded to specific needs. It is possible to characterize European countries mainly by one or other category. For example, Netherlands and Norway are more involved in a multifunctionality approach. Similarly, Flanders are more explicitly and directly focused on the agricultural sector, through direct fixed payments from the Ministry of Agriculture, intended to compensate reduced agricultural income (Dessein *et al.*, 2013). Public health approach is widespread in Austria (Wiesinger *et al.*, 2006) and in Germany (Neuberger *et al.*, 2006), while Italy is characterized by a social inclusion approach (Di Iacovo *et al.*, 2006; Di Iacovo and O'Connor, 2009).

Italian SF will be analysed on the basis of the studies on social farming and socio-working inclusion (Fioritti *et al.*, 2014; Lanfranchi and Giannetto, 2014; Dessein *et al.*, 2013; García-Llorente M. *et al.*, 2016), even in view of recent considerations about the role of social innovation in rural areas (Bock, 2016; Di Iacovo F. *et al.*, 2014). Considerations regarding the role of SF in creating connection among economic sectors and different typologies of actors (Leck *et al.*, 2014), also make it possible to introduce the concept of 'connective agriculture' even in analysing the Italian SF context.

According to Leck *et al.* (2014),

> Care farming helps farmers to connect with people and people to connect with agriculture [...] "Agriculture" is perceived as encompassing a wider range of social, economic and cultural sets of practices than "farming" and connections lie at the very heart of care farming related outcomes (Pretty, 2002; Morris and Evans, 2004).

Through SF farmers can reconnect themselves with a different style of agriculture, which allows them to step off the neo-liberal agrarian technological paradigm. Indeed, Leck *et al.* (2014) underline that

> connective agriculture is further appropriate with regard to service users because connections relate to a host of elements that include education, work, inner or outer self, the natural environment, family and friends, wider society and the food upon which we depend.

The connection, therefore, concerns recipients who connect with themselves and with other people; it concerns farmers, who connect with people, and the agricultural, social workers, who connect with other sector and build the mutually supportive relationships that facilitate inclusive communities. Particularly interesting is the role of SF in bringing together agriculture and health (Hine, 2008b; Hine *et al.*, 2008c) and social interventions.

However, not all the SF experiences are thought with this perspective; in some cases, specific services solve circumscribed needs, such as the nursery school, or recreational activities for vulnerable people, who are not linked to a wider community development project. In other cases, instead, a great variety of interventions is put in place to increase the capability of the individuals involved but also to make the local community more inclusive, *i.e.* able to sustain vulnerable people and offer them job opportunities.

The present contribution intends simply to provide a description of the phenomenon of SF in Italy with a quick review of the qualitative aspects of the social and working inclusion processes, one of the subsets of the SF constellation proposing some elements of reflection on a topic that is playing an important role in the current Italian welfare. The article describes the Italian SF and some case studies' results aimed to individuate those elements characterizing the processes of social and working inclusion, that constituted the link between agricultural and social/health sectors, an aspect on which there are not any available specific contributes. The case studies, in fact, are used to bring out from different experiences (local contexts, background, actors involved, recipients, activities) common elements related to both people empowerment and rural development.

2. Social farming in Italy

The first experiences of SF in Italy date back to the 70s and consisted of social and working inclusion, without any institutional regulation (Di Iacovo, 2008), in a period of great mobilizations of civil society that demanded the recognition of constitutional rights for disadvantaged people, prisoners, men-

tally ill people, and other vulnerable people. The civil society initiatives led the Italian Parliament to approve some important laws, i.e. the law 118/1971 for the abolition of special classes of disabled children, the law 180/1978 for the closure of asylums and for boosting social and working inclusion of psychiatric patients, etc. Instead, in 1991 it was approved the law n. 381, related to social cooperatives, that are companies which have the main and prevalent purpose of pursuing the general interest of the community in human promotion and social integration of citizens, through 2 typologies of cooperatives: the A-type, related to the management of socio-health and educational services, and the B-type, related to the implementation of economic activities (agricultural, industrial, commercial activities or services) aimed at employing disadvantaged people. 30% of the members of the B-type cooperatives have to be disadvantaged people. Therefore, social cooperatives are hybrid organizational forms that combine for-profit businesses and community approach to generate sustainable activities and broader community benefits. Their distinctive feature is their relationship with the specific social contexts that give rise to them (Somerville and McElwee, 2011). Since then, social and working inclusion of vulnerable people in Italy has been largely handled by the B-type social cooperatives (Borzaga and Depedri, 2012; Borzaga, 2014; Marzocchi, 2012). The so-called service sector had a key role in the development of these practices in agricultural contexts (Carini, Depredi, 2012; Confcooperative-Federsolidarietà, 2011), even if several farmers took part to this process. Particularly interesting are all those practices carried out by agricultural enterprises and cooperatives in collaboration with public services and service sector actors "In which a social aim is intentionally pursued as the outcome of an agricultural practice" (Senni, 2010). Until the early 2000s, however, it was not widespread in Italy the locution 'social farming'.

This legislative framework promoted the development of SF in Italy (Di Iacovo, 2008; Di Iacovo and O'Connor, 2009), that had different paths in several contexts, depending on actors, local needs, social and human capital.

In the past ten years this set of practices has drawn the attention of an increasing range of rural stakeholders, researchers, social workers, Public Institutions. The growing understanding of the potential role of agricultural and rural resources for enhancing the social, physical, mental and economic well-being led some Regions to adopt laws to recognize SF and support it through Rural Development Programs. In 2015, the Italian Parliament adopted the law 141 providing a framework of principles and procedures to recognize social farming practices in a homogenous way. The law 141/2015 identifies 4 typologies of social farming:

- Social and working inclusion of people belonging to the weakest sectors acknowledged by local and regional welfare bodies and working and social

inclusion of disadvantaged and disabled people, as defined by the current legislation;
- Social, socio-sanitary, rehabilitative, therapeutic, training and educational services for families, seniors, disadvantaged and disabled people;
- Social activities to support local communities, which make use of material and immaterial agricultural resources to provide services useful for everyday life, as well as promoting, supporting and achieving actions of social and occupational inclusion, recreation and education;
- Educational activities addressed to vulnerable people.

This new legislative framework, the success of SF activities and the presence of actors, such as intermediaries or dedicated boundary-spanners (e.g., workers with hybrid backgrounds or researchers) promoted the further development of SF in Italy (Dell'Olio, 2017). In Italy, SF includes a wide range of practices and activities supporting a new idea of Welfare System (Giarè, 2012); therefore, it seems to have developed mainly the first typology of SF, aimed at achieving the social and working inclusion of vulnerable people (Di Iacovo and O'Connor, 2009, Dessein and Bock, 2010, Di Iacovo *et al.*, 2006),

Looking at the SF experiences across Italy to date, social farming consists of a broad range of activities that have some common elements: agricultural production, sustainable growth and services aimed to empower groups of people, such as individuals with a physical or mental disability; people recovering from drug addiction or imprisonment; young people; elderly; abused women.

Many experiences of SF orientate their productions to organic and natural high quality products (Ciaperoni, 2011), short chain and local market, responding to a rising awareness concerning "Ethical Product", able to combine high quality products and the purchase of moral satisfaction, respect of the environment, equality in the workplace and fairness of trade conditions.

However, social farming refers to a dynamic and developing sector which creates links between farming and social purposes. Hence Social Farming must be understood as a new, dynamic and developing sector that consists not only of those actions in which the main objective is the production, processing and/or the commercialization of food products, but also concerns the employment of persons at risk of social exclusion and activities that have therapeutic objectives.

3. Methodology

In Italy there are few and partial available statistics on social farming. There is still a gap between the expansive trend of social farming (SF) on national scale and the research on it, that is generally based on a qualitative ap-

proach due to the lack of quantitative information. There is a clear need for SF to be underpinned by interdisciplinary research in different spheres, in order to validate empirical results, to analyse its impact and benefits from different point of views (social, economic, health, individual, sustainability, farm structure, etc.) and to ensure the dissemination of experiences on the ground.

In order to overcome this lack of data, the CREA Research Centre for Policy and Bio-economy carried out a survey aiming to gather information on different dimensions of SF[2] in Italy.

An "Expert Table"[3] (ET) has been set up: it is made up of Italian researchers who study the phenomenon of social agriculture from different points of view. The ET shared the objectives of the research and defined the method of the investigation. The table is characterized by a multidisciplinary of skills; therefore, in addition to the common need to describe the AS phenomenon in Italy, some areas of deepening linked to networks of relationships, disability, recipients, sustainability and the modality of investigation have been added.

The study method chosen is based on the survey conducted by means of questionnaire. The study took place in two steps: the first step is carried out through experimental survey with the aim of collecting information of the SF operators, while the second step is aimed at investigating the issue of social and working inclusion.

The survey was conducted through CAWI (Computer Assisted Web Interviewing) method; an online respondent-friendly questionnaire (Dillman, D.A. *et al.*, 1998) has been sent to about 1,200 actors (farmers, cooperatives, associations, etc.), previously identified through consultation of lists published by some Regions and literature review. More precisely, the sample companies were contacted by sending an e-mail containing the link to the online questionnaire and the instructions for the autonomous compilation of it. Almost at the end of the first survey phase (the so-called spontaneous return) a telephone reminder was made to those who did not complete the questionnaire. A second reminder, made again by e-mail, was made on the occasion of the presentation of the partial results during a public workshop (December 2016).

The questionnaire was articulated in six sections with multiple and closed response questions: master data (naming, geographic location), general framing (legal form, constitution year, employees), agricultural aspects (UAA, turnover, constitution year, primary and agricultural related activities, agricultural employees), social aspects (type of service, networking, social employees,

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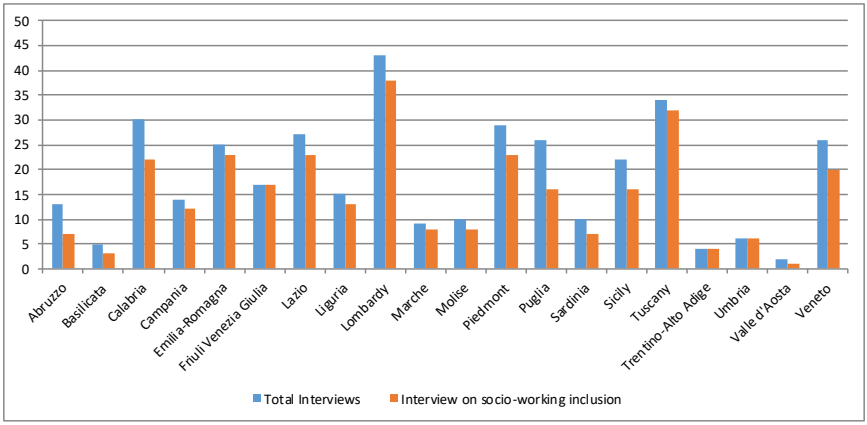
[2] The survey was conducted in the framework of the National Rural Network and in collaboration with INAPP, period 2016-2017.

[3] It is composed by Research Institutions (CREA PB, ISS, INAPP) and Universities (Pisa, Tuscia and Perugia)

types of services, network agreements), economic sustainability (financing, investments) and assessment (strengths and weaknesses of the SF).

The experimental survey recorded a response rate of 32 percent of the sample, equal to about 400 operators that are distributed throughout the national territory; 299 operators of these are involved in social and work inclusion (Fig. 1). Despite the limits of a CAWI research and without statistical sampling, this is the Italian Survey on the SF that involves the most significant group of actors by number, geographical distribution, activity and legal form.

Fig. 1. Distribution of total agro-social enterprises interviewed and that involved in social and work inclusion (n°).



Source: Our elaboration on Italian National Rural Network data.

Through a multivariate analysis we characterize the Italian social farming in four categories on the basis of their juridical form: farmers (individual enterprises, companies, farmers cooperatives, etc.), social cooperatives (A-type, B-type and A+B type)[4], public bodies (local health authority, hospitals, prisons, schools, universities) and other actors (associations, local action groups (LAG), consortia, rehabilitation centres, communities and religious institutions).

[4] Art. 1 law 381/1991: Social cooperatives aim to pursue the general interest of the community in human promotion and social integration of citizens through:
A) management of socio-health and educational services;
B) carrying out different activities - agricultural, industrial, commercial or service - aimed at the employment of disadvantaged people.

The second phase, in order to identify the purposes and methods of socio-working inclusion, was developed using data collected in 4 case studies (Creswell, Maietta, 2002; Laws *et al.*, 2003; Yin, 2018), for the exploration of differences and similarities within and between cases.

The case study is one of the most used methodologies for analysing processes and identifying the "mechanisms" that generate certain results and/or impacts. This methodology is normally applied in new and innovative situations or in the analysis of pilot programs, in policies based on partnership logic during the definition process, and when it is believed that "the success" of an intervention is strictly dependent on specific situation; these are cases in which the result is not easily definable *a priori* because it depends on several variables.

Therefore, this methodology allows to recognize the characteristics of a case and to identify micro-ethnography, which are generally constructed according to the grounded theory (Glaser and Strauss, 1967; Henwood and Pidgeon, 1995). According to this theory, the analysis is certainly oriented by prenotions that act as "sensitizing concepts" in the beginning phase of analysis, but these pre-notions can/must be dropped down when data collection, observation, coding, their categorization and the elaboration of theories, influencing each other during field work, questioning them, enriching them, radically changing their meaning and content.

The case studies, selected on the basis of the results of the multivariate analysis, the analysis of literature and documents, interviews with stakeholders aimed at detecting the perception of the territories' needs and the presence of practices defined as innovative by the stakeholders, are:

1. Social Cooperative "I Berici" (Vicenza, Veneto Region), that collaborates with many local enterprises in educational and socio-working path;
2. Social Cooperative "Resistenza" (Naples, Campania Region), that cultivates lands confiscated from the mafia;
3. The VivaIo shelter Laboratories, run by social cooperative "Agricoltura Capodarco" (Grottaferrata, Lazio Region);
4. Social farming "Montepacini" (Fermo, Marche Region), specialized in work-to-school alternation especially for mental disabled students.

The investigation has been conducted by on-site visits and semi structured interviews (Guala, 2003; Bichi R. 2007; Yin, 2018) to identify determinants of social and working inclusion: to give the whole analysis of the possible processes of social and working inclusion in agriculture activities, highlighting the strengths and weakness in the framework of the current welfare system and rural development.

Data analysis has been based on managing data, including linking data, creating and assigning categories (Dey, 1993). A triangulation process per-

mitted to compare the information collected by interviews and grey literature with the information presented by the scientific literature on social farming and social and working inclusion. The results presented are therefore the result of a process of discussion, socialization and synthesis of the experiences and visions of the actors respondents.

4. Results by national survey on Social Farming

According to the survey, the most frequent SF activities are social and work inclusion for vulnerable people and people with disabilities (PWDs), and interventions and social services for local communities. More in detail, 260 respondents (over 70% out of the total) provide social and working inclusion activities for disadvantaged groups; 150 provide social services and 122 provide both of them. Data confirm, therefore, the inclusive approach of Italian social agriculture (Di Iacovo, 2006).

The juridical form of agro-social actors that are involved in social and work inclusion is either social cooperatives and individual farms (57% of the total) and it is spread across all Italian regions, although there is a greater incidence of survey in some regions of North (Lombardy, Veneto and Emilia-Romagna). According to the survey SF is mainly based on small-to medium scale farms, characterized also by high employment and a variety of opportunities for people in need of support; their goals are opposite to those of the conventional farms whose overall aim is to reduce labour and to industrialize farms for becoming more efficient. Furthermore, many SF farms pay attention to the sustainability, more than 60% of them produce organically. There are strong similarities and communal motivations that bind organic farming and social agriculture, with particular reference to the overall capacity and enhancement of the environmental and social quality. Many farms grow vegetable gardens and rear animals, 70% deal with horticulture, 40% grow annual vegetables and fruits. Bees (21%) and poultry (19%) are reared very often, few rear cattle (9%) and pigs (8%). Direct selling, educational farms, on-farm processing activities and nature and landscape management are the most important multifunctional activities in agro-social farming.

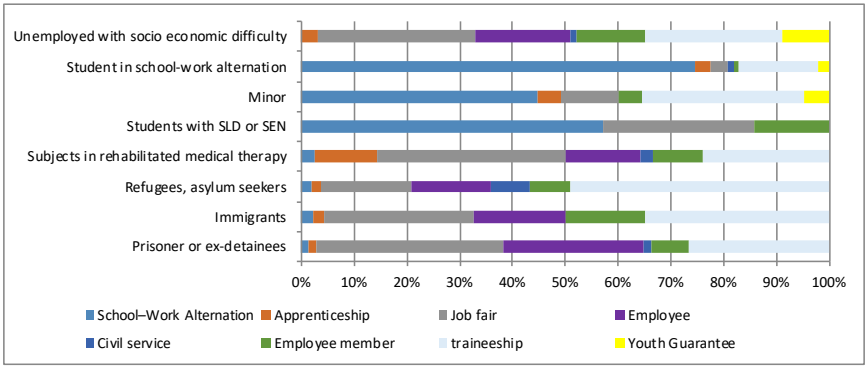
The services offered under the social farming are different and, in the specific case of the sample of 300 companies that meet the requirements of law 141/2015, fall within the scope of social inclusion: 79% of the total sample deliver social services, 63% traineeship and 61% orientation for disadvantaged people and people at risk of exclusion.

The 79% of respondent delivering services for social and working inclusion have different beneficiaries. Survey data show how people with disabilities are

the main target group of this kind of activities; for instance, shelter laboratories are often used to promote the working inclusion of severe mental disabled people or horticultural therapy for people with social problems.

Collaboration between heterogeneous actors is also witnessed by the dense network of relationships emerging from the analysis of the formal and non-formal agreements that the SF actors have activated for the realization of the activities.

Fig. 2. Involvement of target group (% by type of SF).



Source: Our elaboration on Italian National Rural Network data.

In fact, more than 1,700 agreements have been announced, most of them with social cooperatives, associations, schools, agricultural enterprises, social services and Local Health District. Most recurring arrangements are not formalized agreement (46%), followed by the Convention (24%), "other formal agreements" (13%) and the Memorandum of Understanding (11%).

The recipients of SF activities are involved in significantly different ways, but the highest percentages are in the working area (member of cooperatives, employee, job fair, traineeship, etc.), while minors and students are involved in work-to-school alternation path, as well as the attention of social farming to these new school relationships with the work.

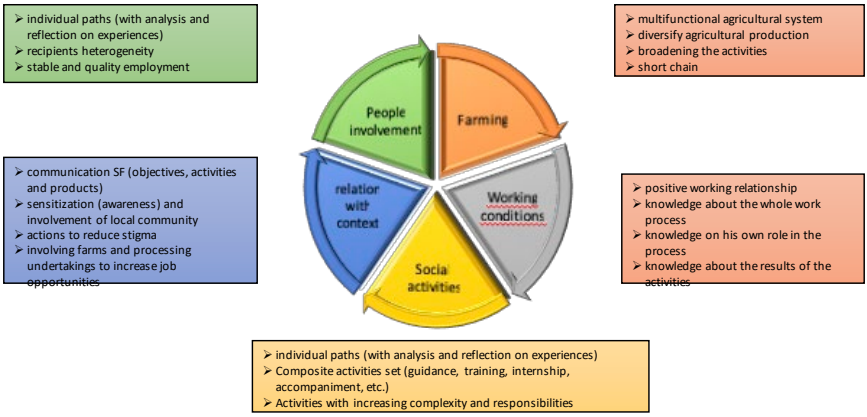
5. The inclusive context as distinctive element of Italian Social Farming

The analysis shows how social and working inclusion is a complex and composite activities set, tailor-made or better focused on people through indi-

vidualized paths: the recipients are involved in a heterogeneous set of specific actions (orientation, training, internship, accompaniment, etc.), which may conclude with an employment contract. The available actions set depending on the regional normative framework, local experiences and typologies of actors present on the territory. Often, regional laws transpose national regulations adapting them at social, economic and cultural context, with the introduction of specific activities or the mention to different definitions.

Therefore, the analysis of the case studies allows to identify some determinants of social and working inclusion, related farming context, activities typology, ways and means of involvement, context (Fig. 3).

Fig. 3. Determinants of social and working inclusion.



Source: Our elaboration.

According to the social workers interviewed, social and working inclusion is characterized not only by empowerment interventions, but mainly by the presence of an inclusive context: positive relationship between employer and employee and among workers, based on respect and trust; activities with increasing complexity and responsibilities; knowledge about the whole work process and its own role in the process; knowledge about the results of the activities in terms of commercialization, consumption, use of services and impact on local context (Social Cooperative "I Berici"). These elements refer to the capabilities approach formulated by Amartya Sen (1980, 1993), and afterwards developed in normative, ethical, methodological and political aspects. Among the most relevant aspects, in addition to cognitive and learning strat-

egies, the capability approach contemplates the organization and planning of work.

Therefore, the intra and extra company relationships are the most important elements in achieving a quality SF. Integration, in fact, refers to a situation and has a compensatory approach, with regard to educational sphere, looking at the individual person; the context is left in the background and the focus is on individuals, thus increasing a specialized response. On the contrary, inclusion refers to a process that looks at the vulnerable people in their entirety integrated into a context and it is addressed to the whole community.

The context takes importance, since the internal capabilities acquired by a person can be expressed if the external conditions allow it. The more socio-cultural and economic conditions allow equity, the more vulnerable people can be included in real socio-economic processes. In this sense it is essential to intervene also on the local community where people live and work (Freire, 1973).

We can therefore stress how there is an interdependence between individual freedom of agency and social, political and economic opportunities available.

Therefore, the well-being of the person consists not only in the activities that he is able to perform, but also in his freedom or opportunity (ability) to use them (Sen, 1980; Sen, 1993). Studies carried out in the Italian scholastic context (Chiappetta Cajola, 2015; 2017) indicate possible environmental factors that can be taken into consideration to detect the students working in their personal, social and environmental interactions, including socio-cultural barriers, such as those due to prejudices and stereotypes.

Even the presence of heterogeneous users involved in social and working activities or services in the same situation in a remarkable element contributing to the creation of a quality SF. For instance, Social Farming "Montepacini" in the Marche Region, that is carrying out work-to-school alternation especially for mental disabled students and other vulnerable people, involve in the same process both mental disabled students and political refugees: the students are supported in their activities in the farm by refugees that are also a specific target of the process of working inclusion. This approach avoids ghettos of the people involved, it highlights differences by bringing to light everyone's abilities. Additionally, the SF actors carry out many initiatives with the involvement of local community, to sensitize it and to reduce the stigma that characterizes some disadvantaged people, such as mental illness, foreigner and generally the "otherness". It is another important element that contributes to the construction of the inclusive context.

Looking for instance at the Campania Region, SF is strictly connected with the fight against Mafia, by reusing agricultural confiscated land from

organized crime. Within the beneficiaries of their initiatives there are the young adults who risk to be involved in criminal actions, lack of opportunities or particular social and economic conditions. The Social Cooperative named "Resistenza" has developed practises for working and social inclusion of these young adults or minors using special agreements with local authorities that define personalized care programs with specific budgets (*budget di salute*), promoted by regional legislative system. These agreements identify individual plans and objectives based on the evaluation of abilities and competences, personal needs, relationship network and the available social and health services, including activities provided by social cooperatives or farmers. This system represents an important support for the SF development in the Campania Region.

Even in the Social Cooperative "Agricoltura Capodarco" (Lazio), the role of the region was important to develop an inclusive model of SF. The "VivaIo" shelter Laboratory is a service started in 2008 in collaboration with the Mental Health Department of the Municipality of Frascati (Rome) and it is included within the local services policies (*Piano sociale di zona*). It is a shelter laboratory where people with mental disabilities and psychiatric disorder are principally engaged in floriculture activities and production of seedlings in the greenhouse, in synergy to the agricultural context and to the whole farm. The laboratory facilitates the increasing of independence, through training and working in a situation perfectly integrated in the daily agricultural and commercial activities. In addition, in collaboration with other local actors the Cooperative realizes initiatives aimed to improve social and economic growth of the local community.

In the inclusive approach there is an engagement from both the agricultural and social care/health sectors, especially network agreement between social/care sector on one hand and private farms on the other one. These actors belong to different worlds (i.e. different backgrounds, institutions, policies) that find in SF their gradual interaction, in a perspective of overcoming of sector-based model of care.

Related to the empowerment process, the social and working inclusion in a non-simulated situation of work favours the strengthening of the autonomy and enables to increase the residual capabilities and, at the same time, making people capable of knowing how to do, improving self-esteem, given the importance of a work role about personal and social identity.

To achieve the purpose of social and working inclusion, therefore, it is indispensable to realize not only several social activities in an agricultural context or to provide jobs for vulnerable people, but mainly to design a complex system of actions and relationships to connect internal with external inclusion dimensions.

6. Conclusions

In Italy, Social farming presents a wide range of opportunities which are differently used depending on the situation. The relationship dimension inside and outside farming context represents the core of the inclusive social farming. In fact, both the survey results and case study show how relations among participants, farmers and other people are allowed to improve capabilities and quality of life for beneficiaries. The study shows that SF is able to accommodate the weakest sections of the population, transforming disadvantage or disability into a different ability to perform work functions.

Furthermore, all the actions aimed to link/involve the social and economic local actors and, more generally, the local community enable SF to make inclusive context, that is the context in which mutually supportive relationships facilitate social and working inclusion of vulnerable people.

When SF links different sector and different actors, as shown by the research illustrated, it may, consequently, generate benefits for all sectors and all actors involved, in terms of well-being, economic development and inclusion. The result, in a specific area, is the development of the whole local system, mostly in terms of cohesion. Some case studies demonstrate that SF can contribute to start processes of social rescue and deep cultural transformation directed to the whole community, beginning from the activities with vulnerable people. In this sense, inclusive context refers both to capability approach (Sen, 1983; 1990) and connective agriculture (Leck, 2014) and offers an interesting interpretation key of SF.

The well-design of SF initiatives and projects should consider those elements which encourage the implementation of contexts more inclusive and contribute to complex strategies of local development. Similarly, Regional Administrations should consider SF as an instrument for local development and not only as a diversification farming activity, even by the implementation of specific Measures of Rural Development Program.

The conceptualization of determinants on social and working inclusion is the results of an analysys of 4 case studies; it could be useful an application of this framework to study a larger number of experiences with the aim of verifying the usefulness of identified elements, by adding other elements and studying, more in detail, the relationships between the different levels in greater depth.

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Keywords: social farming, narratives, transition, policy making, rural development
JEL codes: O35, R58

Social farming and policies in Tuscany, between social innovation and path dependency

Social farming (SF) emerged in the latest ten years in Italy and in the EU as an innovative practice able to link multifunctional agriculture and innovative social services for both urban and rural areas. SF mobilises unexpected resources from agriculture in order to meet local emerging social and economic needs and can be easily analysed under the perspective of social innovation (SI). Stakeholders with multiple competences and narratives are engaged by activating a political game that might have fragmented results at diverse levels.
The paper starting from the analysis of the Tuscany case – one of the Italian regions where the discussion aroundSF started for the first time – focuses on the triangulation among narratives, articulation in policy making, and results in terms of innovation in rural areas.

1. Introduction

Social innovation (SI) has been introduced in the EU 2020 strategy with the aim to support a societal process of change able to face emerging challenges related to economic, environmental and social dimensions. Innovation is considered as the main strategy to answer to those emerging challenges, such as climate change, the need of the communities to afford greener growth and to face growing societal demands (Davies *et al.*, 2012; Science for environment Policy, 2015). For critics, SI has been introduced to reduce the responsibility of national and European institutions along globalizing trends (Bonifacio, 2012), especially in relation to those social issues that require different responses than the ones provided within the market framework. SI is rooted on the idea that the emerging crisis, especially in welfare state at EU level, cannot be faced with ordinary paths and that new alliances in local communities are needed to face emerging constraints and sectorial barriers as those are among the main obstacles to resource mobilisation (Moulart *et al.*, 2005; Murray *et al.*, 2010). Innovation in general, and SI in particular, regards also agriculture and rural areas as pointed by the rural development policies in Europe, but not only. In rural areas, the lack of services is becoming an obstacle for the organisation of lo-

DOI: 10.13128/REA-25104
ISSN (print): 0035-6190
ISSN (online): 2281-1559
Published by Firenze University Press
www.fupress.com/rea

cal vibrant community and in order to ensure generational change (Di Iacovo, 2003, 2004). Differently from the past, social development is something that cannot be given for granted and it needs often to be carefully re-designed to promote a good and strong economy sector. At the crossroad between economic and welfare crisis, social farming (SF) emerges as a social innovation practice able to mobilize agricultural and rural resources and to generate new collective answers in the welfare community for conventional and emerging societal demands, both in rural and peri-urban areas (Di Iacovo *et al.*, 2014). Through a bottom-up process and evolving from isolate practices and experiences, new actors are progressively setting up a new policy domain in an arena where different actors, sectors and competences are meeting to support the organisation of new knowledge, rules and models (Di Iacovo *et al.*, 2014).

By looking at the Tuscany region, one of the first Italian regions where the discussion around SF initially started the aim of the paper is:

- to analyse the SF dynamic of innovation for better understanding SI in agriculture and the influence of path dependency from existing views and interests;
- to understand the effectiveness of new rural development policies in fostering SI in agriculture in rural areas.

The SF case can offer an insight for reflection on the role of policies and policy design in relation to general SI processes, also in connection with other sectors and policies. Starting from the lesson learnt in Tuscany, the paper offers specific methodological suggestions. Conclusions demonstrate as innovation processes within SF can be relevant for the current agenda and demands of many stakeholders in Europe and worldwide and can be extended to agriculture and rural development, at least to some aspects of them.

2. Social farming in Italy: setting the scenario

SF is a growing practice in the EU set up differently in different countries due to the specific cultures and the various characteristics of their welfare systems (Esping and Venzo, 1995; Di Iacovo, 2012). In Italy SF has also emerged according with its welfare systems and strongly influenced by the existing crisis of public expenditure. SF in Italy has catalysed together state intervention, responsible re-embedding of private farmers in the community life, a new open interaction between social/health services and community, the reorganisation of ethical and responsible markets for the interaction with local consumers. In such perspective, SF could be seen as a living lab (Edwards-Schachter *et al.*, 2012) aiming to experiment the organisation of a welfare community approach – based on deep subsidiarity among private and public

actors, and on co-producing public/private services and values – and the re-structuring of part of the private activities in the perspective of civic economy (Di Iacovo, 2014).

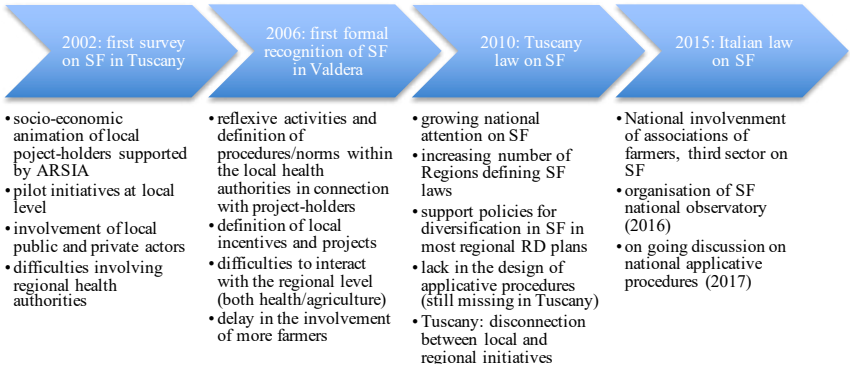
In Italy, the debate on SF started in 2002, and – with diverse dynamics in different areas (Dell'Olio, 2017) – is still on-going attracting the interest of a wider number of stakeholders at different levels, both locally, regionally and nationally. Due to its wide application, SF captures multiple private and public actors in a new policy domain, dynamically designed to consolidate practices and interests at different institutional level, although with diverse goals and contradictory results.

As research group, we started exploring SF as a tool to innovate sustainable social services in rural areas in 2002 (Di Iacovo, 2003). In 2003, a first survey on existing SF practices was organised in Tuscany (Noferi, 2007); in 2006 in Valdera (an area in the Province of Pisa in Tuscany that includes different municipalities) a public health institution recognised and formalised for the first time in Italy diverse SF initiatives in the local health plan (www.valdera.it); in 2010 the first regional law on SF was approved in Tuscany just before the arrival of the national law (Fig. 1).

As can be observed in Figure 1, the innovation process in SF can be considered as relatively fast in comparison with others. This despite SF law is not completely applied at both national and regional levels (such as in Tuscany) and the different local initiatives are not well connected with local social/health plans.

In other Regions, such as Veneto, where the normative process has been concluded, the number of registered social farms is still poor due to the dis-

Fig. 1. The timeline of social farming development in Tuscany/Italy.



Source: our processing.

connection with local health authorities despite a rather high interest of the regional farms.

In those change processes, it is possible to observe relevant asymmetries and discontinuity that affect the entire innovation process. This can create instability, a contradictory frame and ambiguities, and finally it slows down the whole SI process in SF while minimising possible outcomes. In this frame, researchers have contributed to increase knowledge around SF: principles and criteria of SF have been shared between different actors; functional norms regulating SF activities are defined; procedures for framing social inclusion are codified; monitoring and evaluation of SF activities are developed to measure the impact of these practices.

3. Methodology

Our activity on SF is grounded on an action-research (Lewin, 1946) in Tuscany that is on-going since the first identification of SF phenomena in 2002. As researchers we were embedded in processes, meetings, focus groups, seminars, dialogues with hundreds of different public and private actors both at local, regional and national/international levels, playing an active role along the processes as well as in policy discussions and related frameworks. We organised several living labs on SF in many different areas in Tuscany, co-defining methods, paths, goals and actions with public and private actors. Qualitative interviews with stakeholders involved in the design of specific policies for rural and social development helped us to analyse links and disconnection along the policymaking process and expectation among the actors involved. In order to frame the questions of this research, we have considered three main elements of analysis: the frames affecting the entry point of the actors involved, the institutional levels where the debate on SF takes place, and the political dimensions orienting the actors in the arena.

3.1 Social farming and frames

Frames are considered as term of reference or interpretation (Goffman, 1974) able to orient visions, narratives and practices of the actors embedded in specific networks (Johnston, 1995; Bendford and Snow, 2000). Frames are socially determined by actors involved in a cultural environment, where social groups are informed and characterised by specific frames that represent a constitutive element of their culture (Goffman, 1974; Snow and Benford, 1988), orienting the way they conceive, perceive and experience the reality. When

some individuals – or groups of individuals – refer to a specific event or topic, the frame they referred to orients their understanding of the specific event or topic. A frame facilitates the common understanding of the world and the way to more easily communicate it inside a certain environment. At the same time, diverse frames, with their specific values and meanings, can differently interpret aspects of the everyday life as well as they might orient the course of action. Groups of actors are engaged in the politics (Hall, 1982) in which they negotiate/conflict sharing/opposite meanings (Gamson, 1992). The organisation of a frame is a process in which actors negotiate a specific knowledge in relation to some problematic conditions/elements (problem identification) for defining common possible solutions or innovative path for change (prognostic framing) and to motivate, engage actors around it (motivational framing) (Snow and Benford, 1988). Such a process, along the three mentioned aspects could also originate conflicts according with diverse catalyst views of alternative groups (Benford and Snow, 2000). The nature of the frame might also influence the course of actions. It depends on how broad is the domain focused, also in terms of actors and cultures involved, how flexible/inclusive or rigid/exclusive it is, how much resonance it can generate in terms of consistency (coherency between problem, solutions proposed actions taken), credibility (in terms of results and actors involved) and acceptance (also in terms of the starting points of the actors involved, their specific belief, motivation, political position) (Snow and Benford, 1988). Due to the nature of the frame its definition/affirmation – besides to what has been described above – can be linked to discursive, strategic and contested processes. The first dynamic occurs in terms of dialogue and alignment collectively defined towards an intensive process of knowledge brokerage among the actors involved (Benford and Snow, 2000). Such a dynamic might allow to define, to collect and to align both events and experiences in a process of mutual evolutionary reflection and discourse definition. In some cases a strategic attitude, to affirm a specific frame in front of possible competitors, allows to precise, to counter-define and to increase the resonance and credibility of the proposed frame (Benford and Snow, 2000). This is also the space for possible conflicts always influenced by the contest in which the debate takes place, influenced by the political dimension affecting the emerging position for counter-framing, but also in relation with a multi-organisational and multi-institutional arenas (McAdams, 1996). Diverse frames related to the same domain, might generate possible alternative paths depending from the starting situation.

Frames that are distant from the existing ones might encounter difficulties in having quick resonance in a wide audience. Adaptation of new policy domains in connection with existing claims and visions/interests (economic, political) might occur in a re-elaboration of existing frames into new ones. This

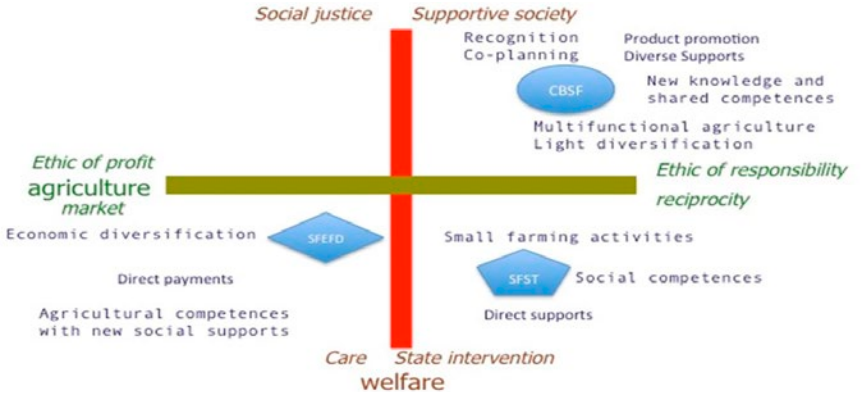
can generate a dynamic tension between innovation and path dependency at diverse institutional and organisational dimensions.

In the SF case, actors involved in the discussion from diverse organisations and at different institutional levels might differently enter in the debate (Dessein *et al.*, 2013; Hassink *et al.*, 2012, 2016; Tulla *et al.*, 2014; Hine *et al.*, 2008) within a contested process affected by political dimensions. The starting point for the actors involved in the debate around SF is always rooted within a sectorial dimension where agriculture and the social/health sectors are seen as separate worlds, differently regulated by markets and state intervention, as well as by internal rules and procedures. By the time, the debate on multifunctional agriculture, the arise of the public welfare crisis, measured in terms of public expenditure, flexibility of the services provided, and social justice (Barnes, 2007), have progressively created the space for innovative methodological approaches and solutions like SF. A first SF frame, radically innovative, has emerged at niche level thanks to the efforts of isolated projectholders who were deeply responsible of the economic processes that are key for the communities' life, thus also important in social terms. SF projects, and initiatives, offered evidences and important hints for a new debate around the use of agriculture for social needs and the interlinks with the welfare reform, new business models and resource mobilisation. At local level – where services are designed/organised – a SF frame arose due to the increasing collaboration among actors (farmers, public servants, public social/health professionals, participants of the third sector, researchers). The prognostic framing is based on the welfare crisis, the limits of a globalising economy in the phase of environmental change, the link between the reputation of the localities and the quality of their social ties. The prognostic framing incorporates innovative solutions (the use of plants, animals, nature) into a dimension of ecological welfare and regulatory communitarian principle, organised around a mix of state intervention, exchange and reciprocity next to the market, towards a mix of collaboration among sectors, blended competences and policies, community activation. Through the achievement of win-win solutions, the aim was to valorise the scope economy of multifunctional agriculture and to support opportunities for prosperity – from the economic, ecological and relational view – by reinforcing local nets, social capital and circular economy. We call this frame Community Based Social Farming (CBSF) (Fig. 2).

The mobilisation framing tries to involve a broader number of actors from diverse institutional/organisational levels, mainly sharing results and networking.

By the time, besides the CBSF, other 2 frames started to be defined once the consolidation of the SF domain mobilised broader interests and policies. The framing process started from the agricultural and the social/health sectors as described below:

Fig. 2. Emerging frames in social farming in Italy.



Source: our elaboration.

- SF as Economic Farm Diversification (SFEFD): it's rooted mainly in the agricultural sector and involves technical/political agricultural actors aiming at broadening the farms activities and farms economic viability by providing innovative services in the social/health field. The aim is also to reduce the gap with existing demand for services, both in peri-urban and rural areas. SFEFD prognostic is not fully compliant with the particular structure of the Italian welfare system, based on a mix of actors and on the increasing scarcity of public funds. It mainly focuses on directly supplying goods and services to rural and peri-urban families, to satisfy their specific needs (kinder-garden, elders), while do not fully consider the specific social competences needing for the services provided. In SFEFD, like in other north European countries, state and market remain the regulatory principle for the new services offered by farmers (REF). Due to the link with the existing regimes, it can be easily accepted and spread inside the agricultural sector according with existing path and policies in the rural development plans (RDP), mainly supporting economic diversification;
- SF as a Social Tool (SFST): it's rooted in the social/health sector and it looks mainly at the possibility of introducing agricultural activities/processes in the toolset used by the public/private providers in the social/health sector (public services, social coops, associations). Main aim is to offer a wider set of possibilities for targeted people (or users) with an increasing flexibility to personal needs. In addition, due to the current erosion of economic resources, another reason for the public/private providers to enter in the rural environment and policies is to attract new funds. The prognostic regards

the use of agriculture and nature as a tool. Not always the idea is to run agricultural processes that are economically viable and with technical agricultural competences. Support from public funds still remains an important focus and the mobilisation framing tries to engage it.

The three frames considered have diverse results and implications and they represent dynamics or competitive views among the actors involved in the SF arenas, who differently influence the course of innovation. Each frame has its own organisational needs and might generate diverse outcomes and adaptive answers to emerging needs. The CBSF does that by introducing a mix of subsidiarity (Vittadini, 2007), co-production of values (public-private, social-economic) (Olstrom, 1996; Alford, 2002; Parks *et al*., 1981) and civic economy (Offer, 1997; Bruni, 2012) to generate innovative/effective results in terms of social justice, mobilisation of resources at local level. To achieve those outcomes/results there an high level of immaterial investment is required also to re-align vision, goals and working procedures among a multitude of stakeholders. SFEFD and SFST are based on direct private/public rewards and on the organisation of new codified services that use agricultural/rural resources part of sectorial logics and rooted on traditional principles (e.g. state/market divide) with lower results in terms of value creation and social justice.

3.2 Social farming and institutional levels

SF is a grass root innovation able to emerge from local contexts thanks to motivated actors aiming to define innovative solutions for strengthening social/health care by mobilising agricultural resources. It is important to clarify that there are diverse institutional levels playing a relevant role along the innovation paths. The main responsibility and dynamic at diverse institutional levels are described below:

- the local level is essential to activate SF practices. In Italy, this is also due to the specific competences in services provision rooted at local level (local health authorities and municipalities being the main actors involved). Locally, the State fiscal crisis generated a strong reduction on funds transfer, affecting especially the social services. At this level, a specific effort has to align different actors in a converging and collaborative arena, to broker knowledge and to set up a shared frame on SF. In many areas of Tuscany – and not only there – such activity was facilitated by our research group with alternative results (Di Iacovo et al., 2014). The main discussion framework focuses on CBSF, which seems being able to mediate diverse interests and competencies of the actors involved. Not always the actors involved achieved a shared vision, with segmentation and dis-alignment among

them that might stop the process of common framing and of resource mobilisation;
- the regional level has a large influence in the definition of criteria, policies in agriculture and rural development as well as in the social/health sectors and in education. This can be defined as the managing institutional level. At this level, project-holders are not always involved, public servants and representatives of diverse actors (farmers or third sector associations) take part to the discussion with few rooms for a broader discussion. The final attempt is always to adapt existing sectorial frames – in agriculture (SFEFD) or in the social/health sector (SFST);
- the national level has a greater influence in the definition of shared standard for SF (like in the case of the national law and related procedures for application) as well as for the construction of strategic alliances and coalitions among actors differently involved in SF. At this level – like in the regional one but farer away from real SF practices – the discussion is currently aligned on political dimensions and informed by the sectorial adapted frames (SFEFD and SFST).

3.3 Social farming and political dimensions

SF as a process of SI can be read by using the lens of transition and transition management theory (Geel and Schot, 2007; Loorbach and Rotmans, 2010) that offers insight regarding the main steps of innovation, and the way to rationally facilitate it (Di Iacovo *et al.*, 2014). Discontinuities in the innovation path and difficulties met spreading the expected results[1]. New approaches to integrate the politic dimensions into the dynamic are needed as already stated by VoB (VoB and Bornemann, 2011). The framing phases themselves are embedded both culturally and politically in such dimensions. According with VoB (VoB and Bornemann, 2011) the political environment where paths take place could be organised into three dimensions: policy, polity and politics. Policy regards the discussion around specific problem and solutions. In case of SF it can be linked to the diagnostic and prognostic framing phase. Pol-

[1] In the Turin area in three years, towards a formalised collaboration among Pisa University and Turin Coldiretti association, a network of about 60 actors (farms, social cooperatives association, ASL, municipalities) was organised. It was able to mobilize agricultural resources, facilitating the inclusion at work for 38 less empowered people, generating new social services for about 120 people each year and creating a value of around 3 million € from agricultural products. All the process was organised without the use of any direct public funds. The expectation was to spread at national level the experience but such opportunity is still meeting difficulties.

ity faces the definition of rules and structure for political discussion (like arenas organisation, their internal rules, way of discussion). Politics regards the struggle for dominance/collaboration in the arena. The three dimensions can be declined into three levels: a focal interaction, a policy domain and the political system, as indicated below (Tab. 1).

Tab. 1. Political dimensions and level.

Levels	Political dimensions		
	Policy	Polity	Politics
focal interaction	main focus is on the organisation of problems and goals of the local interaction and governance	rules and procedures insight the governance process	struggle for dominance/ cooperation among participants of a governance process
policy domain	problem definitions and political approaches that might be dominant are considered	institutional arrangements within it	struggle of organised political actors for *supporting*/dominate with their positions within a policy domain
political system	organisation of discourses and political values and belief are the main focus.	constitutional rules and political culture	struggle for affirmation/ dominance among broad social groups, sectors classes or regions

Source: our elaboration on VoB et al., 2011.

Ways in which actors involved take position on the three dimensions/levels affect the process of innovation in the articulation with the framing phases and the diverse institutional levels. In the next chapter, we will try to analyse these ways with regards to the SF case in Tuscany.

4. Results and discussion: Social farming in Tuscany

4.1 The rise of the social farming domain from sectorial frames at regional level

The innovative use of agricultural resource for co-producing social services in rural areas started in Tuscany at regional level thanks to a research action managed by the University of Pisa. The research action was supported by most of the relevant farmers' organisation at regional level. In 2002, a specific

survey using the snowball methodology and facilitated by ARSIA (a regional agency in agriculture) revealed about 60 projects run by family farms, agricultural cooperatives, social cooperatives and community based groups (Noferi, 2007)[2]. A socio-economic animation activity was then organised to facilitate networking and exchange of knowledge and experience. The outcomes were a first codification of SF and the organisation of a first regional SF arena. In 2003, in Volterra, a first meeting organised by the Tuscany Region – with both the social and the agricultural sectors and the EU-DGVI – presented SF cases and introduced SF as a suitable discourses to reinforce services in rural areas. Concepts like re-generational, rural and community welfare were used in connection with SF. At that moment the concept was still rough, but already during the meeting the chief of a farmer organisation strongly disagreed on the SF idea underlying the farmers' technical productive role. Besides the event, also the third sector' regional associations were meet to share the opportunity to valorise SF, but they remained sceptical, being mainly focused in traditional welfare services. At the end of this first phase a stop to the dynamic was generated by the prevalence of sectorial discourses in both the components involved: the social sectors staff of the region as well as farmers' associations and third sector' associations. This phase was characterized in terms of policy by the attempt to establish new discourses and political values in the regional arena and in the political system with the final prevalence of the sectorial ones. The prevalence of the sectorial frames at regional level influenced negatively the polity around SF, marginalising the political presence of the SF project-holders.

4.2 The organisation of local networks supporting social farming

The initial discussion around SF was interlinked with an increasing interest of newcomers. Among those, a non-governmental association (NGO) (ORISS) was working on a pilot initiative in Valdera aiming to valorise the social/health use of plants involving private farmers. The idea was to create a more inclusive system at territorial level, linking public social service, innova-

[2] Tuscany has been a land for counter-urbanisation during the '70. There, from different backgrounds, young newcomers involved in agriculture started to re-enter into the primary sector with different views and ideas. Among the others, the opportunity to link in a diverse perspective the economic, the social and the environmental sides of agriculture. Some of those practices didn't have a long life, some others are still active in the field sometime changing their organisation and aims but still maintaining a diverse farming style including social activities for diverse target groups.

tive practices in agriculture and the collaboration of private farmers. Promoters spent a strong effort trying to receive the support form the local authorities (the voluntary Union of Municipalities in Valdera). During the period 2003-2007, the pilot initiative on SF was rooted and the good social and economic outcomes[3] convinced the Union of Municipalities in Valdera to formalize an arena for discussion in SF (called Board of Social Farming - BSF), in order to facilitate the reflection among actors with different background and competences in the area (Di Iacovo, 2008)[4]. In the BSF actors involved started to share achievements, to consolidate common views and goals, defining and codifying innovative paths and discourses. The CBSF frame took evidence during BSF. Despite a positive debate among the participants, there was no full consensus of all the actors in the BSF around the emerging frame. Some actor, such as some farmers' associations, was a silent participant. Such neutral participation had not allowed to enlarge participation to farmers that were not preventively involved by the associations themselves. This happened also for some of the participants from the social/health sector/services remained sceptical in joining the BSF. In the BSF the political dimension took a diverse direction from the regional one. In terms of policy, the focal interaction was on diagnostic and prognostic framing, looking to SF as possible answers to emerging crisis as well as an innovative tool to care people and create social justice in the area. The BSF was enabling to share cultural approaches, visions and expectations of the actors involved, to reinforce the CBSF discourse in the political system. From the polity point of view, new rules and procedures[5] to govern the system were defined within the BSF. In terms of politics the collaboration was the main outcome with no attempt to dominate the other involved actors. Participants, both institutions and actors, had not always the capacity to reframe their cultural approach and vision with the new one. As stated in both the agriculture and the social/health sectors some resistance in incorporating the new frame emerged reducing the impact in the area of the initiative. A strong consolidation of CBSF frame, able to mediate existing one, was the main outcome of the process as well as the organisation of a well defined set of rules and procedures ready to be shared with other territories and realities in the Tuscany region. Such translation happens also due to the mediating

[3] Seven participants from the Mental Health Centre in Pontedera were included in the project. After one year and half, for 4 of them was possible to enter as employs in the farms due to their personal improvement. Farmers involved managed to increase their income due to a better reputation in the area and in the local food markets.

[4] The arena was mediated by Pisa University along its path of research action on SF.

[5] The Valdera was the first local authority that codified SF practices re-defining working procedures among services and actors.

role of actors like ARSIA and the University of Pisa, managing to spread ideas to other territories and actors (Val di Cecina, Pisa, Amiata, Grosseto, Val di Nievole, Lucca area, among the others) with diverse outcomes due to internal dynamics (Fig. 3).

Fig. 3. Dynamics, frames and political dimensions in social farming at local level.

Actors//frames=>	Sectorial agriculture	SFEFD	CBSF	SFST	Sectorial health/social
Farmers	from		to		
Farmers associations	from	to			
Municipalities/provinces	from		to		from
Vocational agencies	from		to		from
ASL/Health-social services			to	to	from
Social cooperatives			to		from
Voluntary associations			to		from
Research centre			to		
Third sector associations				to	from

Dominant political dimensions at local level:

Policy:

- Focal interaction on diagnostic and prognostic framing
- Policy domain to link sectors and tools into a new mix
- Political system: to define and reinforce the CBSF discourse.

Polity:

- Focal interaction; new rules and procedures to govern the CBSF frame
- Policy domain: new arenas for discussion (BSF) codified SF practices redefining working procedures among services and actors

Politics:

- Focal interaction: collaboration within the involved actors
- Policy domain : struggle to support the new frame into the emerging policy domain

Source: our processing.

4.3 Regional dynamics in social farming

The increasing attention to SF – due also to the SoFar project 2006/2009 EU VI research framework managed by Pisa University with ARSIA – offered the possibility to re-launch the discussion at regional/national level on SF[6]. At

[6] The project was organised in several countries with national as well as EU platforms. The aim was to share similarities and differences in EU-SF, to organise SWOT analysis regarding the topic in the participating countries and at EU level, to define a strategy (at country/EU level) to reinforce SF in Europe. The platforms involved many actors (about 300 in all the participating countries) increasing the attention and the level of elaboration on the topic.

the end of the project – in September 2009 – the Tuscany region defined the first regional law on SF in February 2010. The path was speed by the emerging regional elections and by the need, in election time, to produce evidences on the activities done. In such circumstance, the president of the Agricultural Commission of Tuscany Region supported the idea to approve the first regional SF' law in Italy.

The SF network took initially part to the discussion on the law at regional level. In the politics, the rise of the SF policy domain and the coincidence with the electoral phase stimulated the struggle of organised political actors to obtain a dominant position. At national level, toward the approval of the first SF law, Tuscany region increased its reputation. The approval of a first regional law increased the attention on SF at national level. In the main-time, the erosion of public services provision was raising at national scale, as well as the evidences of SF practices in the country. At Tuscany level the discussion re-started in the different departments, mainly involving technical staff in the definition of a set of measures supporting SF initiatives. Those technical staff were not previously involved in any debate on the topic and they mainly started adapting existing sectorial frames on the new topic in agreement with regional farmers' associations. The diagnostic framing was mainly rooted in the debate on multifunctional agriculture and farming economic diversification, with small discussion on welfare reform and links with the local responsible for social/health services. The prognostic framing was based on the idea that a new market for social services in agriculture could start, although this was not the case for the Italian welfare system, besides some exception. In terms of polity, the traditional use of the command and control logic for policy implementation was applied[7] with very scarce results in terms of application, due to the logical mismatch with the emerging CBSF frame emerging at local level with the services providers. At the same time the local activities run by project-holders remained mainly frustrated (Fig. 4).

The disconnection between local and regional level, facilitated the disconnection among levels and the articulation of a diverse frame having influence in the definition of SF at regional level based on existing concepts related to conventional path of agricultural development such as economic diversification and multifunctionality (SFEFD). There the SFEFD frame becomes rele-

[7] To support SF in the measure 312 of RDP, the economic diversification was extended to SF supporting mainly the re-organisation of buildings and structures. On the other side the re-organisation of public infrastructures for the innovation of social services in rural areas (measure 321 of RDP) was linked to SF. Again, the measure founded mainly physical structures managed by public authorities with really few possibility to link in the reality with SF.

Fig. 4. Dynamics, frames and political dimensions in social farming at regional level.

Actors//frames	Sectorial agriculture	SFEFD	CBSF	SFST	Sectorial health/social
Farmers associations	from	to			
Region Agricultural Department	from	to			from
Region Social/Health Department	from			to	from
Third sector associations				to	

Dominant political dimensions at regional level:

Policy:

- Focal interaction: prognostic dominated by existing sectorial frames and State/market divide in existing institutions
- Policy domain: direct intervention with few interactions with project-holders
- Political system: definition of SEFD and SFST frame nearer to the existing sectorial frames

Polity:

- Focal interaction: lack of open arenas for wider debate, design of non fitting policy tools (command and control), lack of interaction with services responsible
- Policy domain: law definition without procedures for application

Politics:

- Focal interaction: power game to mantein position of regime actors in both agriculture and social/health sector
- Policy domain: attempt to keep control on the SF domain by sectorial regime actors
- Political system: affirmation of parties in the elective phases, dominant positin of the region in the national contest

Source: our processing.

vant influencing, in terms of policy, both the definition of SF as possible solution for increasing opportunities at farm level, and the governance, reducing it to an internal problem among diverse regional departments involved in the discussion (agriculture and social ones). The tools applied to govern the new policy domain were mainly re-oriented from the existing policies (in the RDP measure 312 was applied to facilitate diversification both in tourism and in SF). Despite controversial results, SF at regional level was also reinforced through ad hoc initiatives focusing on funding grants for vocational training activities for less empowered actors. Those tools were only partially able to fit both the interest of the social farmers[8] and the social/health rules that did not consider farmers as services providers able to receive social/health funds. By taking no part to the evolving discussion on SF, the regional department for social affairs continued working inside the social/health sectorial frame, giving a small interest to SF. In absence of effective discussion at regional lev-

[8] RD policies were mainly founding the re-organisation of existing buildings in the perspective of the provision of new services financed by the social/health sector.

el was not possible to create a coherent frame on SF. In both – agricultural and social/health – areas the path dependency from existing sectorial frames did not allow the CBSF frame to increase its resonance. Also in terms of governance, the prevailing of sectorial frames (social sector as such and SFEFD) frustrated the possibility of the local SF project-holders to get voice at regional level disconnecting the regional/local discussion on SF.

4.4 National dynamics in social farming

The growing attention on the SF domain activated the politics interest at national level (Fig. 5).

A competitive dynamic to dominate the governance process and for a dominant position in the new policy domain took place among new emerging associations representing the emerging SF sector, associations representing the existing sectors (farmers and social sector), political parties, and other group of interests aiming to better positioning themselves. The organisation of a community of practices for SF at national level was contrasted by the need to struggle for domination in the domain. In such new arenas the

Fig. 5. Dynamics, frames and political dimensions in social farming at national level.

Actors//frames	Sectorial agriculture	SFEFD	CBSF	SFST	Sectorial health/social
SF associations	from		to	to	
Farmers associations	from	to		to	
Ministry for Agricultural Department	from	to			from
Third sector associations				to	from

Dominant political dimensions at national level:

Policy:
- Focal interaction: prognostic dominated by existing sectorial frames and State/market divide in existing institutions
- Policy domain: problems definition dominated by sectorial regime actors
- Political system: definition of SEFD and SFST frame nearer to the existing sectorial frames

Polity:
- Focal interaction: lack of open arenas for wider debate. Lack of interaction with services
- Policy domain: new space for the discussion on SF with few involvement for project-holders. SF national law definition

Politics:
- Focal interaction: competitive power game to increase position and influence of regime actors in both agriculture and social/health sector
- Policy domain: attempt to keep control on the SF domain by sectorial regime actors
- Political system: political support to existing dominant groups

Source: our processing.

policy dimension with its debate around problems, goals and discourses was only partially emerging being overcome by the politics dimension and the willingness to consolidate political interest of the parts engaged in the discussion. In this phase, a new frame (SFTS) started to be consolidated mainly by the third sector groups and components in the political system affecting the direction of the innovation path. The discussion around the national law was the catalyst for such political phase. The same results of the laws give evidence of the mediation between diverse existing frames and interests around SF. The law is still waiting for the application procedures and their definition is well controlled by the different actors involved at national level with little engagement of the local actors actively running SF practices. The law defined the limits of the SF field with evident outcome on the existing practices as well as at regional and local level. More recently, an increasing tension arose among representative of diverse actors, both in the organisation of the national SF observatory and in the discussion around applicative procedures. The national debate was mainly oriented by the contraposition between SFEFD and SFITS mainly in terms of politics, by struggling to dominate the new policy domain and to gain influence among social groups (mainly farmers and third sector). The definition of new rules far from the local SF experiences produced an increasing level of uncertainty for the same and related local innovation path for SF.

4.5 Social farming, local networks and policy tools

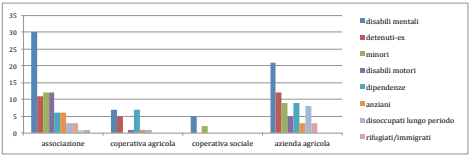
In Tuscany in 2013 about 140 project-holders applied for a grant from the Department of agriculture aiming to support less empowered people. In that framework, a specific questionnaire was organised in order to collect information on their main features (type of agricultural activities used for social purposes, target groups, services involved, participation to local/national net). The on line survey was filled by 105 project holders like indicated in the Figure 6.

The survey was done before the approval of the Italian law. As can be observed in figure 6, those associations refer to limited farming activities as in the case of some social cooperatives. Figure 6 also shows as SF in Tuscany has been capable to capture the interest of many and diversified actors, not only from the agricultural world but also from the social world despite their specific high level of dependency from the Regional grants. A high number of project-holders were embedded in local networks and were running farming activities in a professional way. After the experience in Valdera, other territories in Tuscany started working on SF by involving local health authorities, with farmers, social cooperatives and associations.

Fig. 6. Main features for projectholders in social farming in Tuscany 2014.

		Cooperative	body			
Massa				1	1	2
Prato	2					2
Livorno	1			2		3
Siena	2	1				3
Grosseto				6		6
Pistoia	4	1		1		6
Arezzo	9	2		3		14
Lucca	7	4	1	5		17
Firenze	8	4		7	1	20
Pisa	8	3	1	20		32
Totale	40	15	2	44	2	105

Target group for main typologies of projectholder (our source)



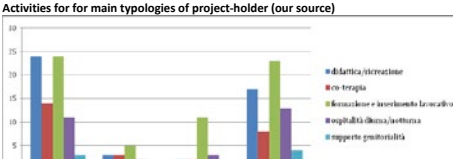
Projectholders for farm dimension (our source)

Dimension Ha	Association	Social Cooperative	Public body	Farm	Community	Total
less then 5.00	39	11	2	14	1	67
from 5.00 to 10.00	1	0	0	12	1	14
more than 10.00	2	4	0	18		24
Total	42	15	2	44	2	105

Responsible for services provided by SF projectholders (our source)

Actors involved	%	Actors involved	%
UEPE	3%	Families	13%
Schools	9%	Municipalities	14%
Public bodies (others)	10%	Other associations	14%
Private	11%	Health Authorities	22%

Activities for for main typologies of project-holder (our source)



ticipation to local/nati
s/ associations (our so

sh with al nets	Link with national nets: no	yes	Tot
no	45	7	5
yes	34	19	5

Source: our processing.

At the same time a voluntary based networking activities among local groups arose at regional level. In terms of politics, the struggle was to organise the project-holders sharing the CBSF to increase their weight and their capacity to influence the regional policy domain. On the other side new individual project-holders started to be attracted by the topic. The organisation of diverse focus groups was mediated by Pisa University in order to better coordinate the common actions, share visions and goals, transfer solutions and co-define emerging needs.

The focus groups were always well participated with public and private actors coming from different areas in Tuscany. During the focus groups, specific points were discussed among participants and possible solution were co-planned. The focus activities were also oriented to organise the participation of the group (about 40 participants in almost all the region) to the call of European partnership for innovation at regional level. The needs discussed with the goup are presented in Table 2.

During the focus group, actors involved were mainly framed by CBSF. In the preparation of the European Innovation Partnerships (EIP) also the farmers' and third sector' associations were participating. The aim was to scale up the CBSF frame by involving actors of the regime and to affect the regional level. In Tuscany 20 topics (among them also SF) were defined in order to

Tab. 2. Emerging needs at local level from the social farming project-holders.

Activities	Tools	Outcomes
Organisation of a formalised SF partnership	Socio-animation and mediation, Exchange seminars, and study visits	SF standard definition and formalised working procedures
Common strategic plan for SF development	Training and support for farms, families, schools, etc.	More inclusive communities and new business models
Monitoring and evaluation system for SF initiatives	Promotion and marketing, organisation of a specific chain for SF agricultural products	Definition of SF good practices
Formalised contracts among participating firms	To recognize, formalize and transfer innovative practices in the regional territory	Added value to SF products and involved producers

Source: our processing.

fund 20 operational groups. Despite the regional selection, no SF' group was funded by the Region. The groups that were finally funded aimed to improve agriculture through technical solutions.

5. Social farming between social innovation and path dependency. Some reflection

The state of the art on SF in Tuscany and in Italy today registers an increasing political and communication attention but also evident uncertainty in mobilising actors. Currently asymmetries, dis-alignments and competitive fragmentation still emerge. The result is the slow down of the social innovation paths and an increasingly evident disconnection between expectations, opportunities and practicalities. By reading the evolution of the Tuscany case, it is possible to observe as regional and local level attempted interconnecting especially in the starting phase of the innovation. The connection between ARSIA and the research centre facilitated the understanding of the topic and its consolidation at regional as well as at more local levels. The growing attention on SF has facilitated counter-reaction by some of the regime actors with the organisation of diverse frames closer to the sectorial expectations in agriculture and in the social sector. The discussion on the national law has reinforced such a process increasing competition more than collaboration inside the new SF domain. Competition seems to be increased by two elements:

- the lack of specific arenas at regional and national levels where sharing and co-creating knowledge on the new domain. The existing decisional space – on the law, on the participation to the national observatory, on the definition of procedures for application and, in the use of RD funds – is strongly controlled by regime actors – both in agriculture and in the social/health sectors – mainly struggling to affirm their position along different political dimensions and according with the SFEFD and SFST frames but with few outcomes in terms of innovative solutions and value creation. Associations focused on SF are engaged in the organisation of competitive alliances more than supporting the construction of a larger collaboration inside the SF domain;
- the underestimation of the relevance of the local negotiation for organising SF services where the regional level is responsible for organising agriculture and social/health services, but their responsibility mismatches with the local level needs (local health authorities and municipalities). The consequence is that the mediation organised along the SFEFD/SFST frames at regional/national levels have low impacts outside the political arena and especially in the territories. They can gain in terms of regional and national access to specific policies, funds and activities.

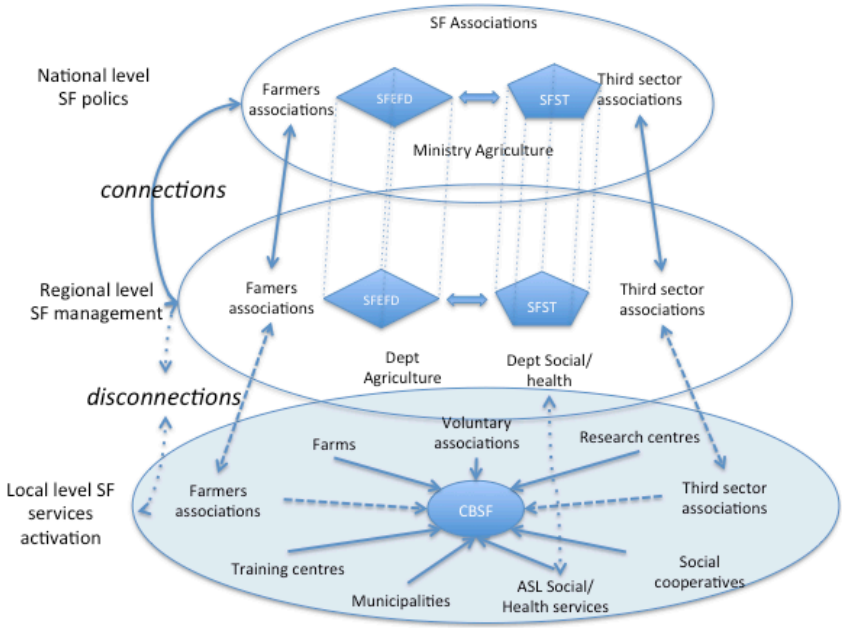
On the other side, at local level actors involved in the local arenas put effort in consolidating the CBSF frame, increasing the internal collaboration and generating evidences in terms of results in the medium terms. At the same times they seem not empowered enough to mobilise actors in the other institutional levels. At local level collaborations for organising practices are a protracted but relatively easy task. In these circumstances, members of farming/third sector organisations are actively involved but have limited results in influencing, culturally and politically, their own organisation.

As results of such dynamic processes social innovation in SF remain closed in a corner and path dependency on existing/adapted frame (Fig. 7).

The lack of rooms to reduce the gap between local and regional/national trends put constraints on innovation that remain trapped by the prevailing interest of empowered regime actors.

This is also evident with the innovative policy tools introduced by the new EU regulation to support social innovation, like EIP. They can be re-oriented by the regime actors – both technicians at regional level and actors involved in the decisional processes – on the traditional domains, with few manoeuvres for more radical innovations.

Fig. 7. Levels, frames and dynamics in social farming: between social innovation and path dependency.



Source: our processing.

6. Conclusions

The paper proposed an analysis of SF in order to better understand the existing contrast between social innovation and path dependency. Our methodological tool was based on a frame analysis, institutional levels and political dimensions applied to the Tuscany region and related interlinks with the national level. From the analysis of the Tuscany case some lesson can be considered and lessons extended to a general approach to innovation. At the fare front of a strong need for innovation in Europe, the UE 2020 strategy introduced social innovation as a possible tool to better match existing resources with emerging needs. In this context, the definition of solutions to radically change approaches and way of operating the provision of public goods seems crucial. In a way with traditional paths, we have been unsuccessful but the organisation of innovative pathways is definitely not an easy task to achieve.

Rationalistic approaches to innovation and transition find difficult application within the Italian situation, as the SF case seems to show. The

CBSF frame was discussed and organised in the field in a collaborative effort with the public and private actors involved. The results achieved are rising more and more the attention of the international community due to the connection with key concepts such as subsidiarity and to co-production of public and private values. Unfortunately, the same values seem to be underestimated at national level. The counter organisation of alternative frames (SFEFD/SFST) closer to existing principle and paths of the state/market divide was able to cover the stage also offering very few results in terms of outcomes.

The answer to our second research question on the RD policies seems to be still problematic. Besides the efforts supported by ARSIA in the starting phase no specific policies were able to support and reinforce the process at regional level. No space was given to the establishment of a European Innovation Partnership (EIP) on SF at regional level. The applied measures for agriculture diversification inspired by the SFEFD frame didn't fit SF which locally is innovative because it is embedded in the community more than in the market and in state intervention. Also the use of SF as a tool for the social services according with the SFST is installing new competition within the social sector in more than supporting existing processes. The Tuscany region introduced SF has rewarding criteria in the selection of the applicant for farm investments. There are not yet clear evidences about how many applicants declared to be engaged in SF but the risk of an instrumental declaration without control and without clear procedures for SF at regional level might be quite high. In the Tuscany case there are no tools really supporting the voluntary activity of the actors engaged at local level.

How to fill the gap and how to reconnect needs, innovative paths, policies and resources this might be a wider question for social innovation in rural areas. The SF case offers some insights with regards to the country situation, that we would synthetize into three main points:

- agency: there is a new demand for an agency able to recognize innovation needs and give support to the innovators and work with transparency and equity. At national level this could be relevant for the rural development network but it seems to be enrolled mainly in competitive framework. In Tuscany with the abolishment of ARSIA the staff re-enters in the management of rural policies but with much less effort in supporting the change, especially out of the dominant frames;
- public mediation: at local level processes of innovation are facilitated by the active role of third actors not engaged in specific interests. This was also the experience we had during the long path of research action. However the local support is not effective without vertical connection with other institutional levels and without a clear understanding inside the in-

stitutions of the existing challenges. Both at regional and national level institutions seem not able to play that role. Radical innovations redistribute resources and power, without any mediation the regime actors do not have any interest to reorganise their interests;

- public officers and training: the two previous points open the space for a third reflection. In Italy the crisis in the public system and the stop of the turn-over has reduced the technical comprehension of challenges, solutions, working methods and outcomes. The result is that generating innovation seems to be highly problematic and new efforts in training and innovation should be done there.

Social innovation is becoming part of innovation in our contemporary society in front of emerging challenges also in agriculture and rural areas. Being a transformative concept, it is demanding in terms of re-alignment/collaboration of many public and private actors around new frames based on concept and principle able to mobilise resources in unexpected way.

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Italian Review of Agricultural Economics, Vol. 73, n. 3, 2018: 133-144

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Regional nodes in European areas to boost innovation transfer and knowledge uptake. A social network analysis of building relationships in "Short Food Supply Chain Knowledge and Innovation Network (SKIN)" – H2020 project

Key words: network analysis, short food chains, knowledge transfer, food systems
JEL Codes: D85, Q01, R11, R12

This paper aims at conceptualizing the approach followed in designing the building European network within the H2020 project "Short Supply Chain Knowledge and Innovation Network". It was brought together literature regarding the adoption of network analysis and the development of short food supply chain in order to describe the role of the regional nodes as means to transfer knowledge along and between local food systems around European areas. This resulted into the framework of SKIN network design. The approach is devised to overcome the parochialism of local food systems, and structure an interconnected design among economic players to fulfill regional and global impacts in knowledge transfer.

1. Introduction

European Commission (EC) has been pursuing many efforts in aligning European areas to the same standard of competitiveness by leveraging principles of sustainability and networking to spreading results. In fact, the macro European region, meant considering the countries in the Union, presents many heterogeneous features showing different capacity of development, even if the potential may emerge equal (Kneafsey, *et al.*, 2013). In particular, there are opposite situations between eastern and western countries and between the norther and southern ones. The southern and eastern ones suffer from a delay in undertaking growth whether compared to the western and northern areas (Favilli, *et al.*, 2015). To this extent, the EC has been allocating substantial financial resources for supporting equal opportunities and spreading competitiveness within the international community (Madureira, L. *et al.*, 2015). However, resources are granted by endorsing the players from different countries (mostly showing different features) that get together for undertaking initiatives to trigger equal growth (Materia, *et al.*, 2014). Within this context, actors living the territory try to get in contact for sharing ideas and engaging cooperation (EIP-AGRI, 2015). The cooperation is the prerequisite to build

DOI: 10.13128/REA-25108
ISSN (print): 0035-6190
ISSN (online): 2281-1559

Published by Firenze University Press
www.fupress.com/rea

network and in turn, the network is the precondition to gain in terms of efficiency and competitiveness (Šūmane, *et al.*, 2018). It indeed makes operators able to reduce transaction costs, innovation transfer and real uptake (Fritsch, M.; Kauffeld-Monz, M. 2010). Obviously, adopted and consolidated knowledge within delimited area are often unable to raise their visibility for spreading and facilitating the accessibility. In this regard, Social Network Analysis (SNA) plays a fundamental role in revealing latent and existing relationships. Wherever weak or not established linkage restrict opportunities (Contò, *et al.*, 2016), and interested players are not aware of marginal achievable improvement through alternative paths, the SNA can show the inefficiency and, simultaneously, makes rise optimal solutions (Valente, 1996). In this paper we show the assumptions that were considered for outlining the framework to build up an European Network within the activities of an European project. As a matter of facts, the analysis has been conducted considering the H2020 project "Short Food Supply Chain Knowledge and Innovation Network (SKIN)" granted to twenty-one European partners coming from fourteen different countries (Ton, G. *et al.*, 2015). The content of the project is focused on an innovative network through which innovation and knowledge will circulate. This introduction is the point of departure of conceptual paper aiming at focusing on the literature review regarding short food supply chains connections within their domain itself in order to identify the methodological approach that will be implemented on data that are being collected within the project activities.

This paper is composed by six additional sections. Sections (ii), (iii) and (iv) relate the background of short food chain, social network analysis and regional nodes, respectively; section (v) displays the method of the building innovative network according to the guidelines issued by EC; the third section (iii) arises how the network will be implemented within SKIN. The last section (iv) concerns the conclusion.

2. Short Food Supply Chain

Short Food Supply Chain (SFSCs) is raised within the Regulation 1305/2013, art. 2, providing the Rural Development scheme 2014-2020, as "a supply chain involving a limited number of economic operators, committed to co-operation, local economic development, and close geographical and social relations between producers, processors and consumers" (Canfora, 2015).

This is a general assertion concerning a comprehensive domain of the European Food Supply Chains (Galli & Brunori, 2013). However, the economic realities around the Europe, relate different local food systems according to the geographic position (Nagurney, *et al.*, 2018), and the relative background

that each one has developed over the years (Ciani, *et al.*, 2016). Each European area shapes quality (Carbone, 2016) by considering a specific scheme in operating. "For example, in southern European countries quality is shaped by the production context, which in turn conveys culture, tradition, terrain, climate, local knowledge systems. In northern and western countries, in contrast, quality criteria environmental criteria concern environmental sustainability or animal welfare, with innovative forms of marketing. In Central and Eastern European countries, traditional peasant culture survived especially in remote rural areas; quality criteria emphasize traditional and cultural aspects" *(Kneafsey, et al.*, 2013).

These differences reveal different role of the supply chains within the territories they take place (Šūmane, *et al.*, 2018). Yet whilst some local systems focus on environmental issues, there are others giving rise to factors being more or less parochial (Levidow, *et al.*, 2014). The challenge is to enable European short food chains to get together in order to mix their approaches to deliver sustainability (Tregear, 2011). For sure, it is a hard objective because shortening supply chain means reducing connections, and in turn their capacity of being able to reach out with far markets where opportunities in terms of applied knowledge may come out. These opposed sides of the same coin are tackled with this conceptual study.

The definition of SFSCs conveys the relevance given to the matter by the European legislator. Importantly, it is the specific commitment of co-operating for engaging Rural Development. Indeed, co-operation is the prerequisite to establish connections so that operators get enabled to find a channel to transfer the held knowledge (Fonte & Cucco, 2017). By cooperating, economic operators find the way to address and change their organization towards new solutions consistent with their sustainability. The cooperation comes therefore from the social consideration of the sustainability that is purported to be in the scope of economic, environmental and social goals (Tregear, 2011).

3. Social Network Analysis

Supply Chain Management has focused on the existing and potential relations between buyers and suppliers (Borgatti, *et al.*, 2018; Dubey, *et al.*, 2017). In other words, it regards the relations between the operators from the upstream of the supply chain and those one placed at the downstream (Croxton, *et al.*, 2001).

According to Borgatti & Li (2009), the relative position of one firm with respect to another one affects both behavior and strategy. The expressed power was already showed in 1993 by Ibarra, who argued that the influence de-

rives from the specific position in the network and the surrounding networks.

Along with these assumptions the adoption of SNA method in understanding the relations within the supply chains (Bortolini, *et al.*, 2018), allows to determine the role that each player should assume in the network to intensify the dynamism of the connections (Borgatti & Li, 2009).

Starting from these considerations, framing supply chains as networks is what Kim *et al.* (2011) stated in the automobile sector. However, they also claimed that a network approach for designing and enhancing the efficiency of the supply chains can be harnessed into any other sector.

4. Regional Nodes

In networks, nodes represent the intersections of the connections flows. Connections, instead, are depicted by edges. Edges are the ways to allow the nodes to communicate to each other. Yet, it doing that, it is needed to consider what to be transferred. Regional nodes take place in this perspective as hubs concentrating knowledge in the field of short food supply chains (Barham, *et al.*, 2012).

In literature, it is common to find words as food collecting center (Facchini, et al., 2018), or Food Hubs (Matson & Thayer, 2016). However, such definitions point intermediaries where food is sorted to be distributed for sales. In the case of regional nodes, it means that knowledge is held by experts able to lead economic operators to their real application. Regional nodes are therefore kind of knowledge hubs. In the wake of this assertion, organizations need to acquire competences and innovations related to each scope of the organizational units/functions, such as governance, product quality, logistics and so forth (De Pascale, *et al.*, 2017).

5. Methodology

This study has been conducted by reviewing some relevant literature related to the topic of SNA and Short Food Chains, and how SNA allows for easing the fulfillment of sustainability in short food chains. Throughout the literature review, the selected studies have been chosen why focusing on the importance of nodes and edges building the network. As a consequence of this assumption, only few studies have been made by approaching in that perspective. Our aim was to confirm that the choice of the SKIN method was supported by the scientific literature, and in turn, whether the role of regional nodes is more relevant than the edges.

SNA is therefore the chosen method to investigate relationship features revealing the interaction intensity among actors operating in SFSC. One of the major question for which scholars have been spending studies, concern the more and more complexity that characterizes the relationships. The complexity is the main cause of failing in understanding firm's strategy and behavior. The complexity depends on the wide extension of supply chain network that involves farms (Choi & Kim, 2008). Network is made up by nodes and edges. Nodes represent actors (farms or persons) able to make choices (Ketchen, D.J. & Hult, G.T.M., 2007). SNA analyzes pattern of ties within a network. The challenge consists in discovering the importance of each considered resource within the emerging relations (Valente, T.W. 1996). The evaluation can be implemented at node level and network level. In other words, it enables stakeholders to understand how much each node is important and how the consistency of connections are efficiently harnessed. Within SKIN project, SNA represents an instrument to explore actors behavior along the supply chain. It consists of a method useful for managing supply chain and the fields of logistics (Kim, *et al.*, 2011). SNA results can be calculated at two levels: at nodes level and edges level. The first one indicates how the considered resources are involved in the network. The node position identifies the centrality metrics. The concept of centrality explains the importance of the vertices within a graph. There are different types of centrality metrics. According to Everett and Borgatti (1999) and Mardsen (2002), the most prominent are degree centrality, closeness and betweenness centrality. The degree centrality is the most influential and understandable method to show the role of each actor within the assessed network. It shows the most important facets of connections animating the interested areas, coming up potential or actual economic powerful operating in the analyzed areas (Mahoney, 1992). In the other words, the degree of centrality checks where the critical resources are mainly used to concentrate values and pursue the local growth and innovation spread. SNA is also a method applied to discover connections between rural and urban and peri-urban areas. There can appear different kinds of degree, the ones "rural placed" and the other ones "urban or peri-urban placed". The rural one means that rural area is well using resources and engaging more or less strategies to pull urban and peri urban inhabitants in dealing with local development, and, in this regard the next step consists in depth understanding the linkages meaningful (Calisti, 2016). The urban and peri-urban ones reveal that cities can lead the local development. Obviously, the analysis of connections made on the edges comes up as a fundamental step to capture the resources flows to rural areas and vice versa (De Pascale, *et al.*, 2017). The closeness centrality in supply network is calculated minimizing the length of a path between two nodes. The methodologist will be used within SKIN project, in case, will

only consider the contractual relationship (Kim, *et al.*, 2011). It means that the contractual (power?) impacts on the ability to activate and control the information flow. The latter is the definition associated to the closeness approach to implement the SNA. Lastly, the betweeneess centrality considers the shortest path that it passes though (Holloway & Kneafsey, 2017). These different ways of considering the distances between nodes will being used to analyze the network data. As explained, the connections will be qualified according to the type of relations (contracts, resources etc.) so that it will possible to match data to the related assessment method.

6. Results

Networks represent a useful way for the development of rural areas, offering support to the exchange of ideas and knowledges (Valente, T.W. 1996). Rural areas are characterized by heterogeneous actors, with their knowledge and experiences, which can be put together in an innovative system for a mutual interaction, generating in the long term new development possibilities, throughout employment and social wealth (Esparcia, 2014).

In this sense, the ability of local actors to access, recognize and transmit knowledge and information gathered through a collective learning system, influence greatly the competitiveness of a geographical area or territory.

The definition of actors may vary according to the field of interest, but referring to the agri-food system there could be included firms and other organizations, for example universities, innovation centers, educational institutions, financing institutions, industry associations and government agencies, as well as suppliers and consumers (Materia, *et al.*, 2015).

For this purpose, as also indicated by the European Commission (EC) through its recent programmes, as in the actual Horizon 2020, it is necessary to build up a consolidated network combining private and public organizations, at local and non local scales.

The project SKIN addresses the call RUR-10-2016 "Thematic Networks compiling knowledge ready for practice". The call was focused on innovation and in particular on the role of Innovation Support Services and the European Innovation Partnership.

Indeed, this project intends to systematize and bring knowledge to practitioners, promote collaboration within a demand-driven innovation logic and provide inputs to policymaking through links to the European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI). It also fully takes into account EC expressed needs (EIP-AGRI, 2015), such as the lack of coverage of short supply chain knowledge by the existing Farm Advi-

sory Systems (FASs), and by improving user-acceptance through co-creation of best practices with end-users.

The EIP-AGRI aims at fostering competitive and sustainable agriculture and forestry bringing together innovation actors (farmers, advisors, researchers, businesses, NGOs, etc.) and supporting the cooperation between research and innovation partners. To this extent, SKIN reflects the EIP approach in terms of the consortium composition and scope of the partnership; it integrates and complements the work of the EIP for the activities carried out and aims to feed the obtained results within the Partnership (De Pascale, *et al.*, 2017). SKIN integrates the EIP interactive innovation model and bottom-up approach for linking multi-actors partners, thus it reflects the EIP-AGRI Operational Groups approach, making the best use of practical, scientific, technical and organizational knowledge in an interactive way.

SKIN is designing the path for performing several initiatives in order to build and animate a community of stakeholders (with the goal of about 500 representatives), with the strategic objective of setting up, at the conclusion of the project, a European association permanently working for the improvement of SFSCs efficiency and for the benefit of stakeholders and growth in the sector (Carbone, 2016).

Although competitiveness and sustainability of the agri-food sector can be enhanced through innovation at the level of individual farms or producers, additional gains can be obtained through innovation at the level of the supply chain itself (Carbone, 2016). This requires cooperation between the different actors involved as well as leadership to drive the overall innovation agenda.

These small and medium sized farmers however, often have no information about supply chains in their environment and so they do not have the ability to track or monitor the chain, nor do they have the ability to invest in the research needed to drive supply chain innovation adapted to their specific context (Ciani, *et al.*, 2016).

The SKIN approach is stimulating a collaborative innovation in different EU agriculture sectors through the improvement of knowledge exchange between academia and practitioners, in particular about the management of SFSCs. Replying to farmers, and small farmers in particular, that are calling for more knowledge exchange and sharing, as also pointed out by the results of the EIP-AGRI Focus Group on SFSCs (Kim, *et al.*, 2011).

As main result of the SKIN activities, it will promote an interactive innovative model aimed at, on the one hand, integrating practical knowledge as building blocks for research and innovation and, on the other hand, at making the available knowledge accessible and exploitable by those who would benefit the most from it.

The community will be built and animated around the identification of good practices in short supply chains across Europe. That part of the agri-food sector whose production feeds into these short food supply chains, faces a much greater challenge to growth via innovation (Fritsch & Kauffeld-Monz, 2010).

We expect our work to identify specific aspects, experiences and shortcomings in SFSCs management that might generate demand driven innovations (Fritsch & Kauffeld-Monz, 2010). This will be reflected in the creation of a specific type of working group, which will be identified as Regional Node (Fonte & Cucco, 2017). Through the SKIN approach twenty-five regional nodes will be organized, composed by the community of stakeholders active at the different regional levels involved within the SKIN consortium.

The rationale for the Regional Nodes is on the one hand to provide inputs from the grassroots level for the identification of good and innovative practices in SFSCs (De Pascale, *et al.*, 2017), and on the other to help spreading practical knowledge (Farahani, *et al.*, 2014). They will use a participatory approach in order to translate the reservoir of available knowledge into materials adapted to end-users, in line with the practice-abstracts format. At the same time, the other SKIN activities, will contribute to the Regional Nodes through territorial-based initiatives (regional) and technical issues, such as for the translations of the knowledge exchange's results into end-users materials appropriate to the different regional needs (Galli & Brunori, 2013).

This preparatory work will be structured during the project implementation, thanks to the definition of the engagement strategy that will identify actors (Contò, *et al.*, 2016), methods and opportunities to aggregate around SKIN a large and representative, multi-party community of stakeholders from as many countries and regions possible in the EU and associated countries. A pull of selected stakeholders and actors from the entire supply chain will be thereby directly involved in the dialogue promoted by SKIN and take part in the main knowledge sharing activities of the project (De Pascale, *et al.*, 2017). The engagement strategy will be appropriately declined into regional approaches by the regional nodes, thus providing indications for organizing the exchange of knowledge and information at the different regional levels, according to the specificities of the local contexts. Regional nodes will be set up in a way ensuring the involvement of all partners and a homogeneous representation at geographical level.

To this extent, different learning methods we will be used from facilitation techniques, which enable face-to-face interaction and participation in multi-stakeholder workshop settings, to social learning analytics, which focuses on elements of learning that are relevant in a participatory online culture. Facilitation techniques will include world café, story-telling, best practice exchange,

peer reviews, creative labs, triangular interviews, positive elicitation, repertoires of innovation support, and other methods of knowledge brokering during multi-stakeholder meetings.

Such approach takes into consideration the specific characteristics of each of the regional contexts involved in the project. Our initiative will therefore have an impact at two main levels:

- *Impact at regional level.* The creation of regional nodes bringing together local stakeholders involved in the SFSCs issue will be beneficial in terms of (Ciani, *et al.*, 2016): i) the identification of specific needs and priorities which might differ from region to region, also due to the different legislation and market situations; ii) a dissemination and communication strategy tailored on the regional specificities, which requires a "personification" of tools and channels which are to be considered when addressing regional contexts (Crescenzi, *et al.*, 2015).
- *Impact at EU/global level.* The creation of a EU community gathering practice-oriented knowledge from all the regions (Crescenzi, *et al.*, 2015) involved in the project (in a first phase) and later on from the whole EU territory and beyond (once the mechanism has been tested and the network of stakeholders expanded) represents a unique opportunity to make such knowledge accessible to the single farmers and consumers. Relation between the activities at global and regional level is therefore a two-way process, which bears huge potential to positively impact both sides.

7. Conclusions

In conclusion, the project SKIN is being brought together a critical mass (what we refer to as the "community") of various types of stakeholders (farmers and producers, extension services, research organizations, innovation agencies, etc.), to tackle the issue of knowledge-fragmentation and the lack of access to information and experience on short supply chains. It has the potential to structure such a community with a view to delivering continuous impact via a permanent network with its associated exchange and collaboration mechanisms, well beyond the life of the project. SNA analysis will investigate territorial existing connections, using the three indicated levels from the methodology. The building network is an opportunity to exploit benefits from the actor cooperation and to come up critical points within the relations describing the network (Madureira L., *et al.*, 2015). The critical points will be managed to improve the value of the linkages (Marsden T., 2000). Reviewed articles state that to come off managing the network is of course necessary to establish a kind of connection, in the framework of the network identified as edges, however, the

bigger is the network the bigger is the importance of the role of the nodes. In the case of SKIN project, the regional nodes play that crucial role.

Further step of this preliminary study is to verify the conceptual assertions hereby proposed from reviewing literature by analyzing data that are being collected within the development of the SKIN project activities.

Acknowledges

The result presented in this paper is part of the SKIN project (www.short-foodchain.eu). This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement N. 728055.

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REA's Editorial Team wishes to thank all colleagues that have offered, with such enormous dedication and technical expertise, their own availability to the assessment of the articles submitted for publication:

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The Italian Review of Agricultural Economics is issued with the collaboration between CREA (Council for Agricultural Research and Economics) and SIDEA (Italian Association of Agricultural Economics).

REA is a scientific journal issued every four months and publishes articles of economics and policies relating to agriculture, forestry, environment, agro-food sector and rural sociology.

The articles undergo a double-blind peer review.

€ 26,00