

Developing Alternative Food Networks: What Strengthens Farmers' Willingness to Participate in Short Food Supply Chains?

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Abstract: Short food supply chains (SFSC) are considered as promising mechanisms for enhancing social, environmental and economic sustainability of agricultural systems. However, farmers continue to use conventional food distribution routes, while the expansion of SFSC is still limited. The aim of this study was to identify the factors affecting farmers' willingness to participate in SFSC. Using data from a sample of farmers we assessed several potential antecedents of farmers' participation in SFSC, and various types of competencies required. Our findings showed that farmers' citizenship behavior and their perceptions on the acceptance they enjoy within their communities are important predictors of willingness to participate. Moreover, self-perceived lack of both collaboration and communication competencies diminishes this willingness. These results stress that social dynamics within the community occupy a central role in paving the way for further expansion of SFSC. Our analysis also points out the need for competence development projects targeted at strengthening farmers' interpersonal competencies.

Key words: short food supply chain, competence development, agricultural extension, citizenship behavior, willingness to participate

Introduction

Short agri-food supply chains represent an alternative networking approach pertaining not only to the distribution of agricultural products, but also aimed at promoting new production and consumption patterns, serving thus as a vehicle for bridging the gap between farmers and consumers. The recent interest in short food supply systems emerged as the evolution of a line of thought underlying the negative environmental externalities generated by conventional food supply chains (Banks and Bristow 1999) and the limited control farmers exercise over these chains (van der Ploeg and Frouws 1999). Focusing from the outset on the agri-food products, and drawing from the social science literature (Hinrichs 2003; Renting, Marsden, and Banks 2003), the relevant research reaches short supply chains through "macro" analyses.

Nevertheless, despite the enormous volume of high-quality research on short food supply chains (SFSC), some issues have not yet been addressed. Putting the emphasis on the social interactions developed among actors within a SFSC, eliminates the opportunity to clearly understand how and why farmers and consumers engage in these alternative food networks. Shifting attention to the end parts of the chain instead of looking at the SFSC as a whole social entity, we can grasp new knowledge which may resolve major discrepancies between research findings and rural reality. Interestingly, to date, despite the increasing consumers' demand for alternative food distribution routes (Giampietri, Finco, and Del Giudice 2016) and in spite of farmers' desire to re-gain a central role in the food systems (Calvário 2017; Guthman 2017),

the development of SFSC remains limited in many countries. This paradox raises two major questions. First, how social systems catalyze farmers' willingness to participate in SFSC? And, second, what are the key competencies needed by farmers in order to successfully operate short supply chains?

In this study, to gain insight into these questions, we examined how farmers' willingness to participate in SFSC is affected by the ways they interact with their social environment and by their perceived competencies.

Short food supply chains conceptualized

The term "short supply chains" entered the scientific lexicon in the late 1990s (Marsden, Banks, and Bristow 2000), as a response to industrial food distribution networks which are characterized by a large number of intermediaries (Watts, Ilbery, and Maye 2005). Instead of "long" supply chains, which traditionally give prominence to the – produced, distributed and purchased – product (Lee 2002; Stevens 1989), SFSC emphasize on the quality of producer-consumer relationship, having thus the potential to re-socialize food (Sonnino and Marsden 2006). Hence, in SFSC the focus is shifted from the product to the producer (Oosterveer and Sonnenfeld 2012) and from the action of buying to the praxis of creating civic collaborations.

Although it is difficult to identify the roots of this alternative socio-spatial paradigm, some traces date back to 1965 in Japan, when public concerns on mercury contamination of farm products led to the development of coalitions between consumers and local farmers (named "teikei," i.e. alliances) promoting direct selling of food products (Picard and Tanguy 2016). In the scientific literature, the need to rethink the value of short food supply schemes was first stated in Relph's (1976) groundbreaking work "Place and Placelessness," but it witnessed increased popularity only after 2000. However, to date, scholars have not managed to arrive at common ground in defining short supply chains. Perhaps the most striking characteristic of an SFSC is the limited number of nodes intervening between the producer and the final consumer of a food product. According to the French Ministry of Agriculture, Food and Forestry (Chiffolleau 2008), SFSC are these food chains which involve only two (a producer and a consumer) or three parts (i.e., when at most one intermediary node lies between the producer and the consumer). Renting et al. (2005), adopting a different standpoint, emphasize on the transparency of SFSC and the "value-laden information" consumers have on the mode of production. Ilbery and Maye (2005), distinguish three types of SFSC depending on the degree of spatial proximity between consumer and producer: face-to-face selling where products are purchased directly from the producer, spatially proximate chains where products are locally marketed and sold, and spatially extended chains in which products are sold outside the production area but the consumer is informed on the mode of production and the area of origin.

In this article, by the term "short food supply chains" we refer to those food production and distribution channels in which the number of agents or sectors that intercede between the producer (wherever the term is used to allude a single farmer or an organized farmers' scheme) and the final consumer of a product is minimal or zero, and their structure permits the seamless, two-way flow of information between the endpoints of the chain. Such systems have the potential to mitigate the negative environmental impacts of conventional food distribution networks (Mundler and Rumpus 2012), to promote cooperation within rural communities (Chiffolleau 2009),

to redistribute power in the agrifood sector (Berti and Mulligan 2016), and, finally, to regenerate rural areas (Mundler and Laughrea 2016).

Putting short supply chains into a social context

Short supply chains are based on an alternative form of social organization, which is influenced by group norms. Starting from the simplest versions of SFSC (i.e., a producer who directly sells food products to only one buyer) to the most complex types of chains (where groups of farmers collaboratively produce and distribute goods to consumers who do not belong to the same community), all SFSC rely on the collaboration among individuals or within and between groups. At the other end of the spectrum, social cohesion (Smith et al. 2016), cooperation (Weiß, Hoffmann, and Streifeneder 2016), trust (Heiss et al. 2015) and collectivity (Pinna 2017) are not only outcomes but also important preconditions for the sustainability of these alternative food networks.

Hence, farmers' access to social resources within a community may be an important predictor of their intent to enter such alternative supply chains. The development of SFSC is easier when social capital is present and equally distributed among community members (Nousiainen et al. 2009). Besides, participation in intra-community groups represents an aspect of social capital (Onyx and Bullen 2000). On the other hand, work behavior literature suggests that social capital contributes to individuals' citizenship behavior (Bolino, Turnley, and Bloodgood 2002), i.e. the "discretionary" behavior of a person that promotes organizational functioning (Organ 1997). In other words, supportive social conditions facilitate the expression of what Organ (1988) terms "the good soldier syndrome."

Nevertheless, the distribution of social assets within a community is not always fairly shared among its members. Several indications confirm that civic engagement and participation increase when people have strong ties with their communities (Albanesi, Cicognani, and Zani 2007; Perkins, Hughey, and Speer 2002), while community attachment also strengthens individual's willingness to take part in intra-community collaboration systems (Brehm, Eisenhauer, and Krannich 2006). Furthermore, the connectedness between various networks within a community enables the pursuit of common goals and the resource flow across community boundaries (Kusakabe 2012).

In this vein, social conditioning can either encourage or hinder farmers' (and consumers') willingness to participate in SFSC. Recent findings indicate that participation in common projects has multiple social (Nahayo et al. 2017; Suvedi, Ghimire, and Kaplowitz 2017) and socio-psychological antecedents (Charatsari, Lioutas, and Koutsouris 2017; Charatsari et al. 2017). Studies in rural settings (Schifani et al. 2016; Charatsari, Černič Istenič, and Lioutas 2013; Charatsari et al. 2013) converge to show that social contexts operate as motivational devices, affecting individuals' attitudes and behavior toward participation in different activities aimed at the attainment of personal and/or collective goals. However, the ways social contexts expedite and strengthen or, instead, impede and undermine farmers' willingness to participate in SFSC have not yet been explicitly identified.

Competencies: Do they play a role?

Competencies are behavior-oriented or task-oriented capabilities (Mulder et al. 2009), which help the individual to succeed as a professional and as a person as well (Mulder 2017). Notably, competencies are important predictors not only of job performance (Kraimer et al. 2011), but also of job involvement (Kong 2013) and job satisfaction

(Ha and Choi 2010), while they also stimulate work engagement (Akkermans et al. 2013). Furthermore, according to Chalofsky (2003), a crucial prerequisite for viewing a work as meaningful is the existence of a balance between one's competencies and the demands of her/his job.

The recognition of the pivotal role of competencies in the labor market has attracted an abundance of scientific interest, investigating the fit between employees' competencies and job demands in different work domains. Competence studies in different contexts and settings – from big companies (Osagie et al. 2016) to small horticultural enterprises (Mulder et al. 2007), and from agricultural extension instructors (Karbasioun, Mulder, and Biemans 2007) to workers in the field of clinical research informatics (Zozus et al. 2017) or correctional staff (Harper 2016) – indicate the existence of a broad spectrum of competencies needed to become a successful professional. Nevertheless, research in this area tends to focus on subjects' competencies in their current work environments. The present study attempts to assess the competencies required of farmers to effectively carry out their tasks within a SFSC.

The shift from the traditional management of a commercially-oriented farm enterprise to the cooperatively managed SFSC generates the need for new competencies which promote synergistic action and advance the transition from individual to group thinking. As McGrath, Arrow, and Berdahl (1999) state, groups are often characterized by a complex and dynamic nature, which is heavily affected by the quality of cooperation among members. An increased ability to cooperate facilitates the development of shared views among group members (Chatman and Flynn 2001), fosters performance (Lee et al. 2014), and enhances in-group helping (Gonzalez-Mulé et al. 2014). In this vein, the acquisition of cooperation competencies by farmers is essential for the optimal functioning of an SFSC. In addition, SFSC require different organizational capabilities (Aubry and Kebir 2013) and increased communication skills (Chiffolleau and Paturel 2016), while the complex governance structures and coordination mechanisms of such schemes (Fondse et al. 2012) generate the need for development of decision-making autonomy, problem solving capacities and goal achievement orientation.

Literature in social psychology (Gagné and Deci 2005; Deci et al. 2001) suggests that when persons do not feel competent to perform a work, they tend to avoid engagement with it. Hence, any – actual or perceived – shortage of competencies may reduce farmers' willingness to participate in SFSC. Moreover, and perhaps more importantly, the lack of trust in one's competencies eliminates her/his thriving at work (Spreitzer and Porath 2013) and diminishes her/his autonomous motivation to invest effort and energy in this work (Broeck et al. 2010).

Overview of the present study

Willingness to participate in SFSC may be stimulated by social and personal factors. From a sociological point of view, it is well-known that when strong forces tie together community members, social engagement is wider and more inclusive (Coleman 1988). Hence, the first aim of the current study was to examine if attitudinal and emotional responses produced through farmers' interaction with their social environments can function as mechanisms motivating participation in SFSC. We anticipated that a farmer's citizenship behavior would be a predictor of her/his willingness to engage in SFSC. Nonetheless, citizenship behavior reflects a person's predisposition towards the community. On the other hand, the manner in which the

community treats individuals may also affect their tendency to unite in common projects. Hence, we also examined the influence of community acceptance on farmers' willingness to participate in SFSC.

Our second aim was to address whether farmers' perceptions on their own competencies and skills influence their intent to collaborate with their colleagues in the framework of an SFSC. In pursuing this question we tested if five different sets of competencies predict willingness to participate in SFSC. We expected that – as studies from the fields of organizational science (Hinkey 1985), management research (Luthans and Peterson 2002), and career development (Sousa-Ribeiro et al. 2017) imply – persons who feel competent and skilled would express greater willingness to participate.

Method

Participants

Data for this study were drawn from 144 farmers (70.1% men; mean age=41.1 years, S.D.=11.1) who live and work in the region of Thessaly (Greece). About two-thirds (68.8%) of the participants were secondary educated, while 10.4% were educated at post-secondary level. The mean cultivated land for the total sample was about 8.2 hectares. All the surveyed farmers reported that they cultivate multiple crops, whereas more than one-fifth of them (26.4%) also own livestock (17.4% small ruminants and 9.0% dairy cattle). None of the subjects reported being a member in a short supply chain. All the respondents completed questionnaire packets consisting of the measures described in the next section.

Measures

Skills and competencies

Our focus on this study was on five different sets of competencies required to meet the challenging demands of a short food supply chain. “Cooperation competencies” were assessed using seven items (e.g., *I help my peers with their tasks*) adapted from the Competency Development Meter (Khaled et al. 2014). Four items adapted from the same instrument (e.g., *I put the tasks to be performed in a logical order*) were used to assess “Planning and organizing competencies.” Using nine items adapted from the work of Agut, Grau, and Peiró (2003) we also evaluated other three sets of competencies: “Communication skills” (e.g., *I am able to argue my opinions in the decision making process*), “Persistence and self-control” (e.g., *Perseverance in solving problems and inconveniences is one of my characteristics*), and “Efficiency at work” (e.g., *I am able to go beyond the barriers or limitations that come up in the job*). Each subscale consists of three items (since the original subscale Communication skills contained only two items we added a third to increase alpha reliability). In all cases a five point scale ranging from 1 (not at all true) to 5 (very true) was used. Cronbach's alphas for all the subscales were over 0.65.

Citizenship behavior

Four scales were used to measure farmers' “Citizenship behavior.” Four items were adapted from Camison's (2005) study to assess participation culture. Other three domains, representing different aspects of citizenship behavior were assessed by the use of items derived from the work of Fath, Earley, and Lin (1997). “Identification with the group” (example item: *I am willing to stand up to protect the reputation of the group*), “Altruism toward colleagues” (example item: *I am willing to cover work assignments for colleagues when needed*), and “Interpersonal harmony” (example

item: *I never use illicit tactics to seek personal influence and gain with harmful effect on interpersonal harmony in the group*). Reliability coefficients were above 0.70 in all cases.

Community acceptance

To assess the degree to which farmers feel accepted by their community peers we used an 18-item measure (Charatsari et al. 2017) comprising of six subscales (Alignment, Connectedness, Closeness, Collaboration, Support, and Solidarity). Each subscale consists of three items. Alpha coefficients for all the subscales were sufficiently high ($\alpha > 0.70$).

Willingness to participate in SFSC

A single item was used to evaluate subjects' willingness to take part in an SFSC. Response options ranged from 1 (at all) to 5 (very much).

Results

The summary statistics for the variables used in the analysis are presented in Table 1. Bivariate analyses indicated no significant relationships between the variables referring to participants' demographics or between demographics and characteristics of farm enterprises. An interesting finding is that the size of cultivated land is negatively correlated with the subscales Identification ($r = -0.23$, $p < 0.01$) and Altruism ($r = -0.22$, $p < 0.01$), showing that small scale farmers display stronger in-group identification and express higher levels of altruism than holders of larger farms. Furthermore, correlational analysis revealed a negative association between farm size and Cooperation competencies ($r = -0.26$, $p < 0.01$) suggesting that owners of larger farm enterprises have limited abilities to efficiently cooperate with others.

Overall, subjects showed a medium willingness to participate in SFSC ($M = 2.89$, $S.D. = 1.15$). Pearson's correlations revealed that willingness to participate significantly correlated with all the subscales which concern citizenship behavior, namely: Participation culture ($r = 0.25$, $p < 0.01$), Identification ($r = 0.29$, $p < 0.01$), Altruism ($r = 0.28$, $p < 0.01$), Interpersonal harmony ($r = 0.36$, $p < 0.01$). In addition, significant correlations were obtained between willingness and two subscales of the Community Acceptance Scale, with farmers enjoying higher levels of collaboration with and closeness to other community members being more willing to participate ($r = 0.32$, $p < 0.01$ and $r = 0.28$, $p < 0.01$; respectively). Cooperation competencies ($r = 0.29$, $p < 0.01$) and Communication skills ($r = 0.38$, $p < 0.01$) were also found to positively correlate with willingness to take part in an SFSC.

Table 1. Summary statistics of study variables

Domain	Scale	Number of items	Mean	S.D.
Citizenship behavior	Participation culture	4	2.91	0.96
	Identification	4	3.01	0.97
	Altruism	4	2.83	0.98
	Interpersonal harmony	3	2.70	0.99
Community acceptance	Alignment	3	2.93	0.88
	Connectedness	3	2.91	1.06
	Closeness	3	3.05	0.98
	Collaboration	3	3.33	1.11
	Support	3	3.14	0.99
	Solidarity	3	2.72	0.88
Competencies and skills	Cooperation competencies	7	3.60	0.77

Planning and organizing competencies	4	2.72	1.00
Communication skills	3	3.21	1.12
Persistence and self-control	3	3.27	1.06
Efficiency	3	3.05	0.82

Although these findings indicate important effects of some constructs on the variable of interest, the possibility of potential third-variable explanations may not be fully captured by the use of Pearson's correlation coefficient. Therefore, we also performed hierarchical regression analyses to better understand the relationships under question.

To test whether social factors predict farmers' willingness to participate in SFSC we conducted a hierarchical regression analysis. In the first step subjects' gender, age and the size of cultivated area per farmer were entered to examine for moderating effects. The four scales referred to farmers' citizenship behavior were added in step two. Finally, the six dimensions of community acceptance were entered in the third step. Our regression results (Table 2) showed that control variables have not significant predictive power in explaining the willingness to participate in SFSC. When the factors referred to citizenship behavior were entered into the model, a significant increase in R^2 was observed. Among the four constructs it was found that Altruism ($\beta=0.20$, $p<0.05$) and Interpersonal harmony ($\beta=0.27$, $p<0.01$) added significantly to the explained variance of the dependent variable. When the next set of variables was entered into the equation, the predictive power of these two factors remained significant, although beta coefficients were slightly reduced ($\beta=0.19$ and $\beta=0.18$, respectively). Nevertheless, Participation culture also emerged as a significant predictor ($\beta=0.18$, $p<0.05$). Among the subscales of Community Acceptance Scale, Closeness ($\beta=0.24$, $p<0.05$) and Collaboration ($\beta=0.19$, $p<0.05$) were the two major factors affecting willingness to participate. As a set, community acceptance contributed significantly to the variance of farmers' willingness.

These results confirm that willingness to participate in SFSC is indeed explained by both farmers' citizenship behavior and the degree to which they feel accepted by their fellow community members. Notably, these associations were not affected by demographic factors or the size of farm operation.

Table 2. Standardized beta coefficients for the hierarchical regression predicting willingness to participate in SFSC from citizenship behavior and community acceptance

Step	Predictors	Model		
		1 ^a	2 ^b	3 ^c
Step 1	Gender	0.01	0.10	0.10
	Age	0.03	0.04	0.03
	Farmland	-0.05	0.02	-0.02
Step 2	Participation culture		0.11	0.18
	Identification		0.06	0.08
	Altruism		0.20	0.19
Step 3	Interpersonal harmony		0.27	0.18
	Alignment			0.09
	Connectedness			-0.01
	Closeness			0.24
	Collaboration			0.19
	Support			-0.01
	Solidarity			-0.06

Notes: a: $\Delta R^2=0.01$, $p>0.05$; b: $\Delta R^2=0.20$, $p<0.01$; c: $\Delta R^2=0.13$, $p<0.01$; significant coefficients are in boldface

To examine if willingness to participate in SFSC is associated with farmers' levels of skills and competencies we followed the same hierarchical regression strategy. Again, we first entered gender, age and size of cultivated land in the first step as control variables. The five constructs referred to skills and competencies were then added as the second set of predictors. Regression results (Table 3) revealed that only the second set of predictors contributed significantly to the final model ($\Delta R^2=0.18$, $\Delta F=6.14$, $p<0.01$), while no significant effects were detected for the control variables ($\Delta R^2=0.01$, $\Delta F=0.19$, $p>0.05$). Communication skills were found to have a relatively high contribution to the model ($\beta=0.35$, $p<0.01$), while a significant association was also observed between Cooperation competencies and willingness to participate in SFSC ($\beta=0.20$, $p<0.05$).

Table 3. Standardized beta coefficients for the hierarchical regression predicting willingness to participate in SFSC from levels of skills and competencies

Step	Predictors	Model	
		1 ^a	2 ^b
Step 1	Gender	0.02	0.06
	Age	0.03	0.08
	Farmland	-0.05	0.06
Step 2	Cooperation competencies		0.20
	Planning and organizing competencies		-0.03
	Communication skills		0.35
	Persistence skills		-0.02
	Efficacy skills		-0.05

Notes: a: $\Delta R^2=0.01$, $p>0.05$; b: $\Delta R^2=0.18$, $p<0.01$; significant coefficients are in boldface

Discussion and conclusions

The aim of the present study was to unravel the factors which affect farmers' willingness to participate in SFSC. To this end, we performed two different sets of analyses: one centered at the social factors that enhance or repress willingness and a second focused at the individual level, examining whether and how farmers' perceptions on their competencies and skills determine this willingness. In doing so, the current research was one of the first efforts to systematically investigate how different forces, operating inside as well as outside the person, shape farmer's intent to collaborate for the development of alternative food networks.

Our findings showed that willingness to participate in SFSC is higher in individuals who display increased levels of citizenship behavior, indicating that apart from functional motives, participation in alternative food distribution schemes has also psychological precursors. Moreover, consistent with research on organizational psychology (Organ and Ryan 1995), which has proven that some aspects of social acceptance accrue citizenship behavior, our second analysis revealed that farmers who feel accepted in intra-community collaboration networks and enjoy a sense of closeness while interacting with their community peers are more willing to enter these schemes.

Taken together, these results suggest that before looking at farmers' collective identities – an important element in the discourse on SFSC (Chiffolleau 2009) – it is important to uncover how intra-community power relations and conflicting interests shape these identities. As Bernd (1997) notes, to better understand the processes by which collective selves are activated, one needs to go back to the contexts in which interpersonal experiences took place. Adopting a pure sociological research strategy – the dominant tradition in the study of SFSC – constrains our ability to fully capture

farmers' motivations, intentions and behaviors towards alternative food networks. The present findings go beyond sociological analyses of SFSC, indicating that the integration of concepts and theories derived from other disciplines could challenge and extend existing knowledge on this topic.

In sum, the analysis presented herein lends support to the contention that willingness to engage in SFSC is the upshot of two related but different constructs. The first one refers to farmers' inclination to engage in citizenship behaviors when in a group situation, while the second concerns the feedback they receive from the interaction with their communities. The latter factor is also important for the development of a sense of self-worth (Tajfel 1981) emerging from the satisfaction of social needs. At the individual level, self-value feelings are associated with one's self-perception of competencies (Robins, Hendin, and Trzesniewski 2001). Among the competencies examined in this study, our regression strategy revealed that communication and cooperation competencies predict willingness to participate in SFSC. Or, to put it differently, farmers lacking these competencies, are less willing to take part in such collaboration schemes. Hence, it can be argued that supplying farmers with these kinds of competencies may spark off further expansion of SFSC and/or other alternative food networks. This constitutes a very interesting avenue for future research and a real challenge for extension practice. Farmers' training not only has the potential to enhance their competence – and, consequently their feelings of self-efficacy – but also, as Bolino and Turnley (2003) stress, to strengthen their citizenship behavior.

In short, our study focused on an important, yet neglected in SFSC research, issue: farmers' willingness to participate in short supply chains. In so doing, our research has contributed to the understanding of the factors which promote or hinder the development of alternative food distribution mechanisms. As the present work indicates, future research could provide a more nuanced and deep conceptualization of SFSC by pairing social and individual processes.

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