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# Factors Supporting the Development of Producer Organizations and their Impacts in the Light of Ongoing Changes in Food Supply Chains

*A Literature Review*

Jan Fałkowski and Pavel Ciaian

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**Contact information**

Pavel Ciaian  
Edificio Expo, C/ Inca Garcilaso 3, 41092 Seville, Spain  
E-mail: [pavel.ciaian@ec.europa.eu](mailto:pavel.ciaian@ec.europa.eu)  
Tel.: +34 95 448 8429

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## List of abbreviations

CAP	Common Agricultural Policy
EU	European Union
MS	Member States
NMS	New Member States
POs	Producer Organizations
OMS	Old Member States
OECD	The Organisation for Economic Co-operation and Development

# Factors Supporting the Development of Producer Organizations and their Impacts in the Light of Ongoing Changes in Food Supply Chains: A Literature Review<sup>1</sup>

Jan Fałkowski<sup>1</sup> and Pavel Ciaian<sup>2</sup>

<sup>1</sup>University of Warsaw

<sup>2</sup>DG Joint Research Centre, European Commission

**Abstract:** This report surveys the recent literature on producer organizations with a specific focus on factors affecting their establishment and their impact on farmers' market performance and welfare. The report also discusses producer organizations' role in improving farmers' bargaining power and allowing them to respond to various challenges which result from dynamic changes characterizing commercial relations within the food supply chain. Key factors supporting the emergence and development of producer organizations include human and social capital, networking, interpersonal relationships between members (with an important role of trust) and the functioning of enforcement mechanism used to govern group behaviour. The existing literature provides also strong evidence that access to information and farming experience positively affect the emergence of producer organizations. There is also some evidence that larger farms are more likely to join collective action. The literature also clearly points that we are still far from reaching a consensus on who (private or public actors) should support promoting cooperation between farmers and what incentives should be provided to achieve this goal in the most efficient way. Although there are numerous studies pointing to positive effects of producer organizations on farm income or farm performance- in particular for high-value products – overall, the evidence is inconclusive and often mixed. For example, the existing literature often suggests that that the benefits of producer organizations in terms of improved farmer bargaining position in the food chain vary with time, place, technology, sector, scale of farming, and human and social capital available. An area where there is particularly little evidence on the impact of producer organizations concerns the nature and the dynamics of the contractual relationships at various stages of the food chain. Further research is also needed to improve our understanding of factors determining smallholders' participation in collective action, substitutability between formal and informal cooperation, determinants of power distribution throughout the food chain and the occurrence of unfair trading practices. Based on the surveyed evidence the report concludes with a set of policy recommendations.

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<sup>1</sup> The authors are solely responsible for the content of the paper. The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

## 1. Introduction

It is commonly argued that food supply chains are characterized by a severe imbalance of bargaining power. Indeed, numerous papers support the view that farm producers, especially those who are small and economically disadvantaged (i.e. with limited capital and market access), have a much weaker negotiation position than their various contractors be it intermediaries, processing industry or retail sector (see, for instance, the discussion in Key and Runsten, 1999; McCorrison, 2002; Reardon and Berdegue, 2002; Reardon et al., 2003; Weatherspoon et al. 2001). This observation is often directly linked to several phenomena which have importantly affected the organization of agro-food supply chains worldwide, namely: the rapid rise of super- and hyper-markets, increasing levels of concentration in the processing industry; the rise of food quality and safety standards or establishing multinationals in developing regions (Rogers, 2000; McCorrison, 2002; Reardon et al., 2003; Kaiser and Suzuki, 2006; Swinnen, 2007).

In response to that, power relations and the distribution of rents between the successive stages in the food chain have been of great interest both to academicians as well as policy makers. On the one hand, this could be illustrated with an extensive and growing literature that has investigated the functioning of agro-food supply chains with a specific focus on strategic behaviour of different value chain agents and complex interactions between them. On the other hand, one could recall here initiatives such as a Food Chain Analysis Network launched by the OECD or a High Level Forum for a Better Functioning Food Supply Chain set up by the European Commission. Both these initiatives aimed to help develop policy in the food sector and tackle various challenges affecting competitiveness of the agro-food industry.<sup>2</sup> Importantly, these initiatives have provided a platform for social dialogue on issues concerning, among others, transparency along the food chain as well as various aspects related to sustainability and resilience of the food system. In this respect, a lot of space has been given to unfair business-to-business trading practices within the chain and the distribution of bargaining power between chain members. A series of regulations adopted by the European Parliament and the European Council which try to establish a framework aiming at addressing the issue of market power and various contractual frictions in the European food supply chain can serve as a

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<sup>2</sup> More information on the Food Chain Analysis Network launched by the OCED is available here: <https://www.oecd.org/site/agrfcn/>. For more on High Level Forum established by the European Commission see: [http://ec.europa.eu/growth/sectors/food/competitiveness/supply-chain-forum/index\\_en.htm](http://ec.europa.eu/growth/sectors/food/competitiveness/supply-chain-forum/index_en.htm)

further example that strengthening the position of farmers towards other chain members is of an active political interest.<sup>3</sup>

Hopes for a more balanced distribution of rents within the food supply chain are often placed on agricultural producers' organizations. Indeed, as mentioned by several authors (see e.g. Menard, 2007; or Barrett, 2008), one response to imperfect competition in the marketing channel is to organize farmers so that they can gain bargaining power and extract better terms of trade from downstream purchasers.<sup>4</sup> In fact, negotiating with contractors is a basic function of any producer organization (see e.g. Bijman et al., 2012). Positive impact of producer organizations on farmers' position towards their contractors could be expected on several grounds (see further). Most often however, it is based on the assumption that collective action should allow farmers to exploit scale economies in producing and marketing their output (see e.g. Hendrikse, 1998; Hendrikse and Bijman, 2002). Following this logic, the Common Agricultural Policy (CAP) established specific measures that aim at enhancing farmers' position in the food supply chain. For example, it facilitates farmers' cooperation through producer organizations that can, among others, promote marketing, concentration of supply and in general a more coordinated response to market pressures.<sup>5,6</sup>

A key issue which arises in this context is whether producer organizations achieve this goal. This poses a challenge of improving our knowledge about the functioning of farmers' collaborative actions. Several questions which seem important in this respect are the following: what factors stimulate producer organizations' establishment? what are the economic implications of producer organizations on farmers and agro-food chains as a whole? and what factors make these organizations sustainable over the long-run?

Answering these questions may be intellectually interesting in its own right. Investigating them however seems to be of broader importance. This is because it allows us to gain better understanding of how producer organizations may contribute to address increasing concerns about competition throughout the food supply chain which have been commonly expressed across countries. In this respect, the key issues relate to power distribution throughout the food chain, and the nature of commercial relations between chain members which may importantly affect the way in which farmers are tied into the overall functioning of the food chain.

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<sup>3</sup> See e.g. [http://ec.europa.eu/economy\\_finance/articles/structural\\_reforms/article16028\\_en.htm](http://ec.europa.eu/economy_finance/articles/structural_reforms/article16028_en.htm); [http://www.bii.cl.org/files/5887\\_ep\\_resolution\\_on\\_food\\_chain\\_imbalances.pdf](http://www.bii.cl.org/files/5887_ep_resolution_on_food_chain_imbalances.pdf)

<sup>4</sup> Interestingly, relationships between farmers and input suppliers are given much less attention in the literature.

<sup>5</sup> See e.g. regulations 261/2012; 511/2012; 880/2012 or 1308/2013.

<sup>6</sup> Under CAP, farmers' cooperation through recognised producer organisations is legally supported since 2001 in the fruit and vegetable sector, and since 2011 in the milk sector. The 2013 CAP reform extended this form of farm cooperation to all agricultural sectors.



Against this background, this report surveys the recent literature on producer organizations with a specific focus on factors affecting their establishment and their impact on farmers' welfare. In addition, it discusses producer organizations' role in improving farmers' bargaining power and allowing them to respond to various challenges which result from dynamic changes characterizing commercial relations within the food chain that have been experienced across countries.

The rationale for analyzing producer organizations in this context is based on the assumption that the space of contracts, the nature of the ex-post negotiations between farmers and their contractors and, consequently, the division of ex-post surplus between them is sensitive to organizational structure of agents involved in a given transaction (see, among others, Coase, 1937; Williamson, 1975; 1985; Grossman and Hart, 1986). In this way, farmers' cooperation which is a manifestation of horizontal integration, could be seen as an important element contributing to the change in the organizational arrangements within food supply chains. This in turn, may have important consequences for food chains' institutional and governance structure and, consequently, for their performance (either at the country or at the sector level).

The literature review is focused on studies published in the top journals in the field of agricultural economics (i.e. *Agricultural Economics*, *American Journal of Agricultural Economics*, *European Review of Agricultural Economics*, *Food Policy* or *Journal of Agricultural Economics*). In addition to that, it surveys the evidence on producer organizations published in journals with wider scope and/or different (not necessarily economic) focus, such as *Agribusiness*, *British Food Journal*, *Journal of Rural Cooperation* or *World Development*. Finally, the report also consults key publications on cooperative behaviour and the functioning of the food supply chain. Since the vast majority of publications concerned with the producer organizations and their role in affecting the functioning of the food supply chain focus either on the United States or on developing regions, the review covered in this report is not limited to studies concerned with Europe.

Importantly, given that recently other studies summarizing the literature on producer organizations have been completed (for examples of comprehensive surveys see e.g. Hendrikse and Feng, 2013; Van Herck, 2014), this report tries to focus on issues which, to the best of our knowledge, have not been extensively discussed elsewhere but which are of high relevance for our understanding of the emergence, development and implications of farmers' horizontal integration.

This report is organized as follows. Section 2 briefly presents some background information on producer organizations. Section 3 reviews the literature on factors

promoting producer organizations' establishment, whereas Section 4 presents the main findings as regards their economic impacts for farmers. Section 5 concludes.

## **2. Producer organizations - some background information**

A common definition of a producer organization presents it as a rural business, owned and controlled by producers, and engaged in collective marketing activities (Penrose-Buckley, 2007). More specifically, cooperation between agricultural producers within groups is a manifestation of horizontal integration of economic units bringing together operators at the same stage of production or distribution. Two types of integration may be distinguished: fully horizontal, involving a merger, and partially horizontal, involving integration of certain types of business, e.g. supplies or sales (Ruben et al., 2006). As for agricultural producers, the latter comes into play. Producer organizations can act on their own or group themselves into larger units such as associations of producer organizations or inter-branch organizations.

A producer organization is identified based on the specification of its functions and goals. What is important is that it should be formed on agricultural producers' own initiative, and its aim should be to primarily improve economic effectiveness of its member farms, mainly by adapting production and sales to the market requirements. Thus, the term agricultural producer organization does not imply any specific legal form, but refers to the organization whose major objective is to place on the market commodities produced on member farms, thereby ensuring them maximum benefits, proportionately to the quantity of products sold by the group.

In the literature, agricultural producer organizations that provide services of an economic and technical nature are known by different names. Apart from the term a 'producer organization', others are used, such as a 'farmer organization', 'producer group', 'marketing group', 'producer and marketing group', 'agricultural cooperative', 'producer-own enterprises' or 'member-owned firms' (Harris et al., 1996; Bijman, 2002; Bouamra-Mechemache and Zago, 2015). A common denominator to all these types of organization is their objective to increase welfare of their members. In addition, producer organizations are owned by their members-producers; they are set up, supervised and managed by producers in a way which brings them specific benefits. Thus, in a broad sense, producer organizations are, like cooperatives, user-owned, user-controlled, and user-benefit organizations (Bijman et al., 2012).

Farmers have long been encouraged to organize as associations or cooperatives. Thus the phenomenon of farmers' cooperation is not new. As far as the Common Agricultural Policy (CAP) is concerned, producer organizations have been initially encouraged in the fruit and vegetable sector. Later they have been also supported in the milk sector and

since 2013 they have been encouraged in all sectors (see the EU regulation 1308/2013). A short historical review of various measures encouraging farmers to cooperate within the CAP can be found, for example, in Bouamra-Mechemache and Zago (2015) or Bijman et al. (2012). Some basic information on recent cooperatives' development in the EU is provided by COPA-COGECA (2015). As far as the studies with a bit more narrow geographical focus are concerned, Gardner and Lerman (2006) describe the evolution of cooperation between farmers in Central and Eastern Europe in the transition period, whereas Bager and Michelsen (1994) concentrate on Scandinavian countries. For accounts on farmer organizations' development outside the EU see, for example, Hussi et al., (1993) for Africa, Golovina and Nilsson (2011) for Russia, Deng et al., (2010) for China or Cook (1995) for the United States.

Within the CAP, farmers can apply both for transitional support for establishing producer organization as well as for financial assistance contributing to POs' operational fund.<sup>7</sup> Besides the requirement of being established by producers of one of the specific products, the only requirements for recognized POs are related to their function: recognized POs should pursue specific aims related to (i) concentrating supply and marketing the output of the members; (ii) adapting production jointly to the requirements of the market and improving the product; (iii) promoting the rationalization and mechanization of production; (iv) promoting quality improvement of production; (v) supporting better cost management (vi) contributing to use and adoption of environmental friendly practices; (vi) providing technical assistance and information diffusion. No further requirements as to ownership or decision-making procedures apply. That said, an important tenet of the producer organizations' philosophy is a democratic decision-making process (Bijman et al., 2012).

Cooperation between farmers is often seen as a necessary condition to improve their bargaining power with respect to the downstream purchasers. In fact, strengthening farmers' position in the market is often a predominant motive in arguments introducing support for setting up producer organizations into policy framework. This is the case especially for developing regions and, in Europe, particularly in some of the New Member States (NMS) that joined the European Union (EU) in 2004 or later where farm cooperation lags behind that observed in Old Member States (OMS). This is well reflected in the composition of rural development policies in Europe. Indeed, measures supporting horizontal integration at the farm level tend to play a more important role in New Member States than in Old Member States.

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<sup>7</sup> For more on definitional issues and technical requirements which producer organizations/producer groups should meet see, [http://ec.europa.eu/agriculture/fruit-and-vegetables/producer-organisations/pg\\_en.pdf](http://ec.europa.eu/agriculture/fruit-and-vegetables/producer-organisations/pg_en.pdf); or [http://ec.europa.eu/agriculture/fruit-and-vegetables/producer-organisations/po\\_en.pdf](http://ec.europa.eu/agriculture/fruit-and-vegetables/producer-organisations/po_en.pdf)

Overall, the EU cooperatives maintain a relatively strong presence in the European food supply chain (Bijman et al., 2012). That said, while farmers increasingly join forces in producer organizations, the strength of such organizations varies across Europe and sectors. For example, in Poland the value of products sold by producer groups accounts for only 5.7% of the value of total commercial production (Chlebicka et al., 2014) whereas in France, Germany, Great Britain, or Spain, depending on the sector, this share oscillates in the range from 25% to 95% (Bijman et al., 2012; see also statistics presented in COPA-COGECA, 2015).

This heterogeneity suggests that the development of producer organizations is likely to be highly dependent on social, institutional and cultural context. This is well illustrated by the striking difference between the scale of farmers' formal cooperation in the OMS and NMS. In the former group of countries, the degree of penetration of cooperatives is roughly 40% on average, whereas in the latter it is below 25% (OECD, 2013; Bijman et al., 2012; see also figures presented in COPA-COGECA, 2015). This difference is most often explained by the historical legacy of the communist regime in NMS (Chloupkova et al., 2003; Tisenkopfs et al., 2011). In this context, it has been widely acknowledged that a lengthy period of totalitarian rule in NMS from Central and Eastern Europe has negatively affected the level of social capital and the attitude towards cooperative behaviour (see e.g. Lovell, 2001; Paldam and Svendsen, 2001; Fidrmuc and Gërkhani, 2008)<sup>8</sup>. This is because, during the communist regime, the state not only discouraged voluntary cooperation, but also tried to forcefully impose collectivization. As a result, not only the bottom-up cooperative initiatives were destroyed, but also individuals were forced to engage in ideologically motivated collective action on conditions dictated by the state. Based on this observation, negative consequences of the Communism on individuals' preferences to cooperate has often been called for as an explanation for a relatively low level of cooperation between farmers in NMS from Central and Eastern Europe (see e.g. Chloupkova et al., 2003; Perepeczko, 2003; Csaki and Forgacs, 2008; Tisenkopfs et al., 2011; Bijman et al., 2012).

What should be noted here though is that, while this argument is consistent with intuition and widely acknowledged, there is a lack of systematic empirical evidence which would support the view that the current low levels of cooperation between farmers in former communist countries can be explained by adverse past experiences with collectivization in the past (see also the discussion in Gardner and Lerman, 2006). In

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<sup>8</sup> This argument draws, among others, on a more general observation, namely that (totalitarian) dictatorships consciously destroy values and beliefs promoting cooperation in order to minimize the probability of cooperation against the regime (see. e.g. Putnam, 1993; Wintrobe, 1998).

fact, the weight attached to social capital in explaining the slow development of horizontal integration between farmers stands in strong contrast with the availability of empirical evidence that could support such conclusions (Wolz et al., 2004; Chlebicka et al., 2014).

### *2.1. POs in the light of general developments in food supply chains*

The rationale for initiating policy instruments which aim at providing incentives to promote cooperative behaviour has often been based on the assumption that acting collectively should allow farmers to more effectively cope with various challenges which agricultural producers face and struggle to address individually (see e.g. Ostrom, 1990). Currently, these challenges are commonly associated with dynamic and rapid changes that have been recently experienced in food supply chains all over the world. These changes include, among others, the rise and spread of food quality standards, modernization of retail and processing sectors and a growing concentration of sectors downstream from farmers (Reardon et al., 1999; Swinnen, 2007; Sexton, 2013). In contrast, producers of agricultural raw materials are the least concentrated level in the food supply chain, which leaves them at a comparative disadvantage in terms of bargaining power. In fact, many studies argue that the modern food marketing system in many industries is most appropriately characterized by a successive oligopoly/oligopsony structure (McCorrison, 2002; Sexton et al., 2007).

As a result it is often assumed that companies in sectors downstream from farmers have buying power in the purchase of agricultural products. Consequently, they can appropriate a relatively large share of surplus created by farmer-processor/retailer relationship. Instead, farm producers who are price takers are left with a relatively low share of the total value added within the food chain (Sexton and Lavoie, 2001, Sexton, 2013; McCorrison, 2013). In effect, it is often argued that the distribution of power within the food supply chain is not balanced and farmers are, generally speaking, worse off than sectors located downstream from them.

In response to the concerns about farmers' weak bargaining position, market power in the food supply chain has been extensively analyzed in the literature. Recent reviews of the impact of market power on social welfare or the research interested in estimating the degree of market power in the food sector include, among others, Sexton (2000), Sheldon and Sperling (2003) or Perekhozhuk et al. (2016).

Given the recent consolidation trends both in food manufacturing and retail sector, most studies usually focus on market concentration. The existing studies investigating this issue unanimously show that the level of processing and retail sectors' concentration is

high (with the 3 firms concentration ratios (CR3) often exceeding 70%) and that it has increased over the last years (see, for example, OECD, 2013 for some figures). What should be noted though, is that the existing evidence also clearly indicates that there is a substantial variation in the concentration level both across countries as well as across industries.

That said, while the high and rising concentration in the food sector is widely acknowledged, there is a lot of debate whether this necessarily implies anti-competitive behaviour in processing or retailing sectors. Indeed, surveys of the recent empirical work by Sexton (2000), Sexton and Lavoie (2001), and Sheldon and Sperling (2003) suggest that a small number of firms does not necessarily equate with firms exerting market power in purchasing raw materials from farmers (see also estimates of market power parameters in Sexton et al., 2007, Table 1). While this point should be of relevance to the debate about producer organizations, it is relatively rarely taken into account. Instead, given high concentration levels in the downstream sectors, the focus in the discussion almost automatically shifts towards conclusions about the need for supporting horizontal integration of farmers. What should be clearly noted, this is not to say that such support is not needed. This is to say however that such support should not be treated as an automatic response, even when concentration levels in processing and/or retail sectors are high.

There is yet another important point which draws on the literature on market power and which should direct our discussion about producer organizations. More specifically, the literature focusing on market power largely focuses on improving our understanding about how prices are determined and commodity price shocks transmitted through the food supply chain (see e.g. McCorrison, 2002; Meyer and von Cramon-Taubadel, 2004). For example, the price distortions induced by monopolistic or oligopolistic organization of the markets have been particularly intensively researched (see e.g. Perekhozhuk et al., 2016). While these studies are highly relevant and provide very useful information, it is important to note that they address only one aspect of the complex relationships which characterize agents transacting within food supply chains. In fact, prices paid to farmers are just one among many forms in which downstream sectors' power can arise. As argued in several recent studies, there are many other elements that firms with dominant position in the market can exploit to their advantage (see e.g. Sexton, 2013). In fact, any element of the relationship between firms can be subject to distortions (e.g. Renda et al. 2014; European Commission 2014). Understanding whether and how producer organizations can address these various distortions is still something which deserves more attention both in terms of research and potential policy support.

To put it briefly, contractual frictions between members of the food chain may come in many forms. The sources causing the emergence of market power may be due to the imbalances in the bargaining power of the firms (e.g. due to the size differences), switching costs of changing trading party due to relationship-specific investments, asymmetric information and incomplete contracts, asymmetric costs of contract enforcement (e.g. asymmetric costs in accessing justice), or perishability of goods and seasonality of production (Gow et al., 2000; Renda et al. 2014). In line with this view, European Commission (2014) identified the following four types of unfair trading practices (UTPs) that may occur between firms in the food chain: (i) retroactive misuse of unspecified, ambiguous or incomplete contract terms, (ii) an excessive and unpredictable transfer of costs or risks of a trading partner to its counterparty (e.g. transfer of transaction-specific investments, long payment delays), (iii) misuse of confidential information and (iv) unfair termination or disruption of a commercial relationship. What is important, is that all these types of distortions to commercial relations within the food chain have a common denominator which is the transfer of costs incurred and the shift of entrepreneurial risk to the weaker party in the relationship (see, for example, European Commission, 2013).

In consequence, when thinking about the role of producer organizations in improving the performance of food supply chains and farmers' situation in particular, we must not focus on market concentration or prices alone. Rather, the trends towards greater concentration and vertical coordination, along with risks for farmers arising from unforeseen changes in the contract or the terms via which farmers are tied into the overall functioning of the food sector, must be considered and evaluated jointly (Sexton, 2013).

The existing studies focusing on impacts of producer organizations (see further) often are interested in the overall effect of collective action on farmers' welfare. It could be argued therefore, that, in a sense, they allow to indirectly account for the phenomena just described. Indeed, the effects of these various aspects should be captured by general farm performance indicators such as farm revenues or farm productivity. That said, these studies will be of little use for identifying the exact mechanisms through which producer organizations may exert their impact. In consequence, their value for informing policies will be also limited. This is particularly important because, as it will be shown in the following sections, these general studies on implications of producer organizations for farmers often address potential effects of market power and unfair trading practices only in a fragmentary way and thus do not allow to capture the full complexity of various interdependencies within the food chain. In addition, they usually bring mixed and inconclusive results.



To improve our knowledge about the impact of producer organizations on farmers' welfare and the functioning of the food chain, it seems crucial to better understand the nature of farmers' collective action. This obviously poses the question about factors motivating setting up of producers' organizations and/or barriers discouraging it. In a more general sense, it brings to the forefront the issue of how and why cooperative behaviour takes place. Improving our understanding of these aspects is important especially given the fact that coordination problems very often have multiple stable patterns of behaviour, each of them showing various degree of cooperation (see e.g. Acemoglu and Jackson, 2015). What follows, groups of individuals in similar economic, social and political environments may end up with different patterns of behaviour or switch from one pattern to another. It is therefore crucial to expand our knowledge about specific factors that may encourage cooperative equilibria. This is done in the section which follows.

### **3. Factors supporting the establishment of producer organizations**

#### *3.1. Informal versus formal enforcement mechanisms of cooperative behaviour*

A useful way of looking at the problem of setting up agricultural producer groups is to start with an observation that every cooperation must be supported by an effective enforcement mechanism. The latter is needed to assure that any deviations from cooperative behaviour would be punished and therefore eventually discouraged. Otherwise, in the fear of others deviating from cooperative behaviour, individuals would withdraw from cooperation at all.

Therefore, an important step to understand how and why cooperative behaviour takes place, is to improve our knowledge about determinants and consequences of using different organizational structures which are chosen by individuals to govern collaborative actions. As it is widely acknowledged, in general, there are two types of organizations which can be differentiated in this context (see, for example, Greif, 2006; MacLeod, 2007; North et al., 2009). One of them is based on informal (personal) mechanisms to enforce agreements and relies primarily on social embeddedness (Granovetter, 1985). In this case, the problem is solved through informal institutions (such as reputation) and within the group of individuals that cooperate with each other. In that case non-cooperative behaviour is discouraged by the threat of withholding future cooperation. The other one instead is based on more formal (impersonal) arrangements, often utilizing third parties to enforce contracts (Williamson, 1975). In this case the punishment and monitoring is in the hands of an external party. As a result, a deviation from cooperative behaviour does not need to lead individuals to withhold from future cooperation.

While the functioning of the former type of organization crucially depends on personal relationships, the latter works mostly in an impersonal manner. That said, exactly how and why these different types of organizations are chosen is quite complex and under discussion. In fact, starting from seminal contributions by Banfield (1958) and Putnam (1993) for Italy, a number of studies try to document different examples of (non-)cooperative behaviours and identify their drivers as well as consequences for economic performance.

Obviously, cooperation can be sustained under each of these scenarios only if individuals trust that a given enforcement mechanism is efficacious. In other words there must exist appropriate incentives for group members (if it is the mechanism based on informal

institutions) or for a third party (if it is the mechanism based on formal institutions) to punish individuals who deviate from their expected course of behaviour. The very different nature of these two enforcement mechanisms suggests however that for each of them a different type of trust may be of special importance. Starting a cooperation under the former enforcement mechanism might be dependent especially on mutual trust within the group of individuals working with each other. Establishing joint activities under the second type of enforcement mechanism instead would require trust in the integrity and effectiveness of a third party which is supposed to monitor and punish potential deviations from a cooperative behaviour.<sup>9</sup>

In line with these considerations, among many factors investigated in the context of establishing a cooperation between farmers (see, for example, Hendrikse and Bijman, 2002; Lopez and Spreen, 2008; Menard and Valceschini, 2005; or Pascucci et al., 2012), a special attention in the literature is paid to trust. Indeed, several studies argue that trust is crucial for the development and performance of various forms of farmers' horizontal integration (for the recent contributions see, e.g., Fulton, 1999; Hansen et al., 2002; Karantininis, 2007; Nilsson et al., 2009; Martino, 2010; or Szabo, 2010). In particular, these works emphasize that trust may considerably decrease potential agency costs within the cooperative, strengthen the cohesion of the group and thus members' commitment to it (for a literature review see Szabo, 2010). Moreover, these studies also allow to distinguish between the role of trust among cooperative members and the role of trust between members and the management, or highlight the importance of various types of trust (cognitive vs. affective) (see e.g. Hansen et al., 2002; Nilsson et al., 2009).

That said, most of these works are case study in nature. What follows, their findings, while certainly very informative, might have a limited external validity. It seems, therefore, important to complement them with a more systematic evidence. In addition, more work is needed, both theoretical and empirical, to assess various advantages and disadvantages of different enforcement mechanisms and the role of different types of trust in promoting farmers' horizontal integration and improving efficiency of the functioning of the food chain. In relation to that one can recall the study by Fischer and Qaim (2014), who show that the intensity of participation in cooperatives importantly depends on their structure and organization.

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<sup>9</sup> Although from a slightly different perspective than that adopted in this paper, the role of farmers' attitudes towards formal mechanisms governing transactions in the food chain is clearly illustrated by Beckman and Boger (2004). Based on the farm-level data from Poland, this study shows that attitude towards formal mechanisms may importantly affect farmers' behaviour and his/her willingness to accept losses in the presence of contractual frictions which occur between farmers and their contractors.

In this context, it is also worth recalling studies which link the issues of trust and contractual relationships between chain members to concerns about imbalance of bargaining power within the food marketing system which were discussed earlier. As already mentioned, the fragmentation of the supply base (farm sector) almost invariably involves an imbalance of power distribution within the chain. This, in turn, is likely to negatively affect the level of trust between interdependent partners (Lindgreen, 2003; Lindgreen et al., 2005; Fischer et al., 2007; 2009). In consequence, it is likely to weaken supply chain collaboration. Whether producer organizations can address this challenge is unknown as there is hardly any evidence on the impact of farmer organizations on trust between representatives of downstream and upstream sectors.

The distinction between two different types of enforcement mechanisms and two different types of trust needed for sustaining cooperation is important as it shows that our efforts to promote horizontal integration between farmers may take on various forms or, alternatively, encounter different obstacles. For example, in regions/sectors where producer organizations are established under informal enforcement mechanisms cooperation might be limited in size. This is because the enforcement mechanisms based on informal institutions require that individuals' behaviour can be monitored by members of the group themselves and the latter can happen only in small groups. Similarly, it is in small scale rather than in larger groups where the information about individual's past behaviour will be known to other members. Therefore, while in the case of informal enforcement mechanisms interpersonal relationships and mutual trust can render cooperation possible and effective, its scale can be only limited. What follows, scaling cooperation up in this scenario might be possible only if citizens' trust in a third party enforcer could be built. Furthermore, costs related to this cannot exceed benefits from cooperating on a larger scale. Similarly, wherever there is an absence of entrusted third party enforcer, projects encouraging small-scale cooperation based on interpersonal relationships could be more efficacious than that aimed at stimulating cooperation on a large scale, especially in the short-run.

In addition, the discussion presented above suggests that different types of enforcement mechanism might be linked with the type of production in which a given producer organization is specialized (for a related argument see, for instance, the discussion in Acemoglu and Wolitzky, 2015). In general, one could expect that third party enforcers should be more often used when more advanced technologies are applied. This is because in that case the monitoring of each individual's behaviour is more difficult. Further, as more advanced technology are normally applied to a production of more complex goods, often it is also more difficult to assess the quality of an observed output. In our context, this may be used to argue that third party enforcement (rather than

informal enforcement) should be more common for organizations specialized in animal rather than crop production. This is because the former type of production is relatively more constrained by various animal welfare standards. In addition, the issue of quality seems to be predominantly related to animal production (e.g. meat or milk). In consequence, one may assume that monitoring group members is much more demanding in animal production than in crop production, where essentially group members are checked mostly on how much they sell through producer organization rather than on the quality of their output. There is yet another point to be observed. With animal production all the quality issues are monitored by a third party, most often either by the processing industry or by external laboratories. What follows, a producer organization specialized in animal production is almost by definition more likely to be dependent on a third party enforcer. Establishing it therefore requires a given level of general trust towards this third party, which is not necessarily the case with producer groups in crop sector. The existing studies showing that agricultural producer organizations' development is highly sector (and often region) specific phenomenon, with cooperation being more often present in sectors characterized by higher heterogeneity in terms of quality and the number of products offered (see e.g. Barrett, 2008; Pascucci et al., 2012), seems to be consistent with this view.

### *3.2. The role of social structure and networks*

Given the distinction between personal and impersonal mechanisms highlighted above, a key issue to improve our knowledge about factors promoting establishment of producer organization is to understand to what extent farmers' cooperation is driven by social structure. Studies investigating the role of interpersonal relationships for shaping agrarian institutions provide evidence that sharing common norms and membership in networks of interconnected agents might be very important for finding optimal solutions to challenges faced by farmers (see e.g. Ostrom, 1990; Fafchamps, 1992; Coate and Ravallion, 1993; or Foster and Rosenzweig, 2001). While these studies importantly improve our understanding about the linkage between network structure and cooperative behaviour, they are predominantly occupied with the role of interpersonal trust in creating mutual insurance mechanisms. Instead, our knowledge about the importance of specific relationships linking farmers as a condition for their involvement in collective action in the form of producer organizations is much poorer.

This is in striking contrast to a more general literature which has long recognized that interpersonal relationships play an important role in facilitating social and economic interaction (Granovetter, 1985; Greif, 2006; Platteau, 1994). More specifically, it is often said that interpersonal relationships favour exchange and potentially increase the

compliance with rules which accompany transactions (see, for example, Durlauf and Fafchamps, 2005; or Jackson, 2008). What follows, they should also facilitate collective action. This is based on the assumption that social relations should mitigate potential problem of asymmetric information and provide the ability to use reputation mechanisms to punish opportunistic breaches of contract.

This reasoning stems largely from the observation that "*most beliefs about human behaviour can, at least in principle, be confirmed or disconfirmed by experience in the set of social interactions, organizations and networks in which individuals are embedded* (North et al., 2009, p. 28)". This in turn implies that "*from an individual's perspective, beliefs about those people with whom we interact repeatedly, beginning with the family, are more certain than beliefs about those with whom we have less interactions* (North et al., 2009, p.28)". In this context interactions which are based on family ties, friendship or other acquaintances may be of particular importance in promoting economic exchange, especially in the environment characterized by high uncertainty. Put it differently, repeated interaction, since it involves exchanging favours and allows for learning about past conduct of potential transacting partners, can prevent an individual from free-riding and misbehaving (Ostrom, 2000). In the context of agricultural producer organizations this issue gains particular importance since, as argued in many studies, key factors for the success of co-operatives are the members' commitment and loyalty to the cooperative, its management and other members (see, for example, Nilsson et al., 2009; Szabo, 2010; Cechin et al., 2013).

Beyond this argument, the role of close social relations stems from the fact that individuals' choices, also those involving collective action, often are dependent on their family or friends as the information flow within a circle of close relationships is better and quicker (Jackson, 2008). What follows, in our context, individuals may be more eager to join a producer organization when some of their relatives/friends can tell them about it (for a related argument see e.g. Banerjee et al., 2013). Further, experience from colleagues could be more trusted than information coming from other sources. This is particularly important in the light of the evidence suggesting that farmers' access to information about producer organizations is still imperfect (see e.g. Monderlaers et al., 2014).

As regards the existing studies concerned with the problem of producer organizations' development, quite surprisingly, the role of interpersonal relationships is very poorly documented. One of the few exceptions which is related to these considerations is the work by Petruchenya and Hendrikse (2014) who provide a theoretical model to account for different patterns of cooperatives' emergence. Importantly, their focus is on the distance between farmers and the role of external party which may also be involved in

the process of setting up a cooperative. In their analysis, this distance may refer both to a spatial distance as well as to a social distance. Their results suggest that when distance costs are low, a cooperative emerges bottom-up by all farmers taking an initiative. With medium distance costs, one of the farmers takes a lead. With high distance costs, no cooperative emerges. Including an outsider in the game changes the equilibrium strategies of the players. With complete information, a cooperative is either formed with an initiative of one farmer or it emerges top-down with outsider's support. When information is incomplete, a cooperative thus emerges either bottom-up, i.e. with two active farmers, or top-down.

Other related papers are that by Banaszak (2008) and Banaszak and Beckmann (2010). Essentially, they show that close friendship may make it more difficult for the group leader to impose sanctions on members not complying with general rules. While this result is interesting, it says nothing about other potential linkages between the level of acquaintance and the way in which farmers' groups are organized or perform. One important issue concerns the extent to which family ties may affect the tendency towards cooperating with farmers who are similar to each other (for instance in terms of farm size, productivity/performance, etc.). The latter issue gains particular importance especially in the following context.

### *3.3. The role of group heterogeneity*

In general, there is a common tendency of individuals to associate with others who are similar to themselves (in network theory this phenomenon is referred to as homophily, Jackson, 2008). The literature on the effect of group heterogeneity on collective action is mixed though (Francesconi and Wouterse, 2015). Some authors argue that heterogeneity in member characteristics, e.g. their wealth, leads to a multiplicity of outcomes that are impossible to predict in the absence of knowledge about members' behaviour (Varughese and Ostrom, 2001). Others emphasize that more heterogeneous groups tend to take advantage of greater complementarity of skills and resources. In addition, such groups may have greater opportunities to diversify risks (see e.g. Cook and Burrell, 2009). On the other hand though, it has been argued that more heterogeneous groups may face higher management and transaction costs as social homogeneity may increase creditability and trust within the group (see e.g. Fulton, 1999; Agrawal, 2001; or Bernard et al., 2008).<sup>10</sup>

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<sup>10</sup> Yet from another perspective, the relevance of heterogeneity in hindering or supporting collective action might be also sector specific and depend on the type of cooperation (e.g. horizontal versus vertical cooperation in food chain)

Importantly from our perspective, farmers' homogeneity (measured most often in terms of farm size) has been frequently found to characterize (successful) agricultural producer groups/cooperatives (see e.g. Fulton, 1999; Hendrikse and Bijman, 2002; Thorp et al., 2005; Chlebicka, 2011). In addition, several other papers observe that farmers' horizontal integration takes place within local areas (see e.g. Sexton and Sexton, 1987; Liang and Hendriske, 2013) and argue that this assures greater level of homogeneity of farmers involved in a collective action. Benefits of cooperating within a homogenous group have also been demonstrated if similarity between farmers is defined in relation to the quality of farm output. When a cooperation consists of heterogeneous members, it may become more attractive for high-quality farmers to leave the cooperative and form a smaller homogeneous high-quality cooperative (Hendrikse and Bijman, 2002). This way they can solve potential free-rider problem on the side of group members producing lower quality output.

That said, the level of homogeneity of farmers (e.g. in terms of farm size) may be low (e.g. due to unequal land distribution or geographical dispersion - making it impossible to cooperate with similar farmers within local areas). In addition, it could be noted that according to the 'cooperative life-cycle model' (Cook and Burress, 2009), building linkages with external parties and increasing the level of group heterogeneity might be indispensable at some stage in order to keep the cooperative growing and maintaining its competitiveness. What follows, getting involved in a producer organization with heterogeneous members might be the only alternative for farmers who wish to act collectively. The question therefore is whether interpersonal relationships, which are supposed to mitigate problems such as asymmetric information or hold-up, may be used to govern collective activities between heterogeneous farmers.

Again, based on the assumption that costs of maintaining relationships and involvement in collective action is expected to increase in social distance between two individuals, one could hypothesize that in agricultural producer groups in which family ties/acquaintances play an important role in governing coordinated behaviour the level of heterogeneity of farmers (for example in terms of farm size) is higher than in groups based on social ties other than kinship or acquaintanceship. The reasoning behind this assumption is that moral hazard problems, information asymmetries or the ability to inflict sanctions are likely to be the more severe the more distant cooperating individuals are to each other (see e.g. Fafchamps and Gubert, 2007).

#### *3.4. The role of human and social capital*

In line with theoretical considerations outlined above, emergence of agricultural cooperatives and farmers' involvement in collective action are found to be closely linked



to their human and social capital resources. Indeed, social capital is often argued to be one of the most important factor which influences the speed of the development and stability of cooperation between agricultural producers which (indirectly) supports the role of trust (see e.g. Chloupkova and Bjornskov, 2002; or Kenis and Oerlemans, 2008). In addition, numerous studies provide evidence that the age of the household head, along with educational attainment, farming experience, and access to social networks and information have a positive effect on the likelihood of cooperative membership (Bernard and Spielman 2009; Fischer and Qaim 2012; Francesconi and Heerinck 2010; Ito et al., 2012; Markelova and Mwangi 2010; Okello and Swinton 2007; Zheng et al., 2012).

### *3.5. The role of sector and structural characteristics*

Further important insights on factors affecting the emergence of producer organizations are highlighted also by Pascucci et al. (2012) who clearly show that the patterns of horizontal integration between farmers are likely to be very sector and region specific. This in turn is consistent with the argument presented earlier showing that sector characteristics may importantly determine governance mechanisms used to sustain the cooperation and, depending on the level of different types of trust, the scale of farmers' collaboration. Pascucci et al. start their analysis with an observation that farmers delivering their products to an agricultural cooperative are not necessarily co-op members. Similarly, cooperative members not always decide to deliver their (whole) output to their cooperative. Intrigued by this observations, the authors analyze the driving forces affecting cooperative membership and delivery decisions using data on roughly 15 thousands farmers included in the Italian Farm Accountancy Data Network. It should be noted here that this is one of the very few studies with a focus on producer organizations which is based on such an extensive dataset. The analysis suggests that farmers' decisions on cooperative membership and deliveries to cooperatives are related to each other. Further, they show that farmers' relations with agricultural cooperatives depend to a large extent on the specific sector and on the social and institutional context in which farmers operate. More specifically, the authors find that farmers who decide not only to join a cooperative but also to deliver there their products are located in regions with a smaller number of food processing firms in a region, underlining the competitive yardstick function of cooperatives. In addition, membership accompanied by deliveries is observed more frequently among farmers that supply to drinks and beverages cooperatives in regions that have a high share of those co-ops, and farm owners that also work on their own farm, and farmers that use a business plan. Membership without deliveries in turn, occurs when there is a large share of cooperatives in the total number

of food processing firms, and this especially holds for vegetable oil cooperatives, in regions where agriculture is the main economic activity and in southern Italy. Deliveries without membership instead occur with large shares of co-ops in the total number of food processing firms and for farmers who process products on their own farm. Finally, the analysis presented indicates that no membership is associated with a large share of co-ops in the meat and fish sector, among arable and horticultural farms and farms with permanent crops.

Other paper studying the intensity of participation in producer organizations is that by Wollni and Fischer (2015). Based on survey data from cooperatively organized coffee farmers in Costa Rica, the authors find that the share delivered to cooperatives decreases with farm size, albeit at a decreasing rate. The empirical results thus confirm the theoretical model prediction of a u-shaped relationship between farm size and member deliveries.

Related to that is also the study on Kenyan banana producers by Fischer and Qaim (2014). The authors provide evidence that low participation can mostly be attributed to structural and institutional conditions, such as group size and the timing of payments for collective product sales. In addition, it has been found that more diversified farmers are less likely to sell collectively when group marketing activities only concentrate on one particular commodity.

The results of this study tie with another strand of the literature which investigates to what extent the development of producer organizations relates to the scale of farm output of potential members. Several studies suggest that producers with larger farm sizes are more likely to belong to cooperatives (Bernard and Spielman, 2009; Ito et al., 2012; Ma and Abdulai, 2016). Also Fischer and Qaim (2012) in their study for Kenyan banana producers report that although farmer organizations are generally inclusive of poor farmers, ownership of land and other agricultural assets as well as access to credit significantly increase the probability of joining a group.

### *3.6. The role of information and market access*

The importance of market access for the emergence of producer organization is investigated and illustrated by Hellin et al. (2009). Based on the data for Mexico and several Central American countries, the authors argue that benefits of farmer organizations are closely linked to transaction costs associated with market access. What follows, their analysis suggests that the higher these costs, the stronger the incentives for farmers to engage in collective action and farmer organizations. This leads the authors to argue that the benefits of farmer organization for market access are more

evident in the vegetable sector, where transaction costs are relatively high, whereas they are much lower for farmers producing an undifferentiated commodity such as maize.

Additional important aspect affecting the likelihood of being a member of a producer organization concerns farmers' access to information. Numerous papers show that farmers with higher capacity to absorb and exchange information are more likely to get involved in a collective action (Fischer and Qaim, 2012, Ma and Abdulai, 2016). The importance of access to information is also confirmed by Monderlaers et al. (2014). More specifically, the authors show that Flemish dairy farmers still lack the knowledge on producer organizations and potential benefits that they may bring. This in turn, suggests that farmers' access to information is still an element which should be improved and that could be potentially tackled using policy instruments. Importantly, this study also shows that facilitating farmers' access to information on producer organizations might be advocated not only for developing regions but also for developed countries.

### *3.7. The role of policies*

Finally, it is commonly argued that both private and public sectors can and should stimulate the development of farmer organizations (Hellin et al., 2009). Various studies show that there are important and complementary roles for government and the private sector in enabling producer organizations to deal with the constraints they face in marketing their products (Markelova et al., 2009). That said, the question remains open about how this support should be organized in order to be efficient. This issue gains particular importance in the light of the existing concerns that producer organizations which are set up using top-down approach are not sustainable in the long-run (see e.g. Golovina and Nilsson, 2011 for their evidence on Russia; or Petruchenya and Hendrikse, 2014 for a theoretical model discussing related points). Similar issues have been raised, for example, in relation to several EU New Member States. In these countries concerns have been expressed that some of local producer organizations were established just to take advantage of the available financial support and they will quit as soon as this support finishes. It should be noted that similar arguments have been raised by Meinzen-Dick (2009) and Hoff and Stiglitz (1993) who suggest that producer organizations are often dormant (or passive) in developing countries because they were largely established to attract external support and thus lack an economic justification.

In this context, it is important to recall the evidence provided by Francesconi and Wouterse (2015). Using data on 500 farmer organizations in Ghana, the authors show that programs offering support for collective action may be counterproductive. More specifically, their results indicate that when a program sets criteria for participation and

offers in-cash and in-kind support to selected farmer organization, it may promote rent-seeking and crowd-out equity capital formation. This is so because farmer organizations may have formed for the sole purpose of benefitting from incentives offered by the program and thus lack an economic justification, which is an important condition for progression through the cooperative life cycle. Further, by setting stringent participation criteria, the program may end up selecting younger organizations while it is the more consolidated organizations that are more likely to establish linkages with external organizations and thanks to this improve their performance. Indeed, as it was already mentioned, it is often argued that producer organizations may maintain their growth and competitiveness only if they are able to build connections with other relevant entities (Cook and Burrell, 2009; Markelova et al., 2009; Nilsson et al., 2012; Francesconi and Wouterse, 2015).

When discussing the role of various actors in initiating the establishment of producer organizations, it is also worth mentioning again the study by Monderlaers et al. (2014). While the results presented by the authors might be very specific to the case under study and therefore should be further confirmed, they suggest that often the main actors in the process of producer organization's formation are not farmers but farmers' unions and processors. This, in turn, poses the question to what extent these organizations can be effective in promoting farmers' interests. This is because if establishing producer organizations is initiated by processors, there is a threat that the latter may influence the way they function. It seems that examining this issue in more details and for other contexts (sectors/countries) could be very informative for policy and academic debates concerning the development and performance of various forms of farmers' horizontal integration.

Overall, it can be summarized that human and social resources are commonly found to affect the development of producer organizations. A particularly important role is to be played by trust, both towards potential cooperators and towards external party responsible for contract enforcement. That said, the reasons for choosing between various governance mechanisms to sustain cooperation and the role of interpersonal relationships between farmers are very poorly understood and documented.

The existing literature provides also strong evidence that access to information and farming experience positively affect the emergence of producer organizations. There is also some evidence that larger farms are more likely to join collective action. That said, there is a need to better understand under what conditions collective action is useful and viable (Poulton et al., 2010). The literature also clearly points that we are still far from reaching a consensus on who (private or public actors) should support promoting

horizontal integration between farmers and what incentives should be provided to achieve this goal in the most efficient way.

## **4. Impacts of producer organizations**

There is a growing body of research in the literature which attempts to investigate the impact of producer organizations on the functioning of the agro-food supply chain and farmers' welfare. An important issue in this strand of the literature is whether producer organizations are likely to eliminate or reduce the importance of factors responsible for unequal distribution of bargaining power within the food supply chain. Notwithstanding some important contributions, our understanding of what is the ultimate impact of producer organizations and through what channels it may occur is still incomplete.

The evidence provided by the existing studies is rather mixed and results from these analyses are difficult to generalize. It seems that the potential benefits which producer organizations may bring about are very product and context specific, and they also depend on the concrete collective activities pursued. This is well illustrated, for example, by the evidence provided by Fischer and Qaim (2014), who argue that the effects of producer organizations can be heavily influenced by their structure and organization. Also other studies (including, for example, Markelova et al. 2009; or Hendrikse and Feng, 2012) argue that the performance of farmer organizations depends on their structure and characteristics of the group. In line with this view, Verhofstadt and Maertens (2014), using data on Rwanda, provide evidence that overall farmer organizations provide a positive impact on various farm performance indicators but that this effect varies across different types of these organizations.<sup>11</sup>

### *4.1. The impact on marketing of agricultural products*

Overall, the experience of countries where cooperation among farmers is at a high level shows that agricultural producer groups can perform important functions in the system of marketing agricultural products. This is consistent with results coming out from the recent report commissioned by DG Competition which shows that producer organizations may perform different roles and improve total welfare of their members (Van Herck, 2014). A single producer whose production is on a small scale and who has no access to technical equipment and state-of-the-art technology is usually unable to respond to the

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<sup>11</sup> Please note that this evidence is consistent with the arguments presented in the previous section showing that understanding the role of governance mechanisms used to sustain cooperation might be crucial for improving our knowledge about the emergence, development and implications of producer organizations.

changes taking place both in micro- and macro environment. Recently, these changes have been connected predominantly with the necessity of meeting increasingly demanding requirements of consumers who want high quality products at affordable prices, supplied in a form convenient and attractive for consumption throughout the year (see e.g. Menard and Valceschini, 2005; Fischer et al., 2009). Of great importance are also transformations within the structure of market operators, resulting in the strengthening of the processors and retailers' position (Fearne et al., 2001; Boselie et al., 2003). Intense processes of concentration among buyers and the growing importance of supermarket chains in retail trade lead to a situation where agricultural producers have to increase efficiency of their production, ensure large, stable supplies of products of homogenous quality (Markelova et al., 2009; Hellin et al., 2009). In contrast to supplying basic staples to local markets, producers now often supply long and sophisticated value chains, delivering processed and branded products to mainly urban consumers (Hellin et al., 2009).

#### *4.2. The impact on farmers' bargaining power*

As mentioned above, producer organizations are often believed to increase farmers' bargaining power and thus contribute to a more balanced distribution of rents along the food chain. While the list of potential arguments supporting this view is quite long, the positive effects for farmers arising from horizontal integration between agricultural producers are most often expected on the following grounds (see, among others, Hendrikse and Veerman, 2001; Menard 2007; or Bijman et al, 2012). First, acting together may allow farmers to take advantage of the economies of scale and to minimize transaction costs accompanying the processes of producing and selling agro-food products. Second, it should enable concentration of supply of agricultural products, thereby facilitating negotiations of the conditions of their sales. Similarly, by opening the possibility for planning joint production and concentrating demand for agricultural inputs, it ought to reinforce farmers' negotiation position vis-à-vis the providers of goods and services to the farm sector. Finally, by making it possible to take advantage of economies of scale, such cooperation may also enable farmers to cover the costs of investment projects aimed at improving the quality of the commodities produced or creating and promoting their own brands. Thus horizontal integration is often expected to allow farmers to offer greater diversity of products and therefore access high value markets. Furthermore, the search costs for new markets are essentially fixed, so by going together farmers share that cost, instead of each having to bear that cost on his or her own (see e.g. Markelova et al., 2009). In addition, it is worthwhile to mention that a certain side effect of producer groups' existence might manifest itself in the links

between producers, processors and commercial agents which should contribute to food chains' sustainability and resilience. This, in turn, might be important for the performance of the food sector as a whole, resulting in market and price stabilization.

Given the abovementioned arguments, horizontal integration between farmers has often been advocated, both within political circles as well as in an academia, as a potential stimulus to increase efficiency of agricultural production and a tool to improve the functioning of the agro-food supply chain. That said, one should not forget that cooperation and the related benefits make farmers relinquish their autonomy in marketing and production activities (see e.g. Cechin et al., 2013). From an individual producer's perspective, membership in producer organization may also imply a slower decision making process or the necessity to incur costs of additional investments (Chlebicka et al., 2009; Wollni and Fischer, 2015).<sup>12</sup> Finally, as in the case of all collective actions, producer organizations need to overcome free rider problem (see e.g. Cook, 1995; or Fulton, 1999).

The abovementioned pros and cons of producer organizations already provide some intuition behind their positive impact on farmers' bargaining power or potential factors hindering their development and limiting their success. That said, most papers concerned with economic implications of producer organizations for farmers concentrate on the effects on general household welfare, most often on farm revenues/income (see further). Instead, the evidence on the exact channels through which this effect may take place is very scant. Consequently, it is difficult to match the obtained results with existing theoretical models that would be consistent with the data.

To see how producer organizations may improve farmers' bargaining power one may refer to various arguments based on incomplete-contracting theories of integration. Three of them seem to be the most relevant in the context of collaborative actions of agricultural producers. First, it is useful to consider the impact of producer organizations on the elasticity of substitution between farm inputs faced by the processing industry/retail sector. By pooling members' deliveries together, establishing a producer organization should decrease this elasticity as it should make farmers cooperating with each other more essential for production of a final good. What follows, the share of revenues appropriated by farmers grouped in producer organizations should increase. Second, the impact of producer organizations on farmers' bargaining power may manifest itself through the effect that farmer collective actions have on the severity of potential hold up problem. In the presence of incomplete contracts farmers may be

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<sup>12</sup> This argument can be related to a more general literature originating from the work by Hayek (1988), who noticed that "*[Cooperation] makes sense in a small group whose members share particular habits, knowledge and beliefs about possibilities. It makes hardly any sense when the problem is to adapt to unknown circumstances ...*" (p. 19).

vulnerable to contract hold-up problems if they are supposed to undertake investments specific to the relationship with their contractors. To the extent that establishing collective action decreases costs of these investments per unit of output, farmers grouped in producer organizations will be less severely affected by potential opportunistic behaviour of their contractors. This is because costs of a hold up will be split over the whole group. Third, producer organizations may increase farmers' bargaining power if they succeed in increasing farmers' outside options. Having more alternatives to market their output, farmers involved in a collective action should have a stronger negotiating position towards potential contractors. Please note that this may have also an effect of farmer contractors' outside options (as regards their alternatives to source raw agricultural materials) and thus exert an impact on the bargaining process.

While these predictions seem clear, their empirical assessment poses several challenges with respect to the data and methodology. In consequence, the actual evidence on the relationships just mentioned is very scant. This is important as without improving this state of affairs it is difficult to explain why do we observe a positive or negative impact of producer organizations of farmers' welfare. A notable exception is the study by Fischer and Qaim (2012) (see further). In this context it is also worth recalling the study by Beckman and Boger (2004). Based on farm-level data for Poland, the authors show that a membership in producer organizations increases farmers' willingness to accept losses, related to contract breaches, before going to court. This in turn is in line with the argument suggesting that farmer collective actions may decrease the severity of contract hold-up problems from a single farmer's perspective. It may also suggest that collective action can provide an alternative to pursuing one's rights in a court indicating that the negotiating position towards downstream sectors of farmers involved in a producer organization is indeed higher than that of individual producer.

#### *4.3. The impact on farmers' investment*

There is another relevant issue which is related to the discussion just mentioned and which concerns the impact of producer organizations on farmers' productivity and income as well as on improving performance of the agro-food chain as a whole. More specifically, it concerns the impact that producer organization may have on the level of farm investments. It can be presented as follows. With complete contracts, all those who benefit from an investment can be forced to pay their share of the cost. In the presence of incomplete contracts however there are many situations in which certain contractual arrangements cannot be stipulated. In these circumstances if farmers face the risk of being held-up they will have a tendency to underinvest because the ex post bargaining



over division of total revenue gives them less than the full benefit of their investment. Alternatively, they will make these investments less specific, or move resources to sectors with lower asset-specificity requirements (see e.g. Cungu et al., 2008). In either way this is likely to lead to inefficient allocation of resources both at the farm, within a particular sector and between sectors. This is because risk-averse farms, fearing that their investments will leave them vulnerable, refuse to make them in an efficient way. If producer organizations decrease the severity of contract hold-up, then they should also (indirectly) contribute to moving farm investments closer to their optimum. As a result, an improved performance of the farm and the food chain as a whole could be expected. Another potential impact of producer organizations could be to attract (foreign) investors. As argued by Minten et al. (2007), farmer groups may importantly decrease transaction costs by eliminating the need to deal with many individual producers (for a similar argument see also, e.g., Chowdhury et al., 2005). This obviously depends on whether farmers are able to start a collective action, internalize verification system and consequently achieve economies of scale (see the discussion in the previous section).

#### *4.4. The impact on product quality and innovation*

To ensure quality and consistent supply of perishable goods, downstream sectors are pushing the food marketing system toward more vertical coordination, allowing retailers and processing industries to standardize quality, improve bargaining power, and achieve economies of scale (Boehlje, 1999). Indeed, numerous contributions have stressed the need to recognize the vertically linked nature of the food sector (see, for instance, Sexton and Lavoie, 2001; Hobbs and Young, 2001; or McCorriston, 2002, among others). Therefore, in analyzing the impact of producer organizations on farmers' position, it is necessary to understand the vertical linkages that characterize food markets. In particular, it seems important to improve our knowledge about the role of producer organization in facilitating farmers' access to high value chains as well as their potential for reorganizing farmers' relationships with buyers of their products and providers of goods and services to the farm sector. One of the key issues here relates for example to the fact whether producer organizations enable farmers to coordinate on quality control (Barrett, 2008).

A study related to these points is that by Hellin et al (2009). More specifically, the authors provide some evidence that producer organizations facilitate farmers' access to agricultural inputs (such as credit and seed) and could potentially facilitate adding value to farm output by allowing to differentiate farmers' products. This is consistent with the results from other papers that suggest that cooperatives can ease the dissemination of

knowledge among the members and can contribute to the adoption of new technologies and better management practices (see e.g. Abebaw and Haile, 2013).

#### *4.5. The impact on adoption of food standards*

It is worth mentioning in this context the study by Narrod et al. (2009). As the authors argue, organized producer groups may help farmers to comply with stringent food standards. This evidence is important as it shows that even small-scale farmers, when they join forces together, may be able to meet market requirements and successfully participate in high value markets. Interestingly though, complying with food standards may require changes to group size and composition. To achieve this reorganization, policy support may be needed. Facilitating linkages of farmer groups with external experts who can provide them with appropriate market knowledge could serve here as an example. That said, the evidence in this paper is based on two case studies from India and Kenya. Therefore, the potential role of collective action in ensuring that small-scale farmers are not excluded and are able to tie into high value markets needs further investigation.

Related to that is the evidence on Madagascar provided by Cadot et al. (2006) which suggests that producer organizations increase the welfare of commercial farmers but are not facilitating market access of subsistence producers. This adds additional dimension to already complex picture that emerges from the literature surveyed above. These latter results are in line with some views suggesting that supply chain transformation may have a detrimental effect on small scale farmers' market participation and benefit mainly farmers already generating surpluses and selling to market (see, for instance, Reardon et al., 1999; Weatherspoon et al., 2001; Humphrey et al., 2004). That said, it should be noted that this latter issue is a subject of a vivid debate and other evidence suggests that excluding small-scale farms from modern food supply chains need not to take place (see e.g. Swinnen, 2007).

#### *4.6. The impact on small farms*

The issue of smallholders' exclusion/inclusion in the context of farmers collective action is one of the most important topics in the literature concerned with the impact of producer organizations on farmers' welfare. Indeed, the debate is often focused on whether producer organizations/agricultural cooperatives, if they prove to be successful in a given context, provide benefits to all members irrespective of their farm size. While some studies show that cooperatives have helped members to reduce transaction costs and mitigate exclusion (Holloway et al., 2000; Berdegue, 2001), overall, the existing

evidence on this issue is again mixed. The general conclusion to be drawn is that cooperative organization does not automatically improve market access for small scale farmers. In fact, the impact of cooperatives on the integration of smallholders in the agricultural value chain remains highly contested (Francesconi and Wouterse, 2015).

On the one hand, using data on apple producers in China, Ma and Abdulai (2016) report that cooperative membership exerts a positive and statistically significant impact on agricultural productivity, farm net returns and household income. In addition, and interestingly, the authors undertake a disaggregated analysis which shows that small-scale farms tend to benefit more from cooperatives than medium and large farms.

Also Ito et al. (2012) in their analysis for watermelon producing farm households in China arrive to similar conclusions and show that being a member of a cooperative positively affects farmers' income only in case of smallholders. In addition, the authors show that these benefits are relatively large compared, for instance, to benefits arising from government extension services. That said, Ito et al. (2012) clearly note that cooperatives addressed in their study restrict participation of small scale farmers.

Also related is the paper by Bernard and Spielman (2009). The authors find that although the poorest farmers are often excluded from collective action, they may still benefit from positive spillover effects of the cooperatives' presence such as improved access to inputs, output markets and information.

#### *4.7. The impact on income and prices*

Important nuances concerning the relationship between collective action and benefits for its members can be added to this discussion using evidence provided by Fischer and Qaim (2012) who analyzed banana producers in Kenya. Based on the propensity score matching analysis, the authors show that although group membership positively affects members' income, this effect holds only for those who actively participate in group marketing activities. Therefore, it is not group membership per se which seems to matter. Interestingly, the authors look for exact channels through which these effects are transmitted. They conclude that this is mainly due to the fact that active group members expand their banana production and become specialized and more commercial producers. In addition, group participation is associated with higher rates of tissue culture technology and higher use intensities of chemical inputs in their production. The authors perceive this result as a clear illustration that collective action can spur innovation through promoting efficient information flows. However, they do not find positive impacts on productivity. As regards the price advantages associated with collective marketing, although being positive, they are relatively small in magnitude.

Importantly, this latter issue, i.e. the impact of producer organizations on the level of prices, adds to places where the existing studies are relatively limited and produce mixed findings. For example, Bernard et al. (2008) show that producer organizations achieve higher output prices for their members. On the other hand, Vandeplass et al. (2013) do not find significant differences in prices received by farmers in different marketing channels (including cooperative channel).

Relevant from our perspective is also study by Verhofstadt and Maertens (2015). Using propensity score matching methodology and data for 401 farm households in Rwanda, the authors analyze heterogeneous treatment effects across farmers by analyzing how estimated treatment effects vary over farm and farmer characteristics and over the estimated propensity score. The findings suggest that cooperative membership in general increases income and reduces poverty and that these effects are largest for larger farms and in more remote areas. Further, the analysis by Verhofstadt and Maertens (2015) shows that cooperative membership is as effective at improving farm income for more-educated farmers as for less-educated farmers, for female-headed households as for male-headed household, and for households with many workers as for households with few workers. The authors also find evidence of a negative selection because the analyzed impact is largest for farmers with the lowest propensity to be a cooperative member.

Also related is the paper by Vandeplass et al. (2013) who study the impact of various marketing channels on dairy farmers in India. The results show that farmers supplying informal channels are less efficient and earn lower profits per dairy animal than farmers supplying the cooperative. The latter however were less profitable than farmers delivering to a multinational.<sup>13</sup>

#### *4.8. The impact of the PO size*

Studies concerned with the impact of producer organizations often analyze also the relationship between the size of a given organization and services it provides/benefits it brings. Overall, this literature suggests that larger producer organizations are more efficient and profitable than smaller ones. This is because they can take advantage of higher economies of scale and thus offer higher prices and reduce their costs per unit of output (see e.g. Lerman and Parliament, 1991; Ariyaratne et al., 2000; Arcas et al., 2011). That said, it should be noted that there also exist some studies which conclude

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<sup>13</sup> Importantly, the authors note that dairy productivity and profitability levels in the analyzed context are very low.

that the size of producer organizations is not systematically related to their profitability (see e.g. Fulton et al., 1995; McKee, 2008).

In addition, Heyder et al. (2011) finds a positive relationship between the scale of producer organizations' activities on international markets and their performance. This could be linked to the fact that the presence on foreign market might require higher productivity. This explanation is in line with conclusions that follow from the seminal contribution to the international trade literature by Melitz (2003). Using a theoretical model, the author argues that in the presence of increasing competition firms which are more productive enter foreign markets, whereas less productive firms produce only for domestic customers or are driven out of the market. Predictions from this model have been widely confirmed including products from the agro-food sector (see Curzi et al., 2015).

Notwithstanding the number of different topics which have been addressed by researchers interested in examining the role of producer organizations, there is one important issue which seems to be highly relevant from policy perspective and which has been largely omitted from the discussion. As commonly argued, horizontal integration among agricultural producers may potentially bring many benefits for farmers and contribute to more equal distribution of rents along the food chain. That said, as noted by Bouamra-Mechemache and Zago (2015), producer organizations themselves need to avoid abusing their position. This is because producer organizations that are successful may overdo and exercise market power. Closely related to that is another point which seems very relevant for policy makers but which is very poorly documented and understood. A political economy approach to this topic suggests that what may matter here is the role that producer organizations/cooperatives can play in increasing farmers' lobbying power and thus improve their market position through political rent seeking (see, e.g., Goddard et al., 2002).

## 5. Key findings and conclusions

Following the increasing levels of concentration in retail and manufacturing sectors, concerns have been expressed about competition throughout agro-food chains across countries. Thanks to both theoretical contributions as well as extensive empirical research our knowledge about the organization of production processes within the agro-food chain has considerably improved. That said, addressing the role of market power, bargaining between chain members and the nature and consequences of various contractual frictions between them, are where some of the major gaps in understanding how the food supply chains function still exist. As commonly argued, such knowledge is crucial for designing a fair, sustainable and innovative food sector (McCorriston, 2013; Sexton, 2013; European Commission, 2014; OECD, 2015;).

In response to many challenges resulting from ongoing changes that have been experienced in food supply chains all over the world, farmers have been encouraged to organize as producer groups or cooperatives. Benefits which are likely to arise from a cooperation between farmers have received a lot of attention both in academic and political circles. This is reflected, for example, in the composition of the EU Rural Development Policy, in which, especially in some member states, the measures supporting horizontal integration at the farm level play an important role. The recommendations of the High Level Group on the Competitiveness of the Agro-Food Industry or regulations proposed within the Dairy Package which acknowledge the role of producer groups and agro-food cooperatives in influencing the competitiveness of the European food industry can serve as another illustration.

In relation to the concerns about the unequal distribution of bargaining power in the food chain it should be mentioned that also producer organizations can potentially limit competition as at one point they may exercise market power themselves. That said, it is still to be fully understood when producer organizations can be successful and comply at the same time with competition rules (OECD, 2013; Bouamra-Mechemache and Zago, 2015).

In this context, it is important to note that when analyzing bargaining power of various chain members our focus should not be only on market concentrations levels. In addition, as this report tried to argue, any element of the commercial relationship between farmers and processors/retailers can be distorted and therefore we should not be concerned only with price distortions. The complexity of integrated markets between farmers and downstream industry makes distortions arising from various forms of

market power a multidimensional problem. In effect, conclusions generated from analyses which adopt a too narrow view (e.g. focus on prices alone) are likely to differ significantly from those that try to address the role of producer organizations by taking into account such issues as product differentiation and vertical coordination (Sexton, 2013).

As regards factors supporting development of producer organizations, the literature is quite unanimous in emphasizing the role of trust. Different types of trust (towards other group members or towards formal institutions responsible for contract enforcement) might be of special importance, depending on what governance mechanisms are used to sustain cooperation. The latter can be based either on formal institutions (e.g. courts) or informal institutions which use reputation mechanisms to punish opportunistic breaches of the contract. This suggests that interpersonal relationships between farmers might be crucial for the patterns of cooperative behaviour. That said, our understanding of how social structure relates to the emergence of producer organizations is still insufficient and only tentative evidence exist in this respect.

Further, given the importance of trust for the emergence and development of farmers' collective action, it is now crucial to better understand the circumstances in which successful producer organizations can be established without using personal relations and what policy signals may be used to support this process. Several studies argue that external support for promoting producer organizations may fail to achieve its goal if farmers themselves do not have a common understanding of organizational problems which they are likely to face and lack sufficient knowledge and/or resources to solve potential conflicts within the group stemming from differential preferences farmers may have towards the membership (see e.g. Varughese and Ostrom, 2001; Golovina and Nilsson, 2011). Although based only on anecdotal evidence, it can be questioned whether some producer organizations in the EU New Member States do not lack economic justification and whether they exist just to take advantage of the available CAP support.

In addition, the existing literature seems to suggest that farmers have differential preferences as to cooperative membership. As a result many studies conclude that the benefits of cooperatives, in terms of improved farmer bargaining position in the food chain, vary with time, place, technology, scale of farming, and human and social capital available (see, for example, Markelova et al., 2009; Bijman et al., 2012; Van Herck, 2014). This, in turn, emphasizes the importance of taking into account different conditions and circumstances in which producer organizations operate if we want to better understand how they function and what impacts they may bring.

The literature provides numerous examples where successful agricultural producer organizations were characterized by a significant degree of homogeneity among farmers involved in a collective action. There is however no consensus with respect to which dimensions of this homogeneity is most important. The existing studies define homogeneity with respect to various aspects of farm or product characteristics (e.g. farms size, farmers' age, degree of specialization, level of commercialization; product quality; productivity). In addition, there are several studies showing that larger farms are more likely to engage in establishing producer organizations. This in turn calls for better understanding what factors may allow smallholders to increase their involvement. The available literature analyzing the smallholders' participation in collective action is mixed and inconclusive.

In relation to that, several authors argue that increasing the level of group heterogeneity might be indispensable for producer organizations, especially if they are to maintain their growth and competitiveness in the long-run. In this context it is important to note that we still lack systematic evidence on factors allowing farmers to overcome barriers to cooperation which are induced by heterogeneity between individuals. In particular, we know relatively little about potential role which interpersonal relationships and social structure can play in this respect.

The existing studies investigating welfare implications of producer organizations for their members are mostly focusing on developing regions. Instead, the number of studies analyzing these issues for developed world is very limited, and often confined to studies on the United States.

Further, a vast majority of impact studies focus on a single cooperative or on multiple cooperatives in a single sub-sector. Very few studies explicitly look at differences in impact across different cooperatives. This makes it very difficult to assess advantages and disadvantages of different type of mechanisms governing farmers' collective action. Moreover, the existing analyses very rarely include time dimension which constitutes another barrier to properly assess whether farmers improve their market position and bargaining power after joining producer organization.

In relation to that, there is still only scant evidence with respect to the impact of producer organizations on the nature of the contractual relationships at various stages of the food chain. Moreover, most of the existing studies focusing on producer organizations rarely consider dynamic interactions between chain members. As a result, we still have insufficient knowledge about, among others, the responsiveness of chain members' behaviour to changes in bargaining power introduced by the emergence of producer organizations. How do these dynamic interactions affect the distribution of risk, profit margins and added value along the chain is also largely unknown.



Having these caveats in mind, there are numerous examples pointing to positive effects of producer organizations on farm income or farm productivity. This clearly shows that producer organizations definitely have the potential to perform many different roles and bring beneficial effects both for the members and for the total welfare. For example, several studies provide, evidence suggesting that producer organizations facilitate members' adoption of improved technologies and access to high value markets. However, there are also other examples showing that horizontal integration between farmers is not always successful. Overall therefore, the existing studies find mixed results depending on the local context in which producer organizations operate. Indeed, it seems that whether farmers are better off being members of a cooperative or act on their own depends on the particular characteristics of the product, the farm and the market structure.

In general, collective marketing seems to be more beneficial in high-value supply chains than in local markets for staples and other traditional food crops (e.g. cereals). Indeed, as noted by Barrett (2008) most evidence on farmers organizations generating better terms of trade for producer members comes from cash crops, especially dairy and horticulture.

As this literature review clearly shows, the literature on producer organizations is extensive and covers a wide range of topics. Yet, notwithstanding this fact it seems that at least several gaps could be identified in the current understanding of the topic which still need to be filled. This relates both to the reasons of why cooperative behaviour does (not) occur or to the resources required for this cooperative behaviour to be sustainable in the long-run. In addition, we have still rather limited knowledge about the extent to which producer organizations succeed in addressing negative impacts stemming from an unequal power distribution throughout the food chain and/or the existence of unfair trading practices. More specifically, while the literature offers several studies analyzing the impact of contracts, for example, on farm household's welfare, production scale or propensity to invest we know relatively little whether similar effects could be or should be expected if instead of individual farmer we would focus on producer organizations. In addition, much more detailed studies are needed to map the occurrence of various distortions to commercial relations in the food chain and to appropriately and comprehensively assess to what extent their social and economic impacts might be changed by the presence of agricultural producer organizations.

Yet another question which needs further investigation concerns the impact of growing vertical integration on farmers incentives to join forces under various forms of producer organizations. As argued in a number of studies, access to markets and capital have been commonly mentioned among the main reasons for farm producers to cooperate

with each other. Given that both farmers' access to markets and access to capital could be improved by closer cooperation with downstream sectors, there is a need to better understand under what conditions these horizontal and vertical arrangements are complementary to each other and under what conditions they are substitutes.

Finally, it seems that we still have an insufficient understanding of the potential substitutability between formal and informal cooperation. This is important from the policy perspective as in the presence of social norms encouraging informal rather than formal cooperation, our efforts to promote producer organizations with traditional support measures may be ineffective.

That said, given the ongoing extensive research efforts which attempt to address these and other gaps, one can be optimistic that our understanding of the role of producer organizations for the efficient functioning of the food supply chain will be further improving.

### *5.1. Policy recommendations*

Based on the analysis of this report the following policy recommendations can be formulated:

- Policy action of supporting cooperation among farmers might be desirable from social welfare perspective in situations when market failures are present caused by high transaction costs of cooperative behaviour (e.g. high cost of contract enforcement, imperfect information transmission in food chains) as long as it does not distort other form of cooperation existent in the market.
- Although there are numerous studies suggesting positive effects of producer organizations on various elements of farmers performance, the evidence on the net gains to the society in general and its members in particular is still inconclusive.
- Activities of producer organizations which, according to the existing literature, may generate gains to its members and thus may render relevance of policy action include the promotion of marketing of products and market access, information diffusion, strengthening bargaining position in supply chain, and adoption of innovation and food standards.
- Said that, the strengthening of bargaining power of farmers through producer organizations may need careful consideration as it may not necessarily address market failures but rather cause distortions in the markets (e.g., vis-à-vis consumers) if excessive in magnitude and disproportional to concentration of market power in the downstream sectors.

- Any policy action needs to ensure the compliance of the rules governing the functioning producer organizations with the competition rules and to promote the cooperation that does not lead to the abuse of producer organizations' position in the market.
- Formal recognition of producer organizations and policy support for them definitely might be conducive to sustained cooperation among farmers. This could be particularly relevant in regions with lower tradition of collective action. Particularly important in this respect is supporting the establishment of an effective external (third party) enforcement mechanism that could be used by producer organizations to disincentives free riding and dishonest behaviour of its members. This could include either supporting the existent external enforcement mechanism (e.g. court) or promoting the establishment of out-of-court resolution mechanisms.
- An added-value of formalization of producer organization (as opposed to informal forms of cooperation) is that it may support creation of producer organizations of larger size which might be better positioned to address the imbalance of bargaining power of farmers in the supply chain. Formalization of producer organization might be also important for ensuring sustained cooperation in the long-run, when establishing linkages with external parties may be indispensable for the organization to maintain its competitiveness and growth.
- That said, it is important to note that supporting formalization of producer organizations puts in relative disadvantage informal forms of cooperation of farmers which are based on personalized relationships, trust, reputation and informal networks. In this context, other types of support could be envisaged to limit this problem (e.g. providing support for joint farmers' projects without imposing requirement of having formalized cooperation, providing support for shared ownership of assets/investments).
- The policy should refrain from imposing a specific organizational/governance structure of producer organizations as there is limited evidence to support the existence of an optimal type of organization/governance. Rather the evidence tends to support the existence of heterogeneous organizational/governance forms of producer organizations depending on the context (e.g. sector, production technology, farm size, market structure, contracting and vertical integration).
- Providing technical assistance and supporting the dissemination of information about the benefits of producer organizations can enhance the establishment and the growth of producer organizations in particular among farming communities with lower human and social capital and lower presence of developed social networks.

- Facilitating the networking and linkages among existent producers organizations and farmers to exchange experiences, challenges and knowledge, may foster better understanding of their benefits and costs among farmers and may stimulate their growth.
- Benefits from cooperation tend to be larger in regions with lower market access of farmers; hence gains from supporting producer organizations are expected to be greatest in such regions. Thus technical assistance and information dissemination could be important in these regions to promote the emergence of producer organizations given that this type of regions often tend to be also endowed with lower human and social capital which reduces cooperative actions.
- Benefits from cooperation also tend to be larger for high-value products such as fruits, vegetables and dairy, hence gains from supporting producer organizations in these sectors are expected to be greater than for traditional food crops with lower value-added (e.g. cereals).
- When providing financial support for the establishment, functioning and investment activities of producer organizations, the assessment of their viability is crucial in order to avoid inefficient deployment of public resources; that is, to avoid the emergence of cooperation among farmers only for the purpose of accessing public support.
- Important in this respect is regular monitoring and evaluation of the development and functioning of producer organizations in particular in the long-run as well as identifying the type of the financial support which promotes genuine cooperation from the support which leads to non-desirable cooperation with the purpose of rent-seeking and extraction of public support. The evidence available in the literature is largely inconclusive in guiding policy makers on which type of support is efficient in this respect and in what context.
- However, (although inconclusive) the literature tends to suggest that public support targeting activities which, from producer organization members' perspective, share the characteristics of a public good (e.g. set-up costs, running costs of POs, marketing costs) may be more effective in promoting genuine cooperation and less prone to rent-seeking than the support focused on the private activities of POs members (e.g. on farm related investments).
- Although being far from conclusive, the evidence tends to suggest that small farms participate less in collective actions than large farms. Hence providing targeted support to small farms may stimulate their participation in producer organizations.

- Important is to note that concentration of farmers supply through producer organizations may generate benefits not only to its members but also to their purchasers (e.g. processors). This is because the concentration of supply decreases purchasers' transaction costs of dealing with many farmers for their deliveries. The processors' gains are greatest in regions with farm structure dominated by small producers.
- Said that, producer organizations initiated, established or/and supported by third parties (e.g. processors) may not necessarily generate full potential gains to its members as the actual distribution of gains from collective action might be biased towards those who initiated the cooperation. In such cases if public support is granted to producer organizations it might be fully or partially leaked away to third parties rather than benefited by members of producer organizations. To avoid potential policy leakages, such type of producer organizations should be avoided being granted public support or carefully evaluated before providing support.
- It must be recognized that any public support designed towards producer organizations operates in a certain 'knowledge vacuum' given that the benefits and costs of producer organizations are not fully understood. This is in particular (but not only) related to the contribution of producer organizations in addressing unequal power distribution throughout the food chain, in combating unfair trading practices, long-run benefits and sustainability of producer organizations, and determining the contractual relationships at various stages of the food chain. Overall, this reasoning implies that based on the available evidence one cannot fully conclude whether public support to producer organizations generates net benefits from a social welfare perspective.

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