Intervention of Meso-Organizations in the Integration to the Market of Rural Producers

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Abstract

The study of meso-organizations (Helmsing, 2001; North, 1990) has focused on rural or poor communities which are expected to increase their level of development. These second-level organizations help communities facing weak institutional capital to reach their economic goals by extending bridges between them and the necessary resources that are out of their scope. Integration to the market, the ability to use the links of productive and commercial chains to capture value, is one mechanism by which these economic goals are achieved. Using the neo-institutional perspective, this study seeks to understand the relationship between the resources or services that meso-organizations provide and the level of integration to the market (IM) that rural producers in a post-conflict context, such as Colombia, are able to reach. Findings suggest that those resource bridges contributing to their integration are quite specific. Likewise, this study shows that the rural producers' relational capital is an important bastion for their IM. The final section discusses the policy and strategy implications of these findings.

[*] The authors acknowledge the support of Universidad de los Andes School of Management and the National Planning Department (DNP) of Colombia. This paper is derived from a research project that in its first phase was carried out with Eduardo Wills and Manuel Moscoso. We are grateful to them for the promotion of the research project in both organizations, and for their valuable contribution to the initial design of the research, participation in building the database and preparation of a report cited below. Liliana Gomez, David Aguilar, Victor Baldrich and Leonardo Riano provided outstanding research assistantship. Alejandra Palacios and Adriana Valenzuela participated in the organization of focus groups in the regions. We thank the support of local leaders, authorities and participants in the survey and in focus groups, where preliminary results of the global project were devolved and discussed. The ideas presented in this paper are nonetheless the sole responsibility of the authors.

Introduction

Hybrid forms are mechanisms to efficiently face the uncertainty in the environment when the costs either of participating directly in the market or of controlling the productive resources under hierarchy are higher (Ménard, 2004; Williamson, 1981). In violent rural places, insecurity and violence are sources of uncertainty associated to the existence of rural hybrid organizations (Forero-Pineda, Wills Herrera, Andonova, Orozco Collazos, & Pardo, 2014). According to these authors, the association with either other producers or different links of the productive chain allows rural producers the use of shared resources, reducing the costs of producing or commercializing by themselves. These costs are importantly high under violence, insecurity and post conflict contexts given the institutional weakness that entail limited access to the zones to get supplies and to put the products on the spot market, and the fact that to challenge these insecurity conditions could imply even risking the life. Integration to the market or hybrid forms of distribution is the focus of this study, a mechanism to face the risk of insecurity.

According to literature on development, integration to the market may be achieved through the intervention of meso-organizations (MOs). These are second-level organizations which create bridges between organizations demanding resources and those possessing them (A. J. Bebbington & Carroll, 2002; Helmsing, 2001). Intervention by MOs in developing contexts seeks increasing the level of development among poor and rural communities and to provide them with access to resources (and capabilities) that they require to reach the spot market (A. Bebbington & Perreault, 1999; Fanthorpe & Maconachie, 2010; Zulu & Wilson, 2012). The results of interventions by MO are not clear and many of these studies, based on case analysis, indicate that the social capital of the community ends up determining the efficacy of the intervention (Biénabe, Coronel, Le Coq, & Liagre, 2004) such as Woolcock (Woolcock, 1998) foresaw when recognized that the intervention of the civil society by state through institutions was a pillar to build social capital and to influence the economic dynamic through it.

This study focuses on the relationship between intervention by MOs, relational capital as part of social capital and the integration to the market of rural producers in a context of post-conflict. Regarding this focus and given that intervention implies a bi-directional relationship between MOs as intervenient and rural producers as subject of intervention, we are interested in understanding when farmers do accept participating in the programs of MOs. Additionally, although some studies have identified and classified the diversity of services provided by MOs, to our knowledge no study shows a direct link between these services and the effective integration to the market by rural producers. This study attempts to fill this gap by searching the kind of programs of MOs that are more effective in promoting farmer integration to the market. Finally and considering that previous studies suggest the importance of social capital to leverage MO programs, and that

these studies do not deepen into the mechanisms for this relationship, we attempt to answer also how social capital of rural communities shapes a base for MO programs.

To answer these questions, the study considers a sample of 1680 Colombian rural producers, who were surveyed at the end of 2015. Colombia is a country, in which insecurity has been present during more than five decades, with major emphasis on rural areas. Although the expectancy of a peace agreement with one of the irregular armed groups was high at the moment of the study, and violence and insecurity have decreased the last years before, there was a context of uncertainty and some rural places continued under the presence of other armed group. This environment provides the insecurity characteristics of the context whose relationship with the farmers' integration to the market (IM) or hybrid forms of distribution was demonstrated in a previous study (Forero-Pineda et al., 2014). The Colombian context is particularly suitable for the purpose of this research. Many rural regions of this country have been submitted to violence for several decades and the context of violence has motivated the presence of different types of MOs in the rural areas of these regions.

Framed in the neo-institutional tradition, this study first shows that not all dimensions of social capital, as identified by Ostrom (2003), but its relational component leverages the development of MO programs. Second, we go beyond extant literature in that we make distinctions among the MO programs and we separate the effects of each type of program. The study identifies three resources and services provided by MOs, among which the MO programs that promote strengthening of internal capacities of rural production units are more effective in achieving integration of farmers to the market. We show that MOs as second-level organizations should be analyzed since their diversity of focus and the alignment between them and the rural community interests. Third, the study also shows that relational capital is diverse and we analyze the effects of each kind of farmers' networks on MO programs. Linked to this is the fact that not all types of relational capital contribute to integrate farmers to the market.

In the following, we present the theoretical background and hypotheses that relate MOs with rural producers' integration to the market and the influence of relational capital in this relationship. This section includes two main parts, the first related to intervention by MOs and the second one presenting the literature around IM. The third and the fourth sections introduce the methodological approach and the results. The last section offers the discussion and implications of this study for public policy.

Literature Review and Hypotheses

Rural producers and Intervention by meso-organizations

Peasants are an intermediate position between self-sufficiency of the ancient tribes and urban dependency (Geertz, 1961). The concept of peasant is strongly linked to the

social dynamic inside rural communities, but it is the economic dynamic that really distinguishes them from other populations. From the economic perspective, peasants produce primary goods from natural resources and exchange part of those goods in the spot market to maintain their occupational status. To reach the spot market, peasants exchange their goods through relationships with other rural communities or productive chain links. Institutions that govern peasant life and their relationships toward the spot market are characterized by a low presence of the state (Orinoquia in Colombia is an example of it (Wills-Herrera, 2016)). This is due to the centralized structure of the past and present society. In terms of social dynamics, family and close community shape the main institutions for rural producers. Consequently, that weak presence of governmental institutions excludes rural producers from the dominant group. This has a direct impact on the exchange of goods, which requires an institutional frame that balances and regulates commercial relationships with counterparts outside the community.

Meso-organizations (MOs) are called to fill in this institutional lack for the rural producers (Helmsing, 2001). Douglas North (1990) was one of the first to try to understand the role of meso-institutions in economic life. He noted a large number of institutions that make the market possible by ensuring property rights. Under a weak presence of the state, meso-institutions emerge as regional policymakers for development (Helmsing, 1999) and unfold through MOs, that provide the rules and norms that rural communities require in order to relate with one another.

MOs are second-level organizations that create bridges between the organizations demanding resources and those possessing them, and have an impact on the economic, social, and political life of the community (A. J. Bebbington & Carroll, 2002). The presence of MOs has been related to a higher level of subjective wellbeing (Wills-Herrera, Orozco, Forero-Pineda, Pardo, & Andonova, 2011). The creation of these bridges involves a diverse number of organizations, including the state and voluntary organizations (as well as ONGs and private organizations) that facilitate the exchange (North, 1990). Literature usually describes the existence of donors that facilitate financial resources and MOs that perform the donors' mission.

Social capital and meso-organizations

Most studies of MOs come from the literature on development, which focuses on poor and rural communities. In the early 1990s, academia debated about social capital as a central pillar for social development (Woolcock, 1998). In particular, Putnam's *Making Democracy Work: Civic Traditions in Modern Italy* (1993) was key in incorporating the characteristics of social structures and civic society organizations into the debate. In Putnam's view, civil society can make the state and the economy more accountable and efficient to achieve collective interests. For that to happen, it should have a reinforcing relationship between the societal demands and the design and implementation of policies to answer those demands. In this study, we take Ostrom's (2003) social capital definition; it

states that trustworthiness, networks, and institutions are the resources necessary to build collective action. Networking is the level of individual engagement in a particular network and depends on both shared objectives and trustworthiness. Trustworthiness represents the confidence that others in the network inspire in the trustor and that, at the same time, motivates behaviors of reciprocity toward the trustees. Institutional environment joins rules, norms, and socially accepted behaviors that restrict people's behavior. Although before Ostrom other authors (Bourdieu, 1986; Coleman, 1988; Robert D Putnam, 1995) recognized the existence of these components of social capital, the strength of her analysis is the detailed explanation of their interrelation to produce collective action.

According to literature on development, MOs induce the creation of social capital, and also take advantage of it to implement their diverse projects (Mondal, 2000). This bi-directional relationship compels to study MOs beyond their mere presence as previous studies suggest (Forero, Orozco, & Wills, 2016). Bebbington and Perrault (1999), for instance, analyzed Guamote, a case that illustrates the successful creation of social capital over a period of twenty years, and concluded that social and economic changes experienced by communities in Guamote happened due to the steady formation of local organizations oriented to Quichua communities. Moreover, this development of social capital happened at the intersection of different organizations (i.e., NGOs, the church, and Quichua communities) and at two different levels, the "local" and the "external." At the local level, both churches and committed reformists took an active role in promoting bilingual education (Quichua and Spanish) and empowering local young leaders in indigenous organizations and development projects. At the external level, local organizations started to connect with each other through federations. These federations enabled community-level organizations to coordinate and gain the power to negotiate with the state. Later, in 2002, Bebbington and Carroll expanded on the process of developing induced social capital at the "external" level. For these authors, the most important role of MOs for creating social capital extends beyond the provision of money and technology. In fact, it is to promote associational networks and human capital that communities accumulate social capital (A. Bebbington & Carroll, 2000, p. 16). Accumulating social capital is key in order to become independent from external actors, and in order to create sustainable social capital it is necessary to empower communities and generate a sense of ownership towards local organizations (Wetterberg, Brinkerhoff and Hertz (2015); Garcia Lozano and Heinen (2016)). Additionally, McDougal and Caruso (2016) introduce the important role that NGOs play in monitoring the operation of corporate concessionaries that in many cases abuse power and/or block smaller scale agricultural production. Their study corroborates that MOs are usually established to strengthen and build on pre-existing "natural" social capital of the community (A. Bebbington & Perreault, 1999; A. J. Bebbington & Carroll, 2002; Woolcock, 1998).

Literature also shows some risks regarding intervention by MOs. For instance, longstanding relationships between local organizations and external donors have the risk of becoming paternalistic in nature (A. Bebbington & Carroll, 2000, p. 36). When this happens, induced social capital tends to collapse after external support stops. Likewise, Vervisch and Titeca (2010) and Prasad Adhikari and Goldey (2010) show that if efforts to create sustainable social capital fail to align the goals and measures of external interventions with local social dynamics, then induced social capital might create incentives to adopt corrupt and opportunistic practices, as Woolcock's (1998) analysis described.

These studies show a relationship between social capital and intervention by MOs, whose outcomes depend on the alignment of objectives between communities and MOs (Woolcock, 1998). MOs not only provide resources or services that are unreachable by rural producers, but also strengthen the institutional capital that allows rural producers to be part of the economic dynamic and maintain their functional status. When this happens, the relational capital establishes relationships between producers, MOs, and other organizations beyond the limits of a rural producer's community. Relational capital offers several elements: social networks built beyond the social perspective for economic objectives, experience in networks that facilitate the interrelation with other networks, and perhaps access to resources (given the bridging function of MOs). Forero, Orozco and Wills (2016) use cluster analysis to define four groups of productive units, and one of the variables they use to describe these groups is the perception of the presence of MOs. Nonetheless, Woolcock (1998) criticizes NGO studies arguing that it is necessary to consider the objectives of the specific projects and programs of these organizations and their alignment to the particular needs of the rural community.

Regarding experience in networks, it should be noted that networks not only benefit members that maintain relationships, they also provide an education in relationships, trust, and reciprocity. This education becomes an asset for the individual, who may use it in other contexts or networks, assuming new challenges based on the resources he/she possesses. Although Ostrom (2003) highlights trustworthiness as an important factor to collective action, we observe that trustworthiness is a variable asset determined by the type of relationship. In this way, reciprocity in a close community has a different meaning than reciprocity among members of a religious community, because the relationships in the first network have been built during long time ago, without any particular objective. In contrast religious community has the religious practice as an objective among other. Even though in both cases there is reciprocity, the trustworthiness offered in each type of relationship is different. Thus, we focus on relational capital as the main component of social capital that influences the participation of rural producers in MO programs, as it implies different levels of trustworthiness according to the social relationships of rural producers.

Consistent with the previous findings, it is expected that MOs take advantage of the existing social capital of communities to perform their programs. We follow Woolcock

(1998) to hypothesize that relational capital is an important source for the effectiveness of MO intervention, observed as the participation of rural producers in MO programs (A. J. Bebbington & Carroll, 2002).

Integration to the market

Development research and practice during the last few years have focused on integrating farmers to the market as a strategy against poverty (Bingen, Serrano, & Howard, 2003; Biénabe et al., 2004; Ortmann & King, 2007). Through IM rural producers capture economic value from their goods; they introduce these goods in the supply chain that will carry them to the final consumer, who will pay the final price for them.

The foundation of integration takes a hybrid form (Biénabe et al., 2004; Williamson, 1991) in which an organization, in order to receive benefit from goods or services, neither transacts directly into the spot market nor shapes hierarchies to maintain control over its main productive factors (Ménard, 2004). Hybrid forms are defined by long- or medium-term relationships. Under these contracts, each part yields some of its control over the product in exchange for reducing transaction costs of different parts of the contract. The decrease of transaction costs becomes hybrids forms an efficient organizational form, when the transaction costs under hierarchies or spot market are higher. According to Williamson (1991), these transaction costs determine the higher or lower propensity to engage in hybrid organizations. Asset specificity and the frequency of disturbances of the market are two factors that motivate engagement in hybrid organizations.

Given the absence of a specific definition for IM, we use it to refer to the medium- and long-term contracts and arrangements that rural producers engage in to incorporate their goods to the productive chain, reach the market, and acquire their inputs. Those maintaining an institutionalist perspective (Forero-Pineda et al., 2014; Ménard, 2006) observe the importance of distinguishing between hybrids of production and hybrids of distribution, given the different uncertainties that each process entails. IM closely relates to the concept of hybrid forms of distribution.

Perception of insecurity is another variable recently related to IM in rural areas as a hybrid form.[1] In an insecure context, rural producers accede to resources necessary to integrate their productive capacity into the market through productive chain links. By doing so, producers break the stage of isolation caused by insecurity and violence; they are able to recover some control of the productive chain and obtain the expected economic value (obtaining incomes and closing the business cycle of value). Note that violence is different from insecurity. The first one refers to "*the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological*

[1] In this section we will refer to hybrid forms to refer to rural associative organizations, which have been the main focus of the literature.

harm, maldevelopment or deprivation" (Dinesen et al., 2013) and traditionally counts the different symptoms of violent actions that occur in a specific location, such as army clashes, homicides, and kidnappings, among others. Perception of insecurity relates to fear of crime, or the fear that an individual perceives themselves as a victim (Liska, Lawrence, 2001; Kessler, 2008). The latter represents a psychological stage that may be caused by violence, but is not necessarily caused by violence, as some studies have demonstrated (Vélez, Trujillo, Moros, & Forero, 2016; Wills-Herrera et al., 2011). In order to figure out their perception of insecurity, individuals filter their comprehension of violence symptoms through their own psychological characteristics and add other elements relevant to them.

The relationship between violence and insecurity, and hybrid forms and IM, are seldom studied. One of these studies is by Ragasa and Golan (2014), who found that the performance of rural producer organizations is related to enabling environment, external linkages, and good governance. The long tradition of Colombia as a violent country is an exceptional laboratory to understand the dynamic of violence and insecurity (Vargas & Caruso, 2014). In rural areas, peasants are the most affected by conflict given the weak presence of the state (Engel & Ibáñez, 2007) in comparison to urban areas. In this context, Forero et al. (2014) showed that violence and perceived personal and political insecurities are positively related to the existence of hybrid forms to produce and to distribute. In contrast, the study of Velez et al. (2016) found that subjective insecurity is negatively related to cooperation, while the exposure to violence is positive related to it. Differences in these studies are explained by their methodological approaches, which capture different human aspects. While Forero et al. (2014) based their study on a survey to rural producers regarding their ideas of association and cooperation, Velez et al. (2016) performed field experiments and defined cooperation among rural inhabitants as their mindset or willingness to cooperate.

Hybrid forms in post-conflict environments have received much more attention around the world, particularly in Africa and Asia, where it is expected that they promote development after the social web has been broken (Fanthorpe & Maconachie, 2010; Ortmann & King, 2007; Ragasa & Golan, 2014; Weingart & Kirk, 2008). Weingart and Kirk (2008), for instance, show that producers' associations in Cambodia were not enough to promote development after the democratic system was reestablished in 1993. The absence of governmental institutions to guarantee the property rights over which households derive their income and the deep injuries suffered during the civil war (which have not healed) lead to a lack of trust in institutions and the consequent limited working of agriculture cooperatives. In South Africa, Ortmann and King (2007) corroborate previous findings, and additionally report that inadequate infrastructure and poor access to input markets both contribute to the failure of hybrid forms. Zulu and Wilson (2012) point out that cooperatives created to take advantage of mining did not comply with the objective to

increase the income of the communities and reduce their poverty. In contrast, they served a system whose asymmetries of power benefitted the traditional elites.

The conclusions of Ragasa and Golan (2014) are useful to summarize previous findings. For them, an enabling environment, good governance, and security are requirements for rural producers' organizations to fill the gap in the service provision in fragile states. As mentioned, this context of fragility is where MOs have been called to participate and contribute in shaping the institutional environment. The following section shows how these MOs contribute to farmer IM.

Integration to the market by MOs

In the Latin American context, Helmsing calls attention to a new generation of policies that started in the 90s involving the private sector and NGOs as actors. Although these are endogenous to the region, they also take into account "*the position and the positioning of territorial production system within a global context*" (2001, p. 3). These policies, focused on development, are being pushed by governments in Latin America to incentivize economic growth. He calls it the "new institutionalism," which is grounded in the idea of empowering local economies. This speaks to Putnam's view that engaged civil societies generate efficient governments and economies. Helmsing (2001) and Rasiah and Vinanchiarachi (2013) describe how the creation of private-public initiatives (donors) have played an important role in developing MOs that allow the effective coordination between firms, intermediary organizations that facilitate the IM, and macro institutions. Also, examples of MOs in Latin America have focused either on knowledge-sharing initiatives for business development or on promoting the development of infrastructure.

Researchers highlight that MOs facilitate IM when they meet the specific rural producers' needs, not only working to supply them but also to strengthen the human and social capital of rural communities (Bingen et al., 2003). Bingen et al. define a typology of these interventions: contract/business intervention, project/technology, and process/human capacity. Each of these answers to specific needs of both the contexts and the farmers. According to Bingen et al., associations related to contract/business and project/technology are instrumental; to the extent that they are motivated by obtaining resources from NGOs. There is some risk in these cases because the relationship between membership and leadership is passive, and there is no peasant empowerment. On the contrary, when interventions promote the development of process/human capacities, there is a long-term implicit objective because it is based on the strength of human and social capital. IM could be temporal (instrumental) if programs are not oriented to the producers' appropriation of the bridges that MOs build. IM is also at risk when the institutional context is weak. Ortman and King (2007) offer an example, analyzing whether producer cooperatives comply to integrate farmers to the market. Their study in South Africa shows that without an appropriate institutional context, producer cooperatives were not able to understand their role or control free-riders by themselves, which ended up reducing their legitimacy.

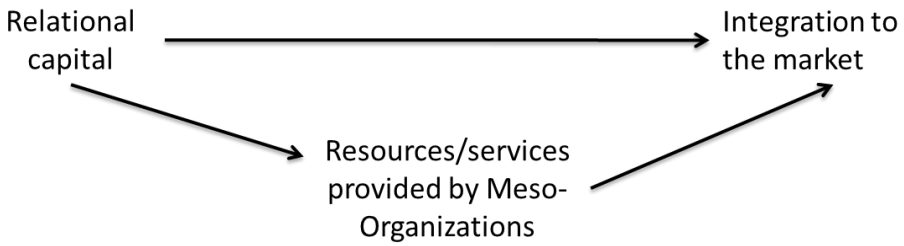
In a study for the World Bank, Bienabe and colleagues (Biénabe et al., 2004) suggest a typology of farmers according to their level of IM. They observe that smallholder farmers have more difficulties integrating to the market because they face production and trade constraints, among which they highlight barriers to entry, transaction costs, and asymmetry of both information and negotiation. This typology would allow the Bank as a donor (and other MOs) to identify the producers' needs. The ample set of projects reviewed by Bienabe et al. (2004) allow them to conclude that integrating small farmers to the market should include the social and symbolic functions embedded in agricultural products and in farmer function, such as those Geertz (1961) had noted. Additionally, they highlight that the success of farmers' IM is highly dependent on the existence of resources (land and labor) and the risk market, which determine the opportunities to secure earnings for their products.

According to previous studies, we contend that in a context of violence and insecurity, in which the institutional capital and even the social capital are weak, MOs facilitate rural producers' IM by offering them different types of services and products.

Additionally, we argue that MOs leverage the relational capital of rural producers to facilitate their IM. As previously mentioned, MOs bridging rural producers with external resources requires them to feed off the trust and relationships with farmers in their community networks. But this relational capital, as part of social capital, has also been related to collective economic outcomes. Researchers observe the activities oriented to economic outcomes are part of collective action or of its results (Mondal, 2000; Ortmann & King, 2007). According to Wallis, Kullerby, and Dollery (2004), social capital is related to economic performance, through "*facilitating the coordination, the early adoption of technologies among others, the development of effective institutions and scale economies, greater provision of public goods, improved management of common property resources and lower social costs*" (p. 245). Trust makes less explicit contracts possible, and lowers the likelihood of transgressing them, which reduces transaction costs (Latynskiy & Berger, 2016; Wallis et al., 2004). With the perspective of development, social capital may trigger hybrid forms, or those organizations whose objective is the economic benefit of their members as part of the collective action, and among these hybrid forms is IM.

A manner of summary, figure 1 shows the suggested model for the relationships between social capital, integration to the market and services provided by MOs.

Figure 1. Suggested model for the relationship between relational capital, integration to the market and services provided by MOs.



Methodology

Data Sample

The data used in this investigation comes from the second round of the project *Insecurity and Associative Forms* conducted by the University de los Andes in association with the Departamento Nacional de Planeación from Colombia[2]. In Colombia, the figures of violence originated by the conflict started to decrease after 2008, being more accentuated after 2012 when the talks both to finish the violent actions and to sign a peace agreement with the largest illegal group started. These trends framed the study in a post-conflict context in spite of the final agreement had not been signed at the time of the study and that other forms of violence start to emerge, as indicated by Idrobo et al (2014): "*that legal and illegal mining is replacing coca growing as the main source of violence in the country*". According to these authors, this kind of violence manifests in an increasing number of homicides and massacres, but neither armed clashes nor displacement increase because the illegal armed groups that try to control the activity, require the stay of communities for the mining activity. The sample was collected in September 2015 from 1680 rural producers. These rural producers were located in 168 rural districts that belong to 56 municipalities and eight regions. We interviewed chiefs of production units, understood as rural locations where agroindustry or agricultural activities take place.

Variables

In the construction of some variables, we grouped producers' answers with iterated principal factors as method. For categorical answers it was assumed that the classification reported is associated to a set of latent variables with normal distributions that follow a multivariate normal distribution. Then, following a maximum likelihood estimation a

[2] See Forero, Orozco and Wills (2015) for details regarding the questionnaire and the methodological approach for the field work.

correlation matrix is created under the *polychoric* procedure. For binary variables, a latent relation of bivariate kind was assumed to exist between each pair of variables and a *tetrachoric* matrix was estimated. In the following we describe the variables for the study. In the following we describe the constructs and in Appendix 1 we present the detailed of them.

There are two dependent variables. The first one is services/resources provided by MOs. Rural producers were asked by the benefits they obtained from the most important MO for them. This question facilitates focusing on the supplied resources independent on which MO offered them. The producer choices were transformed with factor analysis in three different variables: internal skills provided by MOs (Cronbach´s alpha 0.822) joins the actions of MOs focused on helping productive units to improve their productive internal skills and capacities, services of connections provided by MOs or the function of connecting rural producers with other organizations that might facilitate the productive activities (Cronbach's alpha 0.634), and the last vector was shaped just for the variable that indicates if the program offers financial aid to the productive unit.

Integration to the market is the second dependent variable. Factor analysis described above allowed grouping questions regarding long-term or medium-term contracts that support the acquisition of seeds, the quality assurance, and the introduction of the products in the productive chain. This construct is aligned to the variable that Forero, Orozco and Wills (2014) figured out for hybridization in distribution. This vector has a Cronbach's alpha of 0.455. The independent variable of this exploration is actually relational capital. However, as Ostrom (2003) and Putnam (R.D. Putnam, 2001)have proposed, relational capital is only one component of social capital. Reducing social capital to relational capital generates confusion.

Two types of variables were created to explain this topic based in one question with 12 types of membership in social groups. The first kind is a unique additive index of the number of participations in different groups. The second type is a set of four variables created by factor analysis: close community relational capital (Cronbach's alpha 0.561), relationships with government and control organizations (Cronbach's alpha 0.362), participation in woman groups (Cronbach's alpha 0.424) and belongingness to religious organizations.

Regarding control variables, this study considers five types. First, insecurity includes four vectors that emerged from 13 different questions based on a five-point Likert scale, these vectors are personal insecurity (Cronbach's alpha 0.739), communitarian insecurity (Cronbach's alpha 0.485), economic insecurity (Cronbach's alpha 0.675) and insecurity generated by illegal armed groups (Cronbach's alpha for this variable is 0.418). The second group refers to components of social capital that were not the focus of the study: three indexes of trust in the close community, in the far community, and in the State.

Additionally a variable for the presence of the state was considered. Control variables of individuals include: age, gender, time of residence in the rural district, number of children and educational level. Controls variables of the production unit were: size of the productive unit, distance to the nearest market, an index of the perceived price instability and an index of assets specificity. The last kind of controls includes municipal level variables such as GDP in 2009, average education, and rate of different indexes of violence such as homicides, kidnappings, extortions, robberies to persons, to rural residencies, to commercial places, victims of anti-personnel mines, and displacement. Some violence rates were omitted to avoid multicollinearity.

Model Selection

This study uses a panel by municipalities without temporal component. This model allowed consider effects at the municipality level that may affect the dependent variables but that are not possible to observe, for instance, the long tradition of violence and culture that have been locally assumed (in the municipality). Furthermore, the hypothesis that the constant effects in the residual term of the estimation were equal to zero (Breusch-Pagan test) was rejected at 5% in all the models. The panel was estimated using random effects under the assumption that the grouped effects previously described don't correlate with the independent variables of the models. Without such assumption, endogeneity might be present and the estimations would be biased. Hausman test suggested that the random effect estimator is consistent and efficient at a confidence level of 5%. All the models were estimated using robust errors to avoid heteroscedasticity problems that were identified in preliminary estimations.

Results

Before presenting the models we first present in Table 1 the descriptive statistic and the correlation matrix for the variables included in the model.

Table 1

Correlation matrix and descriptive statistics

	Variable	1	2	3	4	5	6	7	8	9	10	11	12
	Mean	.46	1.91	1.93	2.99	1.32	.26	.04	.06	.45	.44	0.15	0.44
	Standard Deviation	.47	.92	.70	1.08	.70	.30	.11	.17	.50	.40	0.27	0.50
1	Integration to market												
2	Personal Insecurity	-.05**											
3	Communitarian insecurity	.09***	.33***										
4	Economic Insecurity	-.07***	.12***	.14***									
5	Insecurity by armed groups	-.03	.3***	.22***	-.01								
6	Ties family and neighbors	.03	.05*	-.02	-.11***	.07***							
7	Ties govern. & control org.	.11***	.04	.01	0	.02	.21***						
8	Ties women orgs	-.06**	.11***	-.02	.05**	.03	.22***	.17***					
9	Ties religious communities	.14***	.15***	.04	.02	.1***	.18***	.15***	.23***				
10	Internal skills by MOs	.24***	-.07**	-.08***	-.15***	.01	.13***	.11***	.03	.02			
11	Connections by MOs	.21***	-.04	-.05*	-.09***	0	.06**	.1***	.02	.06**	.53***		
12	Financial support by MOs	.05**	-.01	-.08***	.07***	.01	-.06**	-.02	.02	.09***	.05*	0.14***	

Notes: In variables: (j) indicates a variable at the municipal level; significance: p<.01, ** p<.01 and *** p<.10; significance is determined with robust errors. Other control variables are omitted

The analysis was separated in two parts. The first part considers the unique additive index of relational capital. The second part divides this relational capital in sub-groups, whose meaning was aligned to the structure rising from factorial analysis.

Table 2 presents the results for the resources and services provided by MO as dependent variables. There are two models for each variable, the first model includes only the control variables and the second model includes the producers' general index for relational capital. Models 1a and 1b have *internal skills* as dependent variable, models 2a and 2b have *connections* as dependent variable and model 3a and 3b regress financial aid. Models 1a and 2a include the control variables' for each dependent variable. Model 1b shows that relational capital, measured as the total number of ties of producers, is related to the variable internal skills (β=.036, $p<.01$) provided by MOs. Likewise, model 2b shows that this relational capital is also related to the connections (β=.112, $p<.05$) provided by MOs. However, model 3b shows that relational capital of rural producers is not related to the financial aid provided by MOs. These relationships give support to the statement that rural producers use their relational capital to participate in MO programs, specifically in those programs that develop internal skills and connections, but no in programs that provide financial resources.

Regarding control variables, it should be noted that the effects of insecurity and violence are diverse. Economic and communitarian insecurities are negatively related (-β=.037 and β=.-.03 respectively) to the participation in MO programs, while insecurity by armed groups is positively related (β=.042) to the participation in programs that develop internal skills. This shows that the existence of risks associated to the close community or to the productive unit (communitarian and economic insecurity) prevents rural producers of participating in MO programs. However, if the perceived threats of insecurity come from outside the community from armed groups, rural producers are motivated to participate in these programs. This argument is aligned to the negative relationship between trust in close people and connections by MOs (β=.02).

Table 2

Panel data models for services/resources supplied by Meso-Organizations

	Internal skills by MOs		Connections by MOs		Financial Aid by MOs	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
Total number of ties		0.035***		0.020***		0.003
Trust in close people	-0.012	-0.015	-0.043***	-0.045***	-0.038	-0.039
Trust in far people	0.011	0.008	0.011	0.010	-0.012	-0.012
Trust in government	0.038	0.033	0.025	0.023	0.015	0.015
Presence of State	0.001	0.001	0.000	0.000	-0.003**	-0.003**
Personal Insecurity	0.005	0.003	0.008	0.007	-0.020	-0.020
Communitarian insecurity	-0.038*	-0.037*	-0.038***	-0.037***	-0.061***	-0.061***
Economic Insecurity	-0.031***	-0.030***	-0.007	-0.006	0.009	0.0089
Insecurity by armed groups	0.045***	0.042***	0.012	0.011	0.022	0.022
Distance to closest market	0.000	-0.001	0.000	0.000	0.001	0.001
Area	-0.001	0.001	0.003	0.003	-0.006	-0.006
Price instability	0.057***	0.064***	0.012	0.014	0.014	0.014
Asset specificity	0.042***	0.036***	0.031***	0.027***	0.042***	0.041***
Age	0.000	0.001	0.001	0.001*	0.001	0.001
Female gender	-0.026	-0.026	-0.007	-0.007	-0.102***	-0.103***
Number of Children	-0.012***	-0.013***	-0.010***	-0.011***	-0.004	-0.004
Years of education	0.042**	0.040**	0.020**	0.018**	-0.046**	-0.046**
Time of residence	-0.005	-0.015	-0.008	-0.014	0.003	0.003
PIB total municipal	-0.001	-0.004	-0.007	-0.010	-0.054*	-0.054*
Average education (j)	0.021	0.020	0.022	0.023	-0.009	-0.009
Homicides rate (j)	-0.033*	-0.034*	-0.010	-0.011	0.021	0.020
Kidnappings rate	-0.042***	-0.033**	-0.010	-0.005	0.034	0.035
Extortions rate (j)	0.048	0.044	0.018	0.015	0.011	0.010
Terrorism rate (j)	0.005	-0.002	-0.003	-0.007	0.022	0.022
MAPs rate (j)	-0.010	-0.015	0.000	-0.002	-0.026	-0.027
Displacement rate (j)	-0.085***	-0.064***	-0.018	-0.006	0.013	0.014
Pers. rob rate (j)	0.003	0.002	-0.001	-0.002	0.018	0.018
Comm. rob rate (j)	-0.010	-0.007	-0.012	-0.010	-0.016	-0.015
Constant	0.324	0.307	0.119	0.103	1.093***	1.087***
Observations	1,337	1,337	1,337	1,337	1,337	1,337
R2 within	0.066	0.090	0.050	0.067	0.035	0.036
R2 between	0.521	0.535	0.221	0.266	0.284	0.279
R2 overall	0.180	0.201	0.085	0.100	0.089	0.088

Notes: In variables: U is Urban, R is rural and (j) indicates a variable at the municipal level; significance: * p<.01, ** p<.01 and *** p<.10; significance is determined with robust errors.

The findings for IM are presented in Table 3. Model 1 includes the whole set of control variables. In this model just the communitarian insecurity (β=.05, p<.05), among the four insecurity perceptions variables, had a positive relationship with the dependent variable. Regarding trust as component of social capital, its three components (in close people, in far people and in government) are not related to the presence of economic

associative. Among control variables only those related to the property and productive activities and with violence indexes at the municipal level are related to the associate organizations. In particular, not all the indexes of violence show a positive relationship to IM. Among the indexes of violence homicides is positively related to IM, and displacement and MAPs pates are negative related. These diverse results should motivate a deepen analysis of the dynamic of violence in post-conflict environments. Model 1b adds to the previous model the relational capital vector. As expected, the total number of ties is positively (β=.p<.01) related to the economic associative organizations. This result corroborates previous findings in the literature (A. J. Bebbington & Carroll, 2002; Lozano & Heinen, 2016; Wetterberg et al., 2015).

Table 3 also present the models for the relationship between the resources provided by MOs and IM. Models 2a, 2b and 2c add the provision three different resources by MOs. Whilst Models 2a and 2b show positive relationships between *internal skills* (β=.139, p<.01) and IM, and between *connections* (β=.152, p<.01) and IM respectively, model 2c shows no relationship for the *financial aid* supplied by MOs. In model 2d of Table 2, it is also possible to appreciate that when the three types of resources are included, just the provision of internal skills continues being significant to explain IM. These findings confirm that the participation of producers in MO programs that develop mechanisms to improve the internal skills and to strengthen connections among rural producers and organizations external to their communities positively influences IM. However, when MO programs are focused on providing financial resources, there is no relationship with IM. Regarding controls, we highlight that the influence of communitarian insecurity leaves to be significant under the presence of resources provided by MOs. This result suggests that MO programs mediate the relationship between communitarian insecurity and IM, which we interpret as these MOs are able to transform perceptions of insecurity in projects that integrate farmers to the market.

Table 3

Panel data models for farmers' integration to the market

Variables	(1a)	(1b)	(2a)	(2b)	(2c)	(2d)	(3)
Internal skills by MOs			0.139***			0.112***	0.105**
Connections by MOs				0.152***		0.082	0.077
Financial support by MOs					-0.005	-0.017	-0.018
Total number of ties		0.021***					0.011
Trust in close people	-0.008	-0.010	-0.015	-0.010	-0.017	-0.012	-0.014
Trust in far people	0.008	0.007	0.004	0.004	0.006	0.003	0.003
Trust in government	0.012	0.010	0.020	0.021	0.025	0.019	0.018
Presence of State	-0.002	-0.002	-0.003*	-0.003*	-0.003*	-0.003*	-0.003*
Personal Insecurity	-0.006	-0.008	0.003	0.003	0.004	0.002	0.002
Communitarian insecurity	0.047**	0.049**	0.029	0.030	0.024	0.030	0.030
Economic Insecurity	-0.011	-0.011	-0.016	-0.020*	-0.021*	-0.017	-0.016
Insecurity by armed groups	-0.032	-0.034	-0.025	-0.020	-0.018	-0.024	-0.024
Distance to closest market	-0.001	-0.001	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
Area	0.017***	0.017***	0.018***	0.017***	0.018***	0.018***	0.018***
Price instability	0.032	0.035	0.015	0.021	0.022	0.015	0.016
Asset specificity	0.103***	0.100***	0.090***	0.090***	0.092***	0.086***	0.084***
Age	0.001	0.001	0.001	0.000	0.001	0.001	0.001
Female gender	0.005	0.004	0.013	0.011	0.008	0.011	0.010
Number of Children	0.000	-0.001	0.000	0.000	-0.002	0.000	0.000
Years of education	0.008	0.006	-0.006	-0.003	0.000	-0.007	-0.007
Time of residence	0.011	0.005	0.022*	0.022*	0.021*	0.023*	0.020
PIB total municipal	0.016	0.014	0.002	0.003	0.002	0.002	0.001
Average education (j)	-0.028	-0.028	-0.043	-0.044	-0.039	-0.045	-0.045
Homicides rate (j)	0.085**	0.084**	0.087***	0.084**	0.082**	0.088***	0.087***
Kidnappings rate	-0.027	-0.021	-0.025	-0.029	-0.031	-0.025	-0.022
Extortions rate (j)	-0.003	-0.006	-0.016	-0.012	-0.010	-0.016	-0.018
Terrorism rate (j)	-0.018	-0.022	-0.027	-0.026	-0.026	-0.027	-0.029*
MAPs rate (j)	-0.084***	-0.087***	-0.080**	-0.082**	-0.081**	-0.081**	-0.083**
Displacement rate (j)	-0.072**	-0.060**	-0.055**	-0.064**	-0.067**	-0.056**	-0.050*
Pers. rob rate (j)	-0.023	-0.025	-0.046	-0.045	-0.045	-0.046	-0.046
Comm. rob rate (j)	-0.082*	-0.0811*	-0.102**	-0.101**	-0.103**	-0.101**	-0.101**
Resid. rob rate (j)	0.065	0.069	0.100*	0.102**	0.101*	0.100**	0.102**
Constant	0.430	0.427	0.664	0.690	0.710	0.685	0.681
Observations	1,680	1,680	1,337	1,337	1,337	1,337	1,337
R2 within	0.109	0.116	0.097	0.092	0.084	0.099	0.102
R2 between	0.469	0.468	0.573	0.573	0.548	0.577	0.571
R2 overall	0.222	0.227	0.252	0.248	0.233	0.256	0.254

Notes: In variables: (j) indicates a variable at the municipal level; significance: * p<.01, ** p<.01 and *** p<.10; significance is determined with robust errors.

The last analysis refers to whether or not MO programs leverage in the existent relational capital to facilitate IM, which corresponds to a mediation analysis of the MO programs for the relationship between relational capital and IM. To perform it, we consider the three-step method suggested by Baron and Kenny (1986), for the two resources /services of MOs that were related to IM, *internal skills* and *connections*. The first step, which indicates that variations in levels of the independent variable significantly account for variations in the presumed mediator, was demonstrated in Table 2. These results give support to the first step for the mediations of the resources. Note that in both cases, the explanatory capacity of these variables, related to resources/services MOs provide, allows increasing the explained variance in both levels of analysis, productive unit and municipality. When internal skills is the DV, the overall R2 increases 2% from 0.18 to .20; and, when connections is the DV, the overall R2 increases in 1.5%. This difference in the explanatory capacity of the variables is related the reduced explanatory capacity of connections when the three resources are part of the model, such as it was explained around the model 2d in Table 3. To strengthen the analysis we performed the regression considering the mediator variable as independent to verify that the relationship was in the predicted direction. These results, which do not show significant relationship between MO services and relational capital as dependent variable, are reported in Appendix 2.

Regarding control variables, it should be noted that the different types of resources provided by MOs, relate differently with these variables. For instance although communitarian insecurity is negatively related to each type of resources supplied by MOs, the insecurity emerging from the presence of armed groups is positively related only to the provision of internal skills by MOs. Likewise, the indexes of violence relates differently with each type of resource of MOs. Most of them are positively related to the provision of *financial aid*.

The second step in the method to corroborate the mediation effect indicates that variations in the mediator, resources provided by MOs, significantly account for variations in the dependent variable, IM. This step was previously validated in Table 3 with the models 2a and 2b, in which internal skills and connections have positive coefficients in their relationship with IM contributing to explain a 2.4% and a 2.3% of its overall variance when they are considered in separated models (models 2a and 2b) and a 2.9% when both resources are included at the same time (model 2d). The last step suggests that the strongest demonstration of mediation occurs when controlling by the mediator variable the direct impact of the independent variable is zero. Model 3 in Table 3 presents the validation of this step. Additional to control variables, this model includes the global variable for relational capital and the resources provided by MOs, internal skills, connections and financial aid. Just the resource internal skills keeps a positive relationship (β=.102, $p<.05$) with IM, demonstrating its mediator effect not only for the relationship between relational capital and presence of economic associative organizations but also for the connections

provided by MOs and IM. The explained overall variance is slightly superior (0.5%) to the explained variance in models 2a and 2b that include just the resource provided by MOs.

To strengthen the analysis and offer a higher likely to have practical implications for these findings, we repeat the previous procedures including four different indexes of relational capital instead the global variable. As mentioned, these indexes emerged from a factor analysis procedure and include ties with family and neighbors, ties with government and control organizations, ties with women organizations and ties with religious communities. Model 1a in Table 4 shows the relationship between these variables and IM. It is interesting to note that the networks relate differently with the dependent variable. Whilst ties with family and neighbors are not related with IM, ties with government and control organizations and with religious communities are positively related to IM. In contrast, ties with women organizations are negatively related to IM. The joint effects showed in model 1b of Table 3 masked specific effects of constructs clearly differentiated, which represents underlying behaviors and choices of rural producers.

Regarding how these relational capital constructs relate to the resources provided by MOs, the models 2a and 2b in the Table 4 represent these relationships with *internal skills* and *connections* respectively as DVs. To develop internal skills in rural communities, MOs support its activity in ties with family and neighbors and with religious communities. In the development of connections for productive activities, the ties with government and control organizations and with religious communities are relevant. It should be noted that the overall explained variance by the itemized relational ties is almost the same as the explained variance by the global index of relational capital (see models 1b and 2b in Table 2). However, the specificity of the itemized ties provides more information regarding the kinds of ties that should be present in the community for the effectiveness of MOs in the provision of these resources.

Table 4

Panel data models for itemized relational capital.

	Integration to the market				Internal skills by MOs	Connections by MOs
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)
Internal skills by MOs		0.135***		0.112***		
Connections by MOs			0.139***	0.069		
Financial support by MOs				-0.014		
Ties family and neighbors	-0.003	-0.032	-0.024	-0.032	0.111**	0.047
Ties govern. & control org.	0.335***	0.303***	0.301***	0.295***	0.135	0.140*
Ties women orgs	-0.174**	-0.169**	-0.159*	-0.167**	0.099*	0.022
Ties religious communities	0.105***	0.063*	0.064*	0.062*	0.041**	0.040*
Trust in close people	-0.008	-0.014	-0.009	-0.012	-0.014	-0.044***
Trust in far people	0.012	0.008	0.008	0.007	0.010	0.012
Trust in government	0.007	0.014	0.016	0.014	0.033	0.022
Presence of State	-0.002	-0.003*	-0.003*	-0.003*	0.001	0.000
Personal Insecurity	-0.007	0.004	0.003	0.003	0.004	0.008
Communitarian insecurity	0.046**	0.027	0.028	0.028	-0.036*	-0.038***
Economic Insecurity	-0.010	-0.016	-0.0191*	-0.016	-0.030***	-0.006
Insecurity by armed groups	-0.031	-0.023	-0.018	-0.022	0.043***	0.012
Distance to closest market	-0.001	-0.001**	-0.001**	-0.001**	-0.001	0.000
Area	0.016***	0.017***	0.017***	0.017***	0.001	0.003
Price instability	0.040	0.019	0.025	0.019	0.062***	0.013
Asset specificity	0.095***	0.082***	0.083***	0.082***	0.037***	0.027***
Age	0.001	0.000	0.000	0.000	0.001	0.001*
Female gender	0.004	0.015	0.012	0.013	-0.027	-0.008
Number of Children	0.000	0.000	0.000	0.001	-0.013***	-0.010***
Years of education	0.006	-0.008	-0.005	-0.009	0.042***	0.019**
Time of residence	0.005	0.019	0.019	0.020	-0.013	-0.013
PIB total municipal	0.021	0.010	0.010	0.010	-0.005	-0.008
Average education (j)	-0.026	-0.040	-0.040	-0.041	0.021	0.024
Homicides rate (j)	0.073**	0.078**	0.075**	0.079**	-0.036**	-0.015
Kidnappings rate	-0.025	-0.026	-0.030	-0.026	-0.035**	-0.006
Extortions rate (j)	-0.004	-0.015	-0.011	-0.015	0.042	0.015
Terrorism rate (j)	-0.028	-0.033*	-0.033*	-0.033*	-0.001	-0.007
MAPs rate (j)	-0.080***	-0.077**	-0.078**	-0.078**	-0.013	0.001
Displacement rate (j)	-0.061**	-0.052*	-0.060**	-0.053*	-0.066***	-0.007
Pers. rob rate (j)	-0.017	-0.039	-0.039	-0.039	0.003	0.001
Comm. rob rate (j)	-0.086**	-0.105**	-0.105**	-0.105**	-0.008	-0.012
Resid. rob rate (j)	0.065	0.010*	0.099*	0.097*	0.026	-0.001
Constant	0.397	0.627	0.652	0.646	0.280	0.084
Observations	1,680	1,337	1,337	1,337	1,337	1,337
R2 within	0.131	0.112	0.106	0.113	0.085	0.065
R2 between	0.48	0.579	0.576	0.582	0.526	0.228
R2 overall	0.241	0.263	0.258	0.266	0.194	0.096

Notes: In variables: (j) indicates a variable at the municipal level; significance: * p<.01, ** p<.01 and *** p<.10; significance is determined with robust errors.

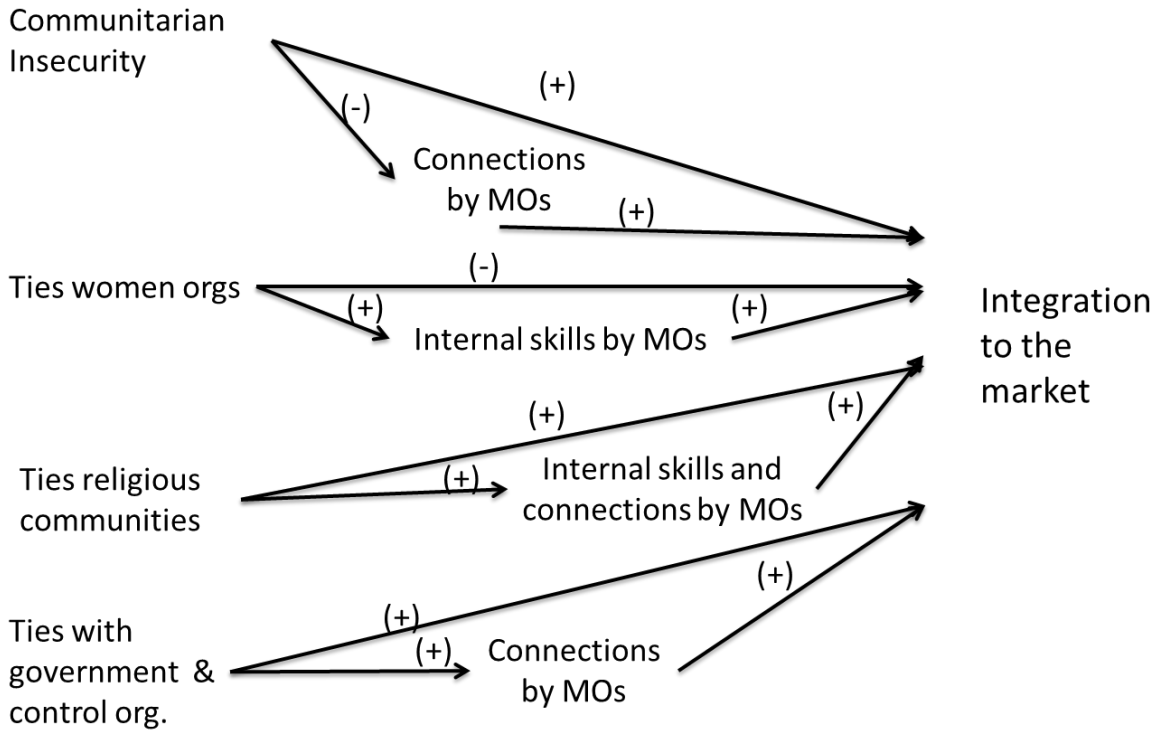
Given that in the first part there was validated that variations in mediators (internal skills and connections) accounted for variations in the dependent variable, just the third step of Baron and Kenny (1986) was required to validate the specific relations that are mediated. In this respect, models 1b, 1c and 1d in Table 4 include the mediator variables at the same time that the itemized variables of relational capital. In the three models the inclusion of the mediator variables reduces the coefficient for the *ties with government and control organizations* (from β=.335 to β≤.303) but its level of significance remains the same (p<.01). In this case, there is a partial mediation of the resource provided by MOs for the relationship between ties with government and control organizations and IM. These three models also show that although the significance of the ties with women organizations is reduced (from p<.05 to p<.10), the coefficients reduce a little (from β=-.174 to β≥-.159) after including the moderator variables. Finally, regarding *ties with religious communities*, the original positive relationship changes under the presence of the moderators: the coefficients decrease (from β=.100 to β≤.060) as well as the significance level (from p<.01 to p<.10). In this case, there is also a partial mediation. An additional result should be observed regarding communitarian insecurity, whose coefficient is not more significant (from β=.046*** to β≤.027) when including the resources/services provided by MOs, supporting a full mediation for the relationship between communitarian insecurity and IM. Comparing the two full models, the first with the global index of relational capital as mediator and the second with the itemized constructs of relational capital as mediators, it should be noted that the model with itemized constructs slightly explains better IM (R2 overall in model 1d in Table 4: .292 against R2 overall in model 2e in Table 2: .286).

Discussion

We find that in the context of violence and insecurity certain types of relational capital have positive effects on integration to the market. When searching for the channels of the influence of relational capital, we find that the relationship is mediated by the nature of the programs sponsored by the MOs. This result shows that the conclusions of the case analyzed by Bebbington and Carroll (2002) could be more general. Some of these programs are oriented to strengthen the productive units; other programs are oriented to facilitate the connections of rural inhabitants with the outside environment, including access to markets and to long term contracts, among others. The existence of one of these programs, when considered separately, is a predictor of the integration to the market of rural producers. Financial support programs do not show a significant effect on IM. The disparity in these effects occurs because the programs that facilitate connections with the market positively stimulate the association with other actors in the distribution chain. Programs that internally strengthen the productive unit are the best predictors of rural producers' integration to the market. One plausible explanation is related to the fact that internal improvement of the productive unit is reflected in better production capacities and products. As a consequence,

the commercialization of products through the integration to the market reduces transaction costs, which are relatively higher when the productive unit assumes this activity on its own. Figure 2 illustrates the main results.

Figure 2. Model for the summary of the main findings



Although relational capital based on social networks is usually accepted as a component of social capital (Ostrom, 1990), this study shows that social networks are diverse and whilst some of them may constitute a base for the MO programs, other types of social networks do not trigger the intervention of MOs. This difference, which is attributed to the intrinsic objectives of each type of network, sheds light on the relationship between relational capital and the IM effects of MOs.

This study illustrates the theoretical argument of Helmsing (2001) who argues that MOs may serve as makers of institutional capital, in communities where institutions are weak. Nonetheless, rural communities of the Colombian regions of this study, though in post conflict situation, have an inheritance of weak institutional capital associated with previous violent periods, and this makes difficult the integration of rural producers to the market.

Although Government policies and NGO strategies have been oriented to promote the overall development of these communities, through different types of programs, integration to the market should be a major objective of MOs, as a means to improve the income and level of development of the communities.

However, beyond the policy favoring the presence of MOs, the centrality of the state can continue to disadvantage them when policies are not defined in relation to the type of programs and services that should be promoted or when these policies are focused on granting of financial subsidies, which, as this study demonstrates, do not favor farmers' IM. As Forero, Orozco and Wills (2016) propose in general, MOs support is essential to rural life. What the findings of the previous section show is that the type of program adopted by the MOs is crucial in reaching the objective of integration to the market. Government and MOs can support the strengthening of productive associations and the integration to the market, two fundamental elements for the regional rural development in a post-conflict environment. This is the kind of adjustments theoretically suggested by Woolcock (1998) as guaranteeing the effectiveness of NGOs.

In an institutionally weak context, caused by violence and insecurity, several studies show that both ties with external communities and ties inside the community have been weakened. In a violent context, the productive capacities of rural producers are also affected and this study shows that the development of rural producers' productive capacities is an important factor to achieve integration to the market and the long-term development of these communities. Strengthening the connections with the environment is valuable to the extent that it allows reconnecting suppliers of products with demanders. Beyond this objective, strengthening productive capacities makes rural producers autonomous, gives them a greater chance of participating in the market under balanced conditions, and makes rural producers less dependent on neighbor local markets, and reaches more distant buyers.

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Appendix 1. Detailed questions that shape the variables

Integration to the market

Question	Load
Origin of production inputs: cooperatives, other producers by purchase or trade	0,0338
Buyers of production: to spot market with other producers, to known wholesalers, to cooperatives, to a producer union	0,0517
Long-term agreements to maintain the products quality	0,9360
Long-term agreements with the supply chain links	0,0036

Perception of insecurity

Construct	Question	Load
Personal insecurity	Neighbors fear for life in this rural district	0,3333
	Fear of robbery or physical aggression in the house	0,3269
	Fear of leaving the house due to insecurity of rural district	0,2567
	Necessity to be armed	0,2194
Communitarian insecurity	Freedom to participate in any kind of gathering	0,1830
	It is safety going outside in the night	0,2033
	Kids can play in the streets of the rural district	0,5976
	Perception of security provided by neighbors	0,1370
	Perception of security provided by belonging to social or religious groups	0,0305
Economic insecurity	It is possible to get the incomes to have a decent life	0,3057
	It is easy to make business in the municipality	0,5429
	Persons can associate to develop productive activities	0,2099

Relational capital

Construct	Question	Load
Ties to family and neighbors	Community action boards	0,1988
	Neighbor associations	0,1873
	Parents' associations	0,3996
	Sports teams	0,3039
Ties to government and control organizations.	Movements in pro of any cause	0,1662
	Political party or movement	0,0707
	Users' association	0,0755
	Citizen surveys	0,5973
	Rural development councils	0,2261
Ties to women organizations	Community mothers' associations	0,4301
	Women associations	0,4301
Ties to religious communities	Religion related group or organization	-

Trust

Construct	Question	Load
Trust in close people	Family nucleus	0,4381
	Rural district	0,4381
Trust in far people	Persons in the municipality	0,6981
	Persons in other municipalities	0,2244
	Mayor of the municipality	0,1120

Services provided by meso-organizations

Construct	Question	Load
To improve internal skills	Facilities for associativity	0,1414
	Technical support	0,2492
	Technical capacitation	0,1307
	Support for the organization of the production unit	0,3241
	Support for innovation	0,1512
	Possibilities for developing new productive projects	0,1192
Connections to the market	Possibilities for cooperation with other business	0,2918
	Long term contracts with other business	0,4492
	Access to markets	0,2724
Financial support	Financial aid	-
	Cronbach's alpha	**0,8223**

Appendix 2.

Panel data models for farmers' relational capital

	Total number of ties	Ties family and neighbors	Ties govern. & control org.	Ties women orgs	Ties religious communities
Internal skills by MOs	0.595***	0.076***	0.015	0.032**	0.058*
Connections by MOs	0.436*	0.031	0.029	0.005	0.095
Financial support by MOs	-0.007	0.005	-0.010	0.005	0.013
Personal Insecurity	0.038	0.008	-0.004	0.001	0.007
Communitarian insecurity	-0.020	-0.0111	-0.001	-0.005	0.011
Economic Insecurity	-0.008	-0.003	0.003	0.005	-0.013
Insecurity by armed groups	0.026	0.013	-0.002	-0.003	-0.012
Distance to closest market	0.004**	8.79e-05	0.0002*	0.0007***	0.001
Area	-0.036	-0.013***	0.0003	-0.001	-0.003
Price instability	-0.142	-0.003	-0.011	-0.006	-0.032
Asset specificity	0.126**	0.004	0.004	0.003	0.054***
PIB total municipal	0.139	0.072***	-0.005	0.003	-0.059*
Average education (j)	-0.037	-0.027	-0.009	0.016	0.039
Presence of State	-0.005	-0.001	0.001**	-0.0002	-0.002
Age	-0.009***	-0.003***	-0.000312	-0.001**	0.0004
Female gender	0.039	0.019	-0.0125*	0.004	0.039
Number of Children	0.034	0.008**	0.00187	0.002	-0.005
Years of education	0.039	-0.003	0.0100	-0.009*	-0.029*
Time of residence	0.285***	0.041***	0.011**	0.005	0.029*
Trust in far people	0.048	0.013	0.0029	0.009*	-0.040***
Trust in close people	0.116	0.017	-0.009	0.0001	0.029
Trust in government	0.088	-0.006	0.020	0.011	0.012
Homicides rate (j)	0.083	0.005	0.010**	-0.009	0.078**
Resid. rob rate (j)	0.022	0.038*	-0.003	-0.002	-0.089
Comm. rob rate (j)	-0.057	-0.027	0.005	0.001	0.026
Res. rob rate (j)	-0.134	-0.031	0.0005	-0.019	0.004
Kidnappings rate	-0.242***	-0.049***	-0.009***	-0.006	0.017
Extortions rate (j)	0.109	0.023	-0.0003	0.014	0.018
Terrorism rate (j)	0.181***	0.031***	0.007***	-0.008	0.048***
MAPs rate (j)	0.132	0.023	-0.006**	0.007	0.006
Displacement rate (j)	-0.503***	-0.074***	-0.017***	-0.033***	-0.076**
Constant	-0.840	-0.383	0.112	-0.161	0.756
Observations	1,337	1,337	1,337	1,337	1,337
R2 within	0.065	0.059	0.029	0.014	0.048
R2 between	0.479	0.342	0.530	0.466	0.425
R2 overall	0.147	0.109	0.084	0.087	0.158

Notes: In variables: (j) indicates a variable at the municipal level; significance: * p<.01, ** p<.01 and *** p<.10; significance is determined with robust errors.