"GRASSROOT DEVELOPMENT", INNOVATION AND RURAL PRODUCERS' ORGANIZATIONS: A MOZAMBICAN CASE STUDY

Carla Inguaggiato, Cecilia Navarra, Alex Vailati

1. INTRODUCTION

This paper presents the results of an interdisciplinary research project on rural producers' cooperative associations in the district of Morrumbala (Zambezia, Mozambique)[1]. The object of this study are the rural producers' associations that are members of the UDCM (*União Distrital dos Camponeses de Morrumbala*), an organization federated with UNAC (*União Nacional dos Camponeses*). After the Mozambique civil war, the Morrumbala district has been the target of many rural cooperative promotion projects. One of these projects targeted UDCM between 1994 and 2003. According to recent evaluations, these projects had very poor results. Some research questions arise from the analysis of this failure. These concern the patterns of introduction and diffusion of innovations in the agricultural activity, both at the production and at the organizational level. They also concern the relationship between local political structures and the development of producers' cooperatives. Is there some kind of "resistance" against the introduction of innovations in the/this context? To what extent does the leadership play a role in the performance and innovative potential of the associations? In 2006, an Italian NGO started a new project aimed at strengthening some of the rural producers' organizations in the same area. This new project, that is trying to take advantage of the lessons taught by previous experiences, represents the focus of our research, which can be partially seen as an on-going evaluation of it.

Our approach is interdisciplinary: the research group is composed of both anthropologists and economists. The perspective that we adopt aims to put the context first, without excluding the quantitative and comparative dimensions. Analyzing the role of the association as an engine of innovation, drawing both from economic and anthropological literature on the domain, we try to

[1] This research has been carried on within the Prin 2006 funding program named "Rural producers associations and grassroots development: the case of Morrumbala, Mozambique" of the Italian Ministry for Education and Research (MIUR). The project has been started and lead by Prof. Enrico Luzzati, who died at the end of 2008. He carried out the work until his illness prevented him from doing so. Our research group decided to continue the work, starting from his notes and documents. We thought this could be the best way to remember him, to honour his commitment to the study of grassroots development strategies and to give continuity to his strong relationship with Mozambique.

match an empirical test of the role of innovation with a discussion on the meaning of this category in the local context of Morrumbala. From a methodological point of view, we have tried to integrate qualitative and quantitative tools. Our starting methodology partially follows one proposed by Rao, when she states that «by engaging in an anthropological case study, letting that inform a quantitative model of human behaviour, and then conducting a statistical analysis where the hypothesis are tested by means of the quantitative behavioural model, we arrive at a clearer and more holistic view of household decision making» (Rao, 1997: 837), but we just partially held to this pattern. This was because we decided to integrate the already collected data with our new qualitative and quantitative observations, and thus we needed a methodology suited to the available information. The first step has been the construction of a panel dataset at the association level, describing the situation at different moments since the beginning of the latest project of cooperatives promotion. From this dataset analysis, we selected a subset of associations, following the criterion of diversification using particular characteristics (location, size, age, etc). This has been analyzed both under the economists' and the anthropologists' view, by means of quantitative tools and (more extensively) of qualitative ones. The methods used include both direct observation of the cooperative meetings, and semi-structured interviews with members and non-members, through visits to the households. The qualitative data has mainly been used to elaborate on the hypothesis that was then verified both by qualitative observation, and analysis of quantitative data. The connection between qualitative and quantitative data has revealed itself to be important, first of all to complement each other, then to re-address our hypothesis and observations, as well as to have a more critical approach to quantitative information.

2. INNOVATION'S DILEMMA

The main topic addressed in this paper is innovation[2]: producers' organizations are considered by some authors as tools to facilitate the introduction of innovations in the agrarian production process in those contexts where producers would not receive the necessary push from market forces alone (Logue and Yates, 2005). The same applies where sources of information are not available or are not suitable for the peasants' needs (Deininger, 1995). Innovation is moreover a risky activity. The risk of innovation can be an excessive burden for the individual producer: the cooperative can play a role, by means of loss sharing mechanisms, or by the diffusion of

[2] For a more detailed theoretical framework on innovation, see Vallino and Vailati in Inguaggiato, Navarra, Vailati (2009b). We would like to thank Elena Vallino for her important contribution to this framework.

innovations by small steps shared within a network, as in the "collective invention" pattern described by Allen (1983). It can also represent the context where credit can develop, by both allowing the exploitation of scale economies, and by facilitating joint liability mechanisms, thus reducing transaction costs (Deininger, 1995). Credit is largely considered an important requirement to face the risk of an innovative activity, namely where households lack instruments to smooth consumption (Eswaran and Kotwal, 1990, Simtowe and Zeller, 2007). Two related aspects are also important to consider here. First of all, the possibility for a cooperative organization to facilitate the creation of network effects that help the diffusion of knowledge and information (Bandiera and Rasul, 2002). The empowerment of networks can play the role of producing the level of trust needed to proceed into economic activity in those contexts where external legal enforcement of contracts is imperfect or missing, and also where this is indeed functioning, as underlined by Granovetter (1992). Another element strongly related to the expansion of economic activity and namely to the innovative capacity is capital accumulation. Agriculture at subsistence level is strongly limited be initial wealth and weak surplus creation. It may be further limited by the existence of a system of social norms that does not provide incentives to accumulate, e.g. by tying the entrepreneur to a network of redistributive relations (Platteau, 2000). The cooperative may allow "entrepreneurial coordination" (Platteau, 1996: 37), which is the creation of a "critical mass" in order to overcome social disapproval.

Furthermore, those organizations, may allow for a mechanism of accumulation together with a redistributive activity, through the investment of part of the resources in local public goods[3], or through the establishment of a set of insurance devices that benefit to the whole community. The capacity to provide public goods that benefit the whole local population, for e.g. health and education services, infrastructures, etc. is often underlined as an important factor of participation by the cooperative (Putterman, 1986). Those cooperatives where the local public dimension is crucial and where profit is pursued but is directed to the investment in public or merit goods, are considered important actors of grassroots development, as multi-stakeholder cooperatives (Levi, 1998) or "coopératives communautaires" (Luzzati, 2009: 164)[4]. Some authors also underline the possibility that cooperatives allow for the production of public goods, by associating them with individually appropriable benefits (Thorbecke, 1995), that work as incentives to cooperation. Those benefits can be the possibility to exploit scale economies, or to be involved in insurance schemes to face hard times such as insufficient yields.

[3] More precisely, producers' organization can provide benefits directed to the producer members, but that they enjoy as a group, or benefits directed to the whole category of producers, or even (strictly speaking) public goods, that is non rival and non excludible goods for the local community (classification of De Janvry and Sadoulet, 2004).

[4] Following some authors, these can represent an innovation from the point of view of the organization of production with fewer "uprooting" effects as compared to the capitalistic one (Haubert, 1981, Luzzati, 2002).

Binswanger et al. (1989) identify some limitations in the mutual insurance function of the single household, because of the interdependence of members' incomes, and claim for the importance of inter-household accumulation mechanisms, such as common granaries, in order to pool risk more effectively. Cooperatives can serve this function, by transferring the risks from the individuals to the organization (loss sharing mechanisms), by allowing for a more diversified range of activities, or by providing social security arrangements, and thus reducing both idiosyncratic and collective risks (Birchall, 2003). This may allow a greater capacity to bear the risks of the productive activity and of the innovative one, which is considered low among producers that have limited individual wealth (Bardhan, 2005).

Concerning the innovative knowledge and their diffusions' process, it is sometimes argued that key information does not originate from the official promoter of the new technique (external source), but from individuals that are experimenting it. This allows those subjects to know the advantages and pitfalls of the innovation from the privileged point of view of the user (internal source). This kind of knowledge is hard to codify, but easy to exchange among people that share the same language, as well as the same needs and apprehensions. The concept of "social carrier", proposed by Olivier De Sardan, is here useful: «every innovations' diffusion come through social carriers, that have a particular place in the local social structure»[5] (Olivier De Sardan, 1995: 86). Those individuals or groups are usually characterized by «"social credibility" or "social credit"» (Olivier De Sardan, 1995: 86).

In this way, we can state that the innovation diffusion is a process that usually depends, more on the social context in which the agents live than on the efficiency of ideas (Granovetter, 1985). Nowadays there are a great deal of studies that work on these issues. Some of them begin from qualitative observations and try to formulate theories based on a quantitative analysis (Bandiera, Rasul, 2002; Kincaid, 2004). Kincaid, for example, states that the study of «innovation becomes a question of how a minority influences outgroup members in its near surround, gradually expanding its boundaries to include more and more members over time» (Kincaid, 2004: 41).

After having analyzed the definition of innovation and the diffusion process we would like to expand on the consequences of innovation. This is a very important topic related to the issue of social change, and especially in contexts that are "late on the line of development". Actually, innovation can be considered as a detour from a social norm. A detour, that sometimes brings resistance to society. To understand this process it is necessary to analyze social boundaries and how innovations can overcome them. A second step is the analysis of the role of social carriers as individuals that, thanks to their social position in a context, are able to propose innovations.

[5] Our translation from French.

By means of a comparison between anthropological and economic literature, we can state that innovation plays two different roles. In economics, innovation is usually described as a neutral object, with a generally positive connotation (Feder et al., 1985; Besley e Case, 1993; Malerba, 2000; Bonjean et al, 2009). Innovation is usually perceived as a good-natured object, useful to improve a production process. Even though innovation has a cost, and possibly negative externalities, we cannot find a critical reflection on the consequence of innovation, especially with ethical connotations.

In that regard, Rogers states that «the change agent has a responsibility for the consequences of the innovations he introduces» (Rogers, 1962: 272). In complex systems, such as social systems, we are not able to forecast all the consequences of every small social change, moreover considering that those consequences not only refer to the economic sphere, but also relate to the sphere of social relations (Long, 1968; Lane et al, 2009). An increase in production (or productivity) in this way, ceases to be an aim in itself, and becomes a means to reach social aims, considered desirable by the members of the society. Innovation and improvements in the production process will not be considered here as aims, but as means, and as such, potentially ineffective.

3. THE CASE STUDY: UDCM

Our case study is *Uniao Distrital dos Camponeses de Morrumbala* (District Union of Morrumbala farmers' associations- UDCM). In particular we are focussing on the period between 2006 to 2009 where an Italian NGO (Nexus-Progetto Sviluppo) started a project that aimed to strengthen the associations in Morrumbala district[6]. They began with a few associations that were already existing, but functioning poorly. The district of Morrumbala is in the heart of Zambezia, central region of Mozambique. Its name most likely came from the name of the mountain Morrumbala, which means 'barrier', separating the district from the river Shire. The languages mainly diffused in the area are Sena and Lomwe. Other languages, for example Lolo, are also spoken. Morrubala has inherited many cultural influences that range from the ancient Monomotapa and Malawi kingdoms to the Portuguese colonization. This made Morrumbala a site which shows a very high cultural complexity.

Furthermore, Morrumbala, is the second district in terms of population in the Zambezia region. The population, according to the data collected at District Population Services in June 2009, is of

[6] For a more detailed description of our case study and its context, see Inguaggiato, Navarra, Vailati (2009b).

361.998 inhabitants (51,4% female), and is very young (46% of the population is less than 15 years old). The population density is low (28 inhabitants per square kilometre) and so is the urbanization rate (that is roughly 4,12%). The enrolment rate is 15% of the total population over 2 years old, and 89% of the population is illiterate[7]. The human poverty index (2003 estimate) is 52%, and approximately 72% of local consumption is devoted to food expenditures, followed by housing, transport and clothing.

The associations that now are part of UDCM are indeed the result of several international projects, developed between 1994 and 2003. The local partner of all these projects is the *União Nacional dos Camponeses* (UNAC). As illustrated in the table here below, it was registered as a continuous creation of association from 1994 to 1999, where the peaks correspond to the arrival of donors.

TAB.1. NUMBER OF ASSOCIATIONS FOUNDED IN EACH YEAR.

1994	1995	1996	1997	1998	1999	2002	2003	2005	2006	2007
1	2	2	9	4	4	1	1	2	7	1

In 1998, in order to promote better coordination among the associations present in the different parts of the district, the UDCM was constituted. It was composed of 22 rural associations in the entire district, and their number increased for the following two years. Then, from 2000 to 2006, the associations that were members of the UDCM did not benefit from any foreign technical assistance, leading to their number decreased until 2006, when the new project started. The amount of money spent by foreign agencies between 1995 and 2003 has been immense[8].

An objective evaluation of these projects trying to assess investments and results must focus on the problems observed. The UDCMs' association often continued to exist, however the number of members has decreased, as well as the associations' production. Here, we try to sketch possible reasons for these weak results.[9] The first problem identified is the lack of training, this is possibly due to the fact that these projects were not based on research in the local context. The primary aim was increasing production, but those who outlined the project had not considered the lack of skills of the local population. The introduction of farm tractors is an emblematic/illustrative example.

7 See Ministério da Administração Estatal, *Perfil do Distrito*, 2005.

8 From 1995 to 2003, in the district of Morrumbala, international cooperation agencies have spent $2.126.381 (US Dollars). If we divide this amount by an estimation of the number of beneficiaries (on the basis of the nowadays number of members of UDCM, 1039, multiplied by the average number of members of a household, 7, thus assuming that only one member of a household is part of the association, and that the benefits of it are spread on all the members), we observe that the expense made by international cooperation has been of $292 per capita. This is an important amount of money, given that the GDP per capita of Mozambique (current prices) was $248 in 2003, and the GDP measure based on PPP was $619 (World Economic Outlook Database, IMF, 2009).

9 This analysis is based on direct observations made by Professor Enrico Luzzati and during the surveys realized in 2007 and 2009.

Among the local people, no one was trained for their maintenance, and the result was the deterioration and the neglect of those facilities. The geographical distance of the agency responsible for training (UNAC, whose headquarters are in Maputo) may be another reason for the results. Another important issue was the scarce knowledge of management regarding market-oriented production. Farm tractors were rented for a drastically low price and without any kind of regulation, and other products were sold at uncompetitive prices. Lack of skills in accounting, which led to accounting errors and capital misappropriation, has been another training-related problem. In conclusion, the underestimation of problems relating to human capital seems to be a key issue in explaining the poor results of these projects.

This data also leads us to consider other factors such as the members' relation with innovation, and the importance of local social and political systems, and how they influence the associations' functioning. One of the problems arising has indeed been the use of the associations' facilities and capital for private purposes. At first sight this can be considered as the results of 'corruption'. In most cases, peoples' motivation for the private use of collective resources was linked to kinship: money was usually employed to assist other family members. In many cases, the degree of acceptance by members of this "elite capture" phenomenon[10] (Platteau, 2004), is quite discouraging with regards to the relationship between NGOs and the local context. However, that there were many cases of members protesting against these kinds of dishonesties, and members that always paid their membership fees and continued to offer their work.

Analysing the problematic of these projects is a very complex operation. Nevertheless, we can affirm that the main problems of the previous Morrumbala projects were the lack of training and the scarce investment in human capital, a conclusion that seems to be shared both by local people and by external observers. The evidence also suggests the need to consider more deeply the processes through which new associative institutions are developing in the district, especially the relationship between innovations and the local context: is there some form of "resistance" against innovation among Morrumbala peasants? A more detailed analysis of the spread and use of innovations, as well as some reflections on the system of relationships, and hierarchies related to the introduction of innovations in a technologically disadvantaged context, is proposed in the following sections of the paper.

Besides this case, in the Morrumbala district there have been many interventions of international cooperation all aimed at strengthening farmers' conditions. The main working methodology envisaged the creation of groups of people as a condition to participate in development projects. The experience previously described shows that the granting of capital goods (tractors, mills,

[10] "Elite capture" occurs when the local elite is able to grasp the benefits of a policy intervention, that was supposed to be targeted to a whole group or community.

poultry house and warehouses) constitutes a sufficient motivation to pull people together, but it is not enough either to create mechanisms of production and utilization of collective goods, or to improve upon the redistributive function of a productive association.

In 2006, the Italian NGO Nexus-Progetto Sviluppo started a programme to strengthen the associative movement in the district of Morrumbala; our analysis focuses on this new phase (2006 to 2009). Beneficiaries of this programme are the producers' associations that were constituted by the aforementioned projects, to which new associations were subsequently added; the main objective of the programme is to improve the living and working conditions of farmers. To avoid past mistakes the NGO started from the analysis of the existing situation of cooperatives, and adopted a more participative work methodology using a much smaller budget and giving more importance to training rather than to the introduction of capital. In 2006 the associations were analysed with the methodology of 'Participatory Rural Appraisal' (PRA), in order to obtain a picture of the characteristics of the associations involved. It was also to identify the biggest problems from the point of view of resources and organization, according to the associations' members themselves. From this picture, a problem of formalization arises as few associations defined their social bodies, developed a democratic election process, had a statute, and were registered at the local authority's office. One of the first actions taken by the NGO was the registration of the associations. However, the most important problems in terms of production were the lack of seeds to produce certain crops, very low productivity, the lack of instruments to put to production a sufficiently large crop field, and the unaffordable costs for the preparation of a crop field for cultivation. Particularly difficult was the issue of the commercialisation of products, mainly because of the scarce presence of warehouses and the fact that commercialisation is mainly carried out individually[11].

In order to answer these problems, the NGO created a rotating fund, managed by the UDCM which allows the financing of several activities realized by the associations or by the UDCM itself[12]. Two credit typologies are used:

1. In cash: a) credit for *lavoura* e *sacha*, to finance the payment of the labour force necessary during the period of field preparation before sowing and to pull weeds when the crops start growing; b) credit for *negocios* to finance a series of small trade activities; c) credit for commercialisation of maize: the association receives from the UDCM credit

[11] It is important to note that these are issues that seem to systematically characterize agrarian 'poverty traps' by constraining rural inhabitants at low productivity levels and by preventing incentives to increase productivity.

[12] The applied interest rate is 5% for credit in cash and 25% for credit in goods to be paid at the end of the loan period (e.g. the crop cycle from sowing to harvesting time). The credit does not cover the total cost of the activities but it is supposed to be added to the own funds of the associations. For the time being, these loans do not really aim to guarantee the sustainability of the activities but rather at making the beneficiaries understand the credit mechanism.

in order to buy maize from producers[13] and to sell it during the commercialization campaign; part of the profits made will be used to reimburse the loan received[14].

2. In goods: the goal is to introduce or strengthen the production of some crops, in particular sesame, peanuts, maize and *boer* beans.

The UDCM is responsible for coordination, including collecting the membership fees, the profits of commercialisation, and the revenues generated by renting the rooms of UDCM buildings; it also provides several training courses for the association members. UDCM staff is elected by the general assembly. The NGOs goal is to provide the UDCM with instruments to find the proper solutions for the difficulties experienced by their farmers, and to make the associations a reference point for the whole community.

The empirical data from which we elaborated our observations are both qualitative and quantitative. Quantitative data was collected in a panel dataset that included information on associations federated to UDCM from 2006 to 2009. The data have the following sources:

- 2006 Participatory Rural Appraisal, which was the first revelation realized in every group of producers
- 2007 and 2009 data are taken from *monitorias,* which are periodical surveys made by UDCM functionaries on the conditions of the associations.

From this data we can see that, since the beginning of the project it is possible to notice some improvements in the functioning of the associations that compose UDCM. The number of the members and associations has been increasing over time, and so has the number of legally registered associations. Moreover, associations already constituted decided to become members of UDCM. These are signals that the UDCM has the capacity to attract farmers of this area. A comparison between data from 2006 and 2007 is described in the following table, which also shows an increase in the average number of members per association and the average share of women[15].

TAB. 2. ASSOCIATIONS' DESCRIPTION 2006-2007.

	2006	2007
number of associations federated to UDCM	27	34
total number of members	737	1039
n. of associations with a statute	3	27

[13] They are allowed to buy from non members too.
[14] On this typology of credit, see Coulter and Shepherd (1995) and Coulter J. and Onumah (2002)
[15] These are statistically significant differences (t test).

n. of associations registered	1	27
n. of association electing leaders	8	27
Members of association (mean)	28,35	41,56
female members	37,9%	47,7%
Literate members	27,2%	28,1%

Our panel dataset, that is composed by three periods of observation for a total of 34 observations, is very unbalanced: besides that fact that we miss much data, 7 associations were born (or joined UDCM) between 2006 and 2007, and therefore we miss the information regarding 2006. For this reason we divide this database into two different subgroups: a dataset which contains data from 2006 and 2007 (23 observations), and a second one that contains the information regarding the 9 associations that represent our case study, for which we have data for all the 3 years (2006-2009).

This last sample is composed by 3 associations from the Morrumbala administrative area, 3 from Chire administrative area, 2 from Megaze administrative area, and one from Derre administrative area.

TAB. 3. MEMBERS AND FEMALE MEMBERS

	2006	2007	2009
Members' number (mean)	31,3	62,1	43,8
Percentage of female	41%	49%	45%

Important data missed relates to the quantity of exach crop produced, and the selling price. The relevance of maize production is shown in table 4, where the average percentage of members that produce, sell and buy maize is indicated[16].

TAB. 4. MEMBERS THAT PRODUCE, BUY AND SELL MAIZE.

	2006	2009
% Produce	89,2 (22,3)	98,6 (2,9)
% Sell	81 (35,9)	87,5 (32,9)
% Buy	70,7 (25)	77,8 (34,7)

[16] We do not have data related to 2007 neither for maize nor for other crops.

Besides maize, which is the main crop, the others can be divided between those that are both food and cash crops (manteiga bean, boer bean, rice and cassava), and those that are only cash crops (cotton and sesame). A relevant change since 2006 is the decrease in the amount of peasants growing cotton. This is due to a decrease in profitability, as declared by peasants themselves. The only company that buys cotton in the area declared themselves ready to pay a price above the current market price to producers for the 2009-2010 campaign.

Qualitative observations were collected during fieldwork in 2009, this was achieved through observations collected by attending *monitorias,* and through non-structured interviews with members of the 9 associations of the second dataset, and with non-members living in the same area as the associations. Interviews with members have been conducted both with leaders and with simple? members in order to collect information on the associations' leadership features. The associations in which interviews were conducted are: Imbidora, Namer and Changadeia for the Morrumbala area, Chevel in the Derre area, Matamia, Sangula e Mirerene in the Chire area and finally Chissio and Umpawi Whatu in the Megaze area. Interviews especially focused on three main topics: a) agricultural activity, commercialisation and breeding, b) household features including the composition, education level, and migration movements registered and c) participation in development projects and innovations incurred in the production activity, with regards to the associations issues, such as benefits of being members.

4. INTRODUCTION OF INNOVATIONS. THE ASSOCIATION'S ROLE IN MAIZE TRADING.

A question stands out from the analysis of past projects, do Morrumbala peasants oppose resistance against the introduction of innovation in the agricultural process The low degree of innovation adoption in Mozambican rural context seems to be a phenomenon that goes beyond our case study. Cunguara et al. (2009) for e.g. show that the adoption of technological and organizational innovations which might influence the level of maize production, did not rise in the period 2002-2008. We now focus on a specific innovation, the introduction of a mechanism of commercialization of maize, through the association, and financed by a credit system.

«Even if resistance is manifested, it is not the same thing as rejection of impulses of change» (Lundquist, cit. in Holmen, 1990: 49). We therefore try to investigate the reasons for a "cold" reaction to innovation, starting from an analysis of the benefits that members pursue when

belonging to the cooperative, of the benefits actually produced, and of the benefits stressed in UDCMs rhetoric. It might be that some of these elements do not match with each other.

A need often raised by peasants during the PRAs is to sell maize at a higher price. There are two main reasons for a low pricing of maize. Firstly, prices increase as the maize prices increase as the harvest time progresses (from June and December), since the quantity on the market decreases. As maize is both a food crop and a cash crop, when producers do not have the option to effectively store it, they are obliged to sell it immediately after the harvest, when the price is low. They then have to buy it back in the following months, until the end of the commercialization campaign at higher prices. Another reason that producers are unsatisfied by the prices is the existence of local monopsonies[17], where buyers' market power is exerted by merchants (*niajanji*), who often buy up house by house. Producers, on the other hand usually do not have the means to carry their products to the nearest urban market. It is worth considering a third component of the problem: the selling price is often reduced when a can is used as a unit of measure for maize quantities, as this can be modified to the advantage of buyers[18]. With respect to this second aspect, we do not have enough information to study the effect of the cooperative commercialization mechanism. However, we can say that on theoretical grounds, this can represent an improvement for producers in case of monopsonistic market conditions, and in the case of lack of external enforcement mechanisms to commercial arrangements.

Regarding the timing at which maize is sold and the consequent price, we observe that the association, with the loan obtained from UDCM, buys maize at the beginning of the commercialization campaign (when the price is the lowest), although at a price higher than the market price (about 10 Mt more for each can). The association stores the maize and sells it later on, at a higher price. This mechanism allows the cooperative to accumulate profits that, after having reimbursed the loan, shall be used to finance activities and investments that benefit to the producer members. We can conclude that, if the aim of members is to sell at a higher price, exploiting the price differential generated during the months after the harvest, the association matches this objective in a very limited way. It buys, indeed, at a higher than market price, but it buys at the worse time for peasants to sell. From this point of view, the expected benefit from the innovation is therefore limited. This seems to be confirmed by empirical observation within the association, starting with members' perception: only 2 respondents out of 36 interviews carried out with members include the collective sale of maize as an advantage of belonging to the association.

We use as an indicator of the introduction of innovation, whether an association has received the credit to commercialization by the UDCM. We divide our observation in two sub-samples,

[17] Producers often denounce «preço de venda baixo, estipulado pelos compradores».
[18] The shape of the can is altered, in order to increase its capacity.

cooperatives that received credit; and cooperatives that did not, in order to compare their performance[19]. We used both the aforementioned datasets, in the 2006-2007 dataset, 15 associations over 23 are beneficiaries of this loans, while in the 2006-2009 panel they are 5 over 9.Firstly, we notice that in the cooperatives that received loans between 2006 and 2009, the share of members who usually buys maize increased[20] (see Table 4.1). We are not adding any evidence to the previous description of the selling mechanism: if maize is immediately sold to the cooperative, it follows that producers will have to then buy it for their own consumption. This, nevertheless, shows that more households will have to buy maize and this will happen at a price higher than the price at which they sold their harvest.

TAB. 5. DIFFERENCE (BETWEEN 2006 AND 2009) OF THE MEMBERS' PERCENTAGE WHO PRODUCE AND BUY MAIZE, IN ASSOCIATIONS THAT HAVE RECEIVED CREDIT, AND THOSE THAT HAVE NOT.

	Association having not received commercialization credit.	Association having received commercialization credit.
difference of the share of members that produce maize	9,1 (18,2)	9,6 (28,8)
difference of the share of members that buy maize	-25,8 (37,4)	25,4 (30,6)

We now have the problem of defining a measure of performance for/of the association. Lacking the information on the produced quantities; we will therefore use a set of variables, each representing a specific aspect that may contribute to indicating the degree of success of every association. Clearly, the choice of these indicators is not neutral since we do not have an unbiased proxy for performance evaluation. The issues we consider as relevant to determine the success of an association are the following: members' participation in the association[21], skill development[22],

[19] We are trying to evaluate the impact of receiving credit to organize the sale of maize, using a control group, in order to approximate a measurement of the returns to innovation, that is the expected benefits from its adoption; an estimation of these ones is not allowed by our data.

[20] The difference is statistically significant (95%). We can perform this comparison only for the cooperatives of whom we have the 2009 observation, given that this information is missing in the 2007 wave. Standard deviations are indicated in parenthesis.

[21] As indicators of participation, we consider the variation of the number of members both between 2006 and 2009 and between the birth of the association and 2009, and the share of members that attend the association assemblies, as a proxy for the number of active members.

[22] Skill development is represented by the literacy rate and the presence of adult literacy classes.

credit payback performance[23], agricultural capacity[24], and members' perception on the advantages associated to association membership[25].

We do not see a positive correlation between the benefits of the loan, and members' perception of an advantage from belonging to an association. On the contrary, in 9 cases, 4 are associations where credit has been granted, but where no advantage is perceived; in 3 other cases some advantages are highlighted, but commercialization credit has not been granted. Another indicator we use to approximate the performance of the cooperative is the increase in the number of members: here we do not find a significant difference in the two sub-samples. The extent of the participation in the associations' life and decisions, (measured by the percentage of members who participate in assemblies), does not show a significant difference between the cooperatives who received credit and those who did not. The same result applies for the indicator of skill development, in both its measures, as well as for the credit payback capacity, when looking at both datasets. Concerning the self-sufficiency measure, we see that in the three associations, the number of crops which can be defined "self-sufficient" increased. This is a very small number of observation; as two out of the three were beneficiaries of commercialization loans. With the exception of this last observation, we do not find a clear link between the loan received, and the increase in the cooperative performance, however, we are aware of the limitations of our proxies.

Let us now turn to the implications for the producers of selling maize to the cooperative instead of selling it directly on the market. Selling maize to the cooperative at the beginning of the commercialization campaign implies that producers replace, at least partially, savings kept in kind (in maize, namely) with savings kept in cash. Is it advantageous to save in cash? The answer is not straightforward: on one hand, it constitutes a non-perishable reserve, but it lacks a peculiar feature of maize- that is to increase its price in time. We can say that in the district, cash and maize are two kinds of money characterized by different levels of liquidity: the latter is circulating money, while cash is similar to a deposit, that is used in case of big and non-daily expenditures. Out of town, everything is bought in exchange of maize[26], maize is also the main instrument to keep savings (in the PRAs it is underlined that people save in '*produtos*', that is, in kind). On the other hand, if trading through the cooperative does not imply a clear advantage in terms of selling price, it is

[23] The payback performance is summarized in a variable that is the means of three others, each of them indicates if each type of credit has been fully repaid (2), partially repaid (1), not repaid (0). The three types of credit are: the credit to finance maize commercialization, the credit to finance soil preparation activities, and the one to finance the introduction of new crops.

[24] Here, we mean essentially the variation of the number of crops for whom the cooperative is "self-sufficient". With "self-sufficiency" we mean that the share of members that buy a crop is lower than the share of members that produce that crop, that is that there are no households that, although producing that crop, are used to buy it back. We refer to those crops that are both food crops and cash crops besides maize (*manteiga* bean, *boer* bean, rice and cassava).

[25] This last indicator is inferred from the interviews.

[26] During the interviews, respondents have difficulties in understanding the question whether they sell maize, because maize is exchanged for the majority of purchases.

nevertheless true that it may have strong positive effects for those producers who would not be able to keep maize until the advantageous time for selling. These producers would be obliged to sell their product at the beginning of the commercialization campaign (immediately after the harvest). Those members who do not have a granary or a warehouse, or whose granary is in bad condition specifically grasp the advantage of the cooperative mechanism. This consideration implies that the trading activity of the association mainly the poorer members, while its advantages are not at first sight beneficial to the richest ones, i.e. those who have a private warehouses[27].

We can therefore say that the cooperative has an insurance function: by selling to the cooperative, the producers' benefit from being certain of selling their product, although at a lower price. Cunguara et al (2009) show that one of the main reasons for missing food security in Mozambican rural contexts is actually the lack of warehouses and granaries, or the poor conditions in which they are kept. Post-harvest losses are indeed a significant determinant of the number of months in which households declare to suffer from the lack of food. Trading through the cooperative becomes a risk-sharing mechanism, as argued by Binswagner et al, (1989), where everybody has a certain income from the sale of maize. In our data, we see that those associations who received loans are more likely to have a common granary. Even though this does not doesn't say anything on the success of credit shaving or building a granary is a condition in order to receive the credit for maize trading. It highlights the fact that the cooperative trading mechanism, through the spread of associative granaries, allows members to shift on the associations the risk of maize storage (*loss sharing*). This need had often been expressed in the PRAs. The relevance of this issue is evidenced by the fact that where no common granary has been built, producers usually use the association presidents' warehouse (this happened in two of the cases analyzed in 2009). Furthermore, in one case the association was building the granary even when the credit mechanism was not still working.

In the PRAs and in the *monitorias*, members point out the need to increase the level of production through the development of agrarian techniques, mechanization, and increase in the availability of labour force for field cultivation. If we consider these expectations, the possible advantage of being a member of a cooperative is not trading itself, but the organizational, technical and training improvements that the association can provide by means of accumulated profits[28]. For now, we do not the necessary data to measure the success of associations on this matter, because, up until now, profits derived from maize selling were only sufficient to reimburse the initial loan. In this case, members' participation can be interpreted as a contribution to the production to a local

[27] This is an interesting consideration if compared with some criticisms to agrarian cooperatives in Developing Countries that have been made, that is that the poorest weren't able to take advantage of them (Munkner, 1976; ICA 1978).

[28] In some cases, this is pointed out directly by interviewees: "our aim is to accumulate money to buy a farm tractor".

common good. This is for a common fund to be managed in order to produce benefits for all members.

This makes a problem of free-rider arise (Olson, 1965), that is, the possibility that members don't do not contribute to the common pool, by refraining from selling their maize to the cooperative or selling the lowers quality one. This risk may be higher where the evaluation of future benefits is low (in economic terms, people have a high discount rate of future benefits). This is more likely to happen in such cases such as Morrumbala, where people come from a history of failed rural cooperation experiences. On the other hand, the income insurance effect of cooperative maize trading can be / in itself an incentive to cooperation for public good provision (Thorbecke 1995). We have seen that the insurance argument applies to members that do not have suitable autonomous storage facilities. but what about the motivations to participate for richer members? We will develop more on this topic in the next section.

For now, we introduce a last theme which emerges as an advantage brought by the association: it is often pointed out by the producers that it is easier to 'find help' through the cooperative[29] . This can have a twofold interpretation, on one hand, the association may still be interpreted as something exogenous, or as an external agency that provides donations ("help" as a top-down element). On the other, we can imagine that the cooperative connects the member to a "neighbourhood" network, to whom they can appeal in case of need[30]. The second interpretation shows that associations introduce maize production and trading into a network that primarily responds to non-economic needs.

To sum up, we can say that trading of maize through the cooperative does not bring significant changes in terms of selling price, however, it may represent a response to buyers' market power. Therefore, if the expectation of producers is to increase the price of maize, we can understand why the perception of short-term advantages is so low. Some of the benefits that are expected from the cooperative may come from the creation of a pool to provide the group with common goods, however, it is premature to try to estimate its potential. An advantage, that seems to be more appreciated more than trading itself, is a connection with a social network, which highlights the non-economic motivations of participation.

From an analysis of the mechanism of maize trading through the cooperative, we have so far argued that the main advantage shall be the insurance effect, which is the certainly of getting an income from the sale of maize (though loss sharing). In addition, it can play a role in inducing cooperative behaviour in the long run, thereby limiting the temptation to "free ride" on the

[29] To quote some examples: "it's an advantage to be part of the association because otherwise it would be more difficult to go to other people and get help"; by being part of the association, "somebody can always help me, for example by providing food"; "I receive help and get new ideas"; "if you are in need of help, you can ask it to the other association's members".

[30] Or, in case the network already exists, the association may broaden it.

cooperative profit accumulation. This has a redistributive effect, since it benefits less wealthy producers, and seems to confirm the peculiarity of the cooperative enterprise, by joining together market activity and the redistributive role.

5. DIFFUSION OF INNOVATIONS. LEADERSHIP'S PATHS

In this paragraph we are going to analyze how commercialization, considered as an innovation, is or is not adopted by the associations' members. For this purpose, we are going to analyze the associations' social structure and the role of leaders. The structure of the association can be considered as a particularly important organization of production, and we can say, of everyday life. Innovation, as we have already stated, is grafted from/on other relational models. The consequence of this graft is the creation of new factors of production. In the case of Morrumbala, the role of the leaders seems to be crucial: it is usually an example of how the innovations' introduction could be useful in to improving the individuals' economic conditions. In this way, the leaders' behaviours becomes a model through which other individuals become members, or more engaged in the associations. Our thesis states here that the innovations' diffusion is higher where the richness gap between leader and members is higher.

We will analyze the case of commercialization, using data extrapolated from our qualitative research. Such data has allowed the creation of qualitative indicators. There are eight associations chosen for this analysis; the criteria are the year in which the foundations' were created, the number of members, the distance from Morrumbala, and the loans' restitution. We must highlight here that the sample is small. However, we will attempt/endeavour to reinforce the qualitative observations using quantitative data.

One of the most important findings is the evidence that the persons in office within the association usually remain the same. Usually the president, who in many cases is the one who has promoted the associations' formation, has remained in office since its foundation. This finding is relevant considering that the first associations were born in the middle of nineties. We can observe the same phenomena for the other offices. Nevertheless, the relevance of the president, is based on the fact that he is usually the one who has regular contact with UDCM and potentially with others presidents. This means that in most cases the president is the person with the wider social network, and also with major access to new information. Furthermore, in many cases the president is the association's leader. We will now discuss who is considerable as a leader.

We have used the analysis of the communicational process inside the associations for this task. The first source of information is the observation of the meetings with members, which have the primary aim of monitoring the associations' work, and are organized with UDCM's supervision. The second source is open interviews with the members who were more active during the meetings. The aim of this survey was to identify what kind of rhetoric was diffused in the associations, and secondly to attempt to understand if all the were able to speak and express their opinions.

We can propose two observations here. Concerning the rhetoric, we can underline that leaders usually adopt the UDCMs' discourses concerning the aims of the association. There are usually three of these:: association as a way to work together, and through this increase production; association as a way to exchange ideas; and association as a self–help context. This ideas are sporadically diffused among the members. As we have already described, the members' motivation are various, and moderately different from UDCMs. From what we can observe, many members decide to enter the association to find new information or ideas. This is very important because the information' circulation in the members' network is a primary issue.

The second observation concerns the communicational dynamics. Who is considered by us as the leader, is in many cases the only member that is actively engaged in the discussion. This is a very important data in relation to the decisional models. Considering the fact that the influence of the European researcher on the context was a relevant inhibiting factor, it is meaningful that a small group of members takes the decisions. The influence inside the association is considered the principal indicator by which to identify the leader (the more influence some has the more likely they are the leader). Therefore, this related to the social recognition that a person has inside the association.

The second part of the analysis concerns the construction of an index to estimate the economic condition of the members. We do not need an absolute value for richness, but rather an index measuring the wealth gap between members. Data that is useful to know about the individuals' economic conditions, and of his household, are listed in tab. 6. The size of the household; and the kind of housing (which may differ from houses build with wood and soil to more expensive ones made with blocks) are included in the table. The hiring of external workers; the number of crop cultivated by the household, and at last the cropping of vegetables are also in this table. From this group of data we can estimate a single indicator, summarizing the economic conditions of the individual.

TAB. 6. INDEX FOR LEADER'S WEALTH.

	Household dimension	Number of crops	Kind of house	Number of vegetables	Hiring of external workers	Mean	Leader and members wealth gap
CHANGADEIA	4	4	4	2	2	10,4	3
MATAMIA	3	4	4	2	2	9	3
CHISSIO	3	4	4	2	0	8,6	3
SANGULA	3	2	4	2	2	6,6	3
IMBIDORA	2	3	3	2	Not available	6	2
NAMAER	3	3	3	2	0	5,8	3
MEGAZE	2	3	4	0	0	5,8	2
MIRERENE	3	2	3	2	2	5,2	1

DESCRIPTION

3: bricks' house. 2: soil bricks' house. 1: wood poles' house	1-7 :2 8-15 :3 <=16 :4	1-7 :2 8-10 :3 >10 :4	Yes :2 No :0	Yes :2 No :0	Observation: the values of firsts three index have been squared before mean. This is due to their relevance

If we use this indicator to compare leaders and other members, and we can state that on average, the one who assumes the role of leader is usually richer than other members. Six out of eight leaders are significantly richer. In most cases this wealth does not appear as a result of the association's participation. This gap seems to be a meaningful finding in our analysis, particularly with regard to innovations' diffusion process. The concept of a social carrier (Olivier De Sardan, 1995: 78) is useful here to grasp these processes.

We have two different levels of analysis, the first one focuses on the consideration of the leader as social carrier. Leaders, here, are considered as the individuals who contribute to the innovations' diffusion process. The richness gap between leader and members, connected to the 'social credibility' (Olivier De Sardan, 1995: 86), is data that allows us to consider the leader as an example for the members. The second kind of analysis starts from an hypothesis that considers the associations as social carriers (Inguaggiato, Navarra, Vailati, 2009a). The association could in this way be considered as an engine for the innovations' diffusion processes. If the association allows reinforcement of a social network, we must also analyse what happens outside the network. Using qualitative data, extrapolated from interviews with individuals that are not members, it is possible to

create an "openness" index. This describes how it is possible for non-members to have access to information carried by the associations (Tab. 7). The data shows a correspondence between the associations' openness and the richness gap between leaders and members. If we exclude Namaer, where the leader is very rich, but seems to be engaged in the associations' management -strongly oriented to aid request and for personal aims, then we have evidence that where the leader is richer the circulation of information outside the association is easier.

The above conclusions are reinforced by another correlation we can found while analysing our data. The hypothesis here is that the richness gap between leader and members is related to the innovations' diffusion process, inside and outside of the association. We will use another indicator to measure this phenomenon, namely credit which is considered the most recent innovation in our work. To understand how much this innovation is diffused among the members, we analyse how much of the initial loan (plus the interest) is paid back by the association[31]. Only in this way, it is possible to understand, if the credit mechanism has been understood and practised by the members.

The results of this analysis show that in the association where the leader is richer than the other members we find a higher rate of loans' pay back. Considering this we can suppose that the higher the socio-economic status of the leader, the greater his capacity is to allow the diffusion of the innovation which he is promoting, in our case the innovation is the credit mechanism.

TAB. 7. COMPARISON BETWEEN LEADER WEALTH' INDICATOR, LEADER-MEMBERS WEALTH' GAP, CREDIT RESTITUTION AND ASSOCIATIONS' OPENNESS.

	Leaders' wealth	Wealth gap	Credit restitution	Association opennes[32]
CHANGADEIA	10,4	3	2	2
MATAMIA	9	3	2	3
CHISSIO	8,6	3	2	3
MIRERENE	5,2	3	2	2
SANGULA	6,6	3	1,5	2
NAMAER	5,8	3	1,5	1

[31] his index consider, for all the three analyzed years, all kind of credit: *sasha*, seeds and commercialization. We use, for every associations: 2 if the credit has been returned totally, 1 partially and 0 if it has not been returned. The mean of this parameters is the return index.

[32] This index is 1 when the members or non members report that the information does not circulate from association to non members. It is 2 when we have both declaration of circulation and not circulation of information. It is 3 when our informants report that associations are open to exchange information with non members.

IMBIDORA	6	2	1	3
MEGAZE	5,8	2	1	2

Besides case of Mirerene, (where the president has just been elected), it is possible to observe a correlation between the richness gap and the index that measures the loans' pay back. This result is common in literature regarding an innovations' diffusion process (Kinkaid, 2004). In the Morrumbala case, we found that an innovation has more chance of adoption when the social carrier has social recognition in the context. This result is quite important, however, it became a very sensitive question in connection with policy. Starting from this we can make two observations. The first is directly connected with the innovations' diffusion dynamics. In the case of Morrumbalas' associations we can consider that the leader bears the cost of the innovations' testing. The others members start adopting the innovation when it has been experimented on, and it is clear that it produces good results. The cost, in the case of commercialization, seems to be both social than economic . Propose an innovation, that is suggested by UDCM, seems to represent the choice to bear responsibility that concern its introduction. It is probable that the leaders' social recognition will decrease in the cases where the innovation fails. Contrary to this, it is possible that the success of an innovation will increase the leaders' recognition. From these observations we can suppose that returns to innovation are, in this case, not economic but social

The second observation a broader reflection. The fact that innovations find better diffusion where the wealth gap between leaders and members is higher, is a very sensitive conclusion. If on one hand, this means that the innovation cost is borne by the rich members, on the other hand, it fosters the differentiation between the elite and the other members. This example of integration between an innovation and a local socio-economical system, bring us to a complex dilemma. Is a high social differentiation (based on wealth) the engine to introduce (in a rural context), practices typical of an economy where the market is the main channel of social relations.

6. CONCLUSIONS

We thus try to propose conclusions on the economic role of producers' associations in the analyzed context. Firstly, it is important to underline that this role cannot be separated from the social and cultural spheres. It seems that these organizations plays an important role in innovation processes, by acting as brokers between a market-based and accumulation-oriented economy, and a

partially non-capitalistic local context . The development of this innovative activity is coupled with the generation of inequalities, or , the strengthening of the existing ones, which is linked to social privileges both in terms of wealth and of social recognition. We might therefore conclude that the emersion of a relatively wealthy elite, capable of entrepreneurial activity, is the fostering element of development processes.

However, not all our evidence leads in this direction. The main point that does not fit this model is the observation that the main function of the associations' activity seems to be an insurance one, aimed at guaranteeing stable rather than higher incomes to individual producers. An important implication of this activity is that, as we have seen, it is specifically addressed to the poorest producers, or, those who do not have an individual granary for maize storage. It is this part of the population that benefit most of the associations' commercialization activity. The economic elite would gain more relying on its own means to stock and to sell the maize produced. This means that the cooperative has a redistributive purpose too, which goes together with the market oriented one[33].

The observation that a higher wealth gap between the leader and other members goes together with a greater diffusion of innovations, might support the idea that a higher inequality has a positive effect on the ability of a group to pursue a common aim (that is, a "collective action")[34]. This conclusion requires mitigation: the innovative leader does not seem to benefit more than other members from the innovation (usually he belongs to the social layer that obtain greater advantage in individual commercialization), while he bears part of the costs of the innovation itself. It seems, indeed, that members can introduce an innovation without bearing the cost of experimenting, with very little delay to the first innovating "pioneer". In this sense, the leader's economic advantage can be small, but it can be relevant if we introduce prestige and social recognition considerations. Again, we underline the non-economic motivations that drive choices and economic actions.

In conclusion, it is possible to find an ambiguous effect in Morrumbala associations. On one hand, producers' cooperatives have, at least partially, an inequality-enhancing effect. This is similar to what happens with capitalistic enterprises, which are the basic units of a system of production. Capitalistic enterprises according to several studies, are considered to foster inequality, especially in the last thirty years. On the other hand, the same cooperatives have a partially redistributive effect. These are the activities whose benefits are specifically directed to the poorest households. Change is therefore mediated and leads to complex and unexpected patterns, notably with respect to the links between the market-oriented activity, and the redistributive activity of the

[33] This has been identified as a feature of the "community-based cooperative" as defined by Luzzati (2002, 2004), that is consider to have a comparative advantage in fostering "grassroots development" processes.

[34] The reference, here, is the famous argument put forward by Mancur Olson (1965); it has beet widely discussed and criticized. To quote some recent and important works on the topic: Bardhan (2000), Dayton-Johnson (2000), Dayton - Johnson and Bardhan (2002)

economic organization. The transformation towards a capitalistic society does not seem to follow a unidirectional path, where "development", "market" and "innovation" are absolute concepts, which are targets in all societies. On the contrary, it seems that societies and economic organizations can take multiple paths, and they can react in different ways to the same innovative input. These directions can be more even promising than the unconditional adoption of a model, that relies on the self-regulating capacity of the markets, and on the capitalistic organization as the only way to organize production.

7. BIBLIOGRAPHY

Allen R., 1983, *Collective Invention*, in *Journal of Economic Behavior and Organization*, 4, pp. 1-24.

Bandiera O., Rasul I., 2002, *Social Networks and Technology Adoption in Northern Mozambique*, Discussion Paper No. 3341, Centre for Economic Policy Research, London.

Bardhan, P. (ed.), 1989, *The Economic Theory of Agrarian Institutions*, Clarendon Press, Oxford.

Bardhan P., 2000, *Irrigation and Cooperation: an Empirical Analysis of 48 irrigation communities in South India*, in *Economic Development and Cultural Change*, 48, pp. 847-865.

Bardhan P., 2005, *Scarcity, Conflicts and Cooperation, Essays in the Political and Institutional Economics of Development*, MIT Press.

Besley T., Case A., 1993, *Modelling Technology Adoption in Developing Countries* in *The American Economic Review*, 83, 2, pp. 396-402.

Binswanger H., McIntire J., Udry C., 1989, *Production Relations in Semi-arid African Agriculture*, in Bradhan P. (ed.), 1998.

Birchall J., 2003, *Rediscovering the Cooperative Advantage. Poverty reduction through self-help*, Cooperative Branch, Geneva, ILO.

Bonjean I., Platteau J.-P., Verardi V., 2009, *Two-Sided Wealth Constraints and Innovation Adoption: Evidence from a Grassroots-Based Extension Programme in Peru*, CRED Discussion Paper, , Namur, Facoltés Universitaires de Notre dame de la Paix.

Coulter J. and Shepherd A.W., 1995, *"Inventory credit: an approach to developing agricultural markets"*, NRI/FAO, Rome.

Coulter J., Onumah G.E., 2002, *"The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa"*, in *Food Policy*, 27, pp.319-337.

Cunguara B., Hussain M.A., Kelly B., 2009, *The impact of the PARPA II in promoting the agricultural sector in rural Mozambique*, Maputo, Mimeo

Dayton-Johnson J., 2000, *The Determinants of Collective Action on the Local Commons: a Model with Evidence from Mexico*, in *Journal of Development Economics*, 62.

Dayton-Johnson J., Bardhan P., 2002, *Inequality and Conservation of the Local Commons: a Theoretical Exercise*, in *Economic Journal*, 112(481), pp. 577-602.

De Janvry A., Sadoulet E., 2004, *Organisations Paysannes et Développement Rural au Sénégal*, Rapport pour la Banque Mondiale, janvier.

Deininger K., 1995, *Collective Agricultural Production: a Solution for Transition Economies?*, in *World Development*, 23, 8, pp. 1317-1334.

Eswaran M., Kotwal A., 1990, *Implications of Credit Constraints for Risk Behaviour in Less Developed Economies*, in *Oxford Economic Papers*, 42, pp. 473-482.

Feder R., Just R.E., Zilberman D., 1985, *Adoption of Agricultural Innovations in Developing Countries: A Survey in Economic Development and Cultural Change*, 33, 2, pp. 255-298.

Granovetter M., 1985, *Economic Action and Social Structure: The Problem of Embeddedness*, in *The American Journal of Sociology*, 91(3), pp. 481-510.

Granovetter M., 1992, *Economic Institutions as Social Constructions: a Framework for Analysis*, in *Acta Sociologica*, 35, 1, pp. 3-11.

Haubert M., 1981, *De la tradition communautaire à la modernité coopérative: évolution, greffage ou recuperation?* , in *Revue Tiers Monde*, 88, pp. 769-808

Holmen H., 1990, *State, Cooperatives and Development in Africa*, Research Report n. 86, Uppsala, The Scandinavian Institute of African Studies.

ICA, 1978, *Cooperatives and the Poor. Report of an experts' consultation*, London.

Inguaggiato C., Navarra C., Vailati A., 2009a, *The Role of Rural Producers' Organizations within Development Processes: a Case Study on Morrumbala District*, Conference Paper 30, Instituto de Estudos Sociais e Económicos. Maputo.

Inguaggiato C., Navarra C., Vailati A., 2009b, *Il ruolo delle associazioni produttive agricole nei processi di sviluppo. Il caso di Morrumbala, Mozambico*, L?Harmattan Italia, Torino.

Kincaid D. L., 2004, *From Innovation to Social Norm: Bounded Normative Influence*, in *Journal of Health Communication*, 9, pp. 37-57.

Lane D., van der Leeuw S., Pumain D., West G., 2009, *Complexity perspectives in innovation and social change*, Louvain, Springer.

Levi Y., 1998, *Beyond traditional models: multi-stakeholders cooperatives and their differential roles*, in *Journal of Rural Cooperation*, 26, pp. 49-64.

Logue J., Yates J., 2005, *Productivity in cooperatives and worker-owned enterprises: ownership and Participation make a difference!*, Geneva, ILO.

Long N., 1968, *Social change and the individual: a study of the social and religious responses to innovation in a Zambian rural community*, Published for the Institute for Social Research, University of Zambia.

Luzzati E., 2002, *Il cooperativismo comunitario nei Paesi in Via di Sviluppo: riferimenti teorici ed esperienze concrete*, in Bruni L., Pelligra V. (eds.), 2002, *Economia come impegno civile. Razionalità, benessere ed economia di comunione*, Roma, Città Nuova.

Luzzati E., Navarra C. 2004, *As cooperativas como instrumento de luta à pobreza nos paìses em vias de desenvolvimento. O caso de Moçambique*, Quaderni delle Cooperazione Italiana in Mozambico, 5, marzo 2004

Luzzati E., 2009, *Quelles organisations paysannes pour quel développement dans le Sahel? Une comparaison entre Sénégal et Burkina Faso* , in Dansero E., Luzzati E., Seck S., 2009, *Organisations paysannes et développement local dans les PVD, Leçons à partir du cas du Delta du Fleuve Sénégal*, Torino, L'Harmattan.

Malerba F., 2000, *Un'introduzione all'economia dell'innovazione,* in Malerba, F., *Economia dell'innovazione*, Roma, Carocci.

Ministerio da Administraçao Estatal, 2005, *Perfil do distrito de Morrumbala, provincia da Zambesia*.

Munkner H., 1976, *Cooperatives for the Rich or for the Poor?*, Marburg, Institute for Cooperation in Developing Countries.

Olivier De Sardan J. P., 1995, *Anthropologie et développement. Essai en socio-anthropologie du changement social*, Paris, Khartala.

Olson M., 1965, *The Logic of Collective Action. Public Goods and the Theory of the Groups*, Harvard University Press, Cambridge Mass.

Platteau J-P., 1996, *Traditional Sharing Norms as an Obstacle to Economic Growth in Tribal Societies*, CRED, University of Namur.

Platteau J-P., 2000, *Institutions, Social Norms and Economic Development*, Amsterdam, Harwood Academic Publishers.

Platteau J-P., 2004, *Monitoring Elite Capture in Community-Driven Development*, in Development and Change 35(2), pp. 223–246

Putterman L., 1986, *Peasants, Collectives, and Choice: Economic Theory and Tanzania's Villages*, New York, JAI Press.

Rao V., 1997, *Can Economics Mediate the Relationship Between Anthropology and Demography*, in *Population and Development Review*, 23, 4, pp. 833-838.

Rogers E. M., 1962, *Diffusion of Innovations*, Galt, Free Press.

Simtowe F., Zeller M., 2007, *The Impact of Access to Credit on the Adoption of Hybrid Maize in Malawi: an Empirical Test of an Agricultural Household Model under credit market failure*, African Association of Agricultural Economists Conference Proceedings, pp. 131-145.

Thorbecke E., 1995, *Impact of State and Civil Institutions on the Operation of Rural Market and Non-Market Configurations*, in De Jenvry et al. (eds), 1998.