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The role of knowledge and innovation systems in supporting farm's strategies in GI areas: a *milieu innovateur* approach

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Abstract

The paper deals with the support system of geographical indications (GIs): more precisely, it aims at investigating the territorial dynamics of the rural knowledge, by analysing the role of agricultural extension systems (AES) as tool to support farm's management and innovation in GI areas. By putting forward a milieu innovateur approach, we intend to verify eventual differences between GI and not GI farms in knowledge transfer and innovation adoption. Interaction and learning logics at the basis of this approach confirm differences even though with some exception based on territorial characteristics and models of AES governance.

Introduction

The paper deals with the support system of geographical indications (GIs), with the purpose of investigating the territorial dynamics of the rural knowledge. More precisely, it analyses the role of agricultural extension systems (AES) as a tool to support farm's management and innovation in GI areas. By putting forward a comparison between GI areas and not, we intend to verify the presence of innovative milieus marked by an effective knowledge and innovation system.

Within the GI system, as defined in Vandecastelaere et al. (2010), the role of extension services is explicitly recognized, even if not well explored in recent literature. In this context, not deeply explored research topics concern:

- a. the role of facilitators in GI areas;
- b. the differences in the provision of AES between GI contexts and other areas;
- c. the connection between use of AES and innovation adoption.

The relevance of these topics is confirmed by the importance of AES in recent EU rural development policies. Knowledge and innovation represent the first priorities in the new programming period 2014-2020. Our paper sets against this background and analyses the territorial dynamics of the rural knowledge, by comparing the role of AES in supporting GI/not GI farms.

The paper is structured as follows: after a brief theoretical background discussed in paragraph 2, we put forward a methodological proposal (par.3) aiming at investigating differences in the access to AES between farms belonging to GI areas and farms outside GI contexts. The results are discussed in paragraph 4. Some final considerations will close the paper.

Theoretical background

Knowledge transfer is one of the main objectives of the recent rural policies of the European Union (EU). The EU rural development policy (Rdp) for the period 2014-2020 gives relevance to the role of knowledge transfer and to the role of agricultural extension services (AES) in facilitating innovation adoption. To this end, the new regulation for rural development 1305/2013 underlines as first priority the knowledge as driving force of innovation.

This objective has to be contextualized within the territorialization of Rdp, as a consequence of diversified perspectives of rural development (Berriet-Sollicet et al., 2009). Thus, different models of rural development (for example, marginal rural areas vs areas with intensive and specialized agriculture) would result in different territorial dynamics of knowledge. As a consequence, diverse rural contexts may encompass different cognitive needs targeted towards the adoption of innovation (Kebir, Maillat, 2004; Crevoisier, 2014). In this perspective, to catch on the circulation of rural knowledge interaction and learning become relevant objects of analysis (Crevoisier, Jannerait, 2009). More precisely, the ways local milieus attract specific territorial knowledge become an important theme of research. To this end, Crevoisier (2010) makes reference to the concept "anchoring milieu" defined as the combination of local actors (enterprises, public collectives, research and training departments,

single firms, associations, etc.), which interact locally and/or with other mobile or distant actors, in order to develop collective ways of knowledge creation and mobilisation.

This paper deals with processes of anchoring of specific knowledge, by pointing out eventual differences in knowledge adoption in GI areas. Here, due to the collective character of GIs, the role of knowledge transfer may have different characteristics, in term of way and objectives of knowledge transfer.

Extension services and GI

Knowledge is a key variable to boost innovation and rural development. However, the complexity of extension services is raising, due to both the transformation occurred in rural areas and to the multifunctional role played by agriculture (Hall, 2012; Alex et al., 2002). As Röling (1990, 1) points out, *agricultural knowledge and information system (AKIS)* is: “a set of agricultural organizations and/or persons, and the links and interaction between them engaged in such processes as the generation, transformation, transmission, storage, retrieval, diffusion and utilization of knowledge and information, with the purpose of working synergically to support decision-making, problem solving and innovation in a given country’s agriculture”. The definition has been integrated after the launch of the rural development paradigm: therefore the updated version (AKIS/RD) is well defined in Rivera et al. (2005; 5): “AKIS/RD is the entire complex of agencies and institutions that provide rural people with the knowledge and information necessary for promoting innovation in their diversified livelihoods. It can be considered equivalent to an “enhanced AKIS” in that it incorporates both agricultural and non-agricultural knowledge and information services”.

The same concept of innovation is not limited, but wide-ranging, as underlined in Knickel et al. (2009, 94): “innovation involves much more than technology; more and more it relates to strategy, marketing, organization, management and design. Farmers looking for alternatives to industrial agriculture don’t necessarily apply “new” technology. Their novelties emerge as the outcome of different ways of thinking and different ways of doing things”.

Activities carried out by extension workers are grouped in individual and collective services: individual services aim at supporting single farmers (farm advisory services, individual sources of information, etc.), while collective services are targeted to groups of farmers (for example, training courses).

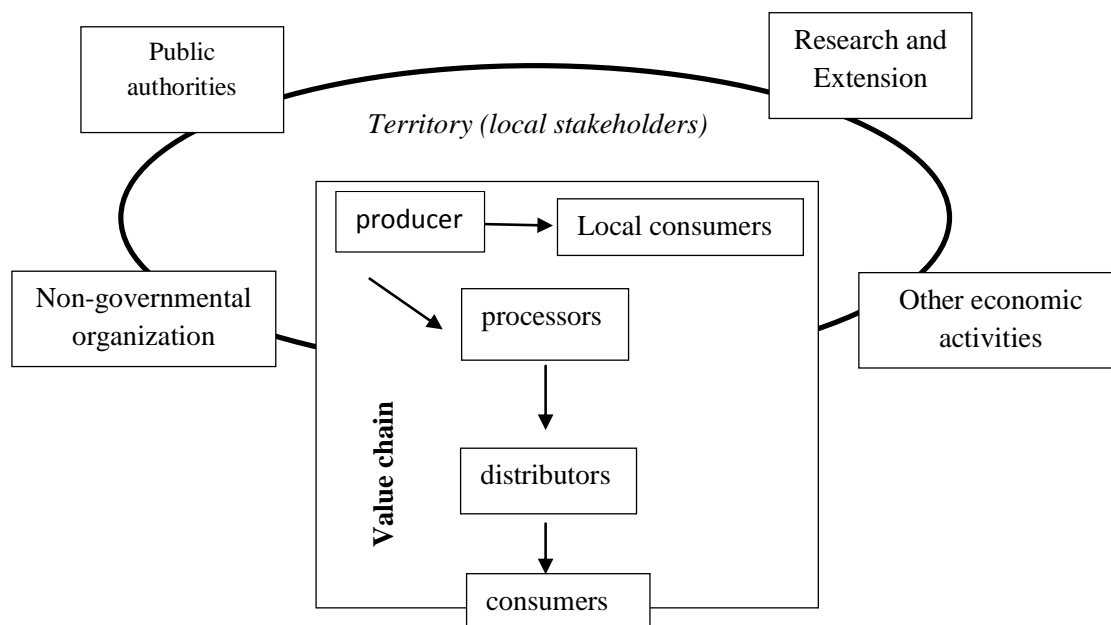
As underlined by Vandecastelaere et al. (2010), supporting system in a GI circuit includes many local stakeholders (figure 1): even though they are not directly involved in the production phases, they may give a strong contribution in activating the virtuous circle of a GI, through rising local awareness on local assets and products specificities. Therefore, the analysis of extension services becomes relevant in order to verify the presence of coherent systems of knowledge transfer.

Agricultural extension workers are located outside the value chain process, even though they work in the geographical area. Therefore, their relevance has to be underlined in promoting either technical assistance, with the purpose of introducing product or organizational innovations for the local actors involved in the GI¹.

The role of AES in contexts characterised by the presence of GIs has not been analysed yet in literature. This contribution tries to fill this gap and to provide a possible evaluation of the impact of agricultural extension services on innovation adoption in GI contexts.

¹ As underlined in Vandecastelaere et al., (2010), “Local governments and other local authorities, together with NGOs, can act at many levels to support a GI product’s development: research support, rural animation, as well providing technical assistance or information and marketing campaigns to consumers and traders”.

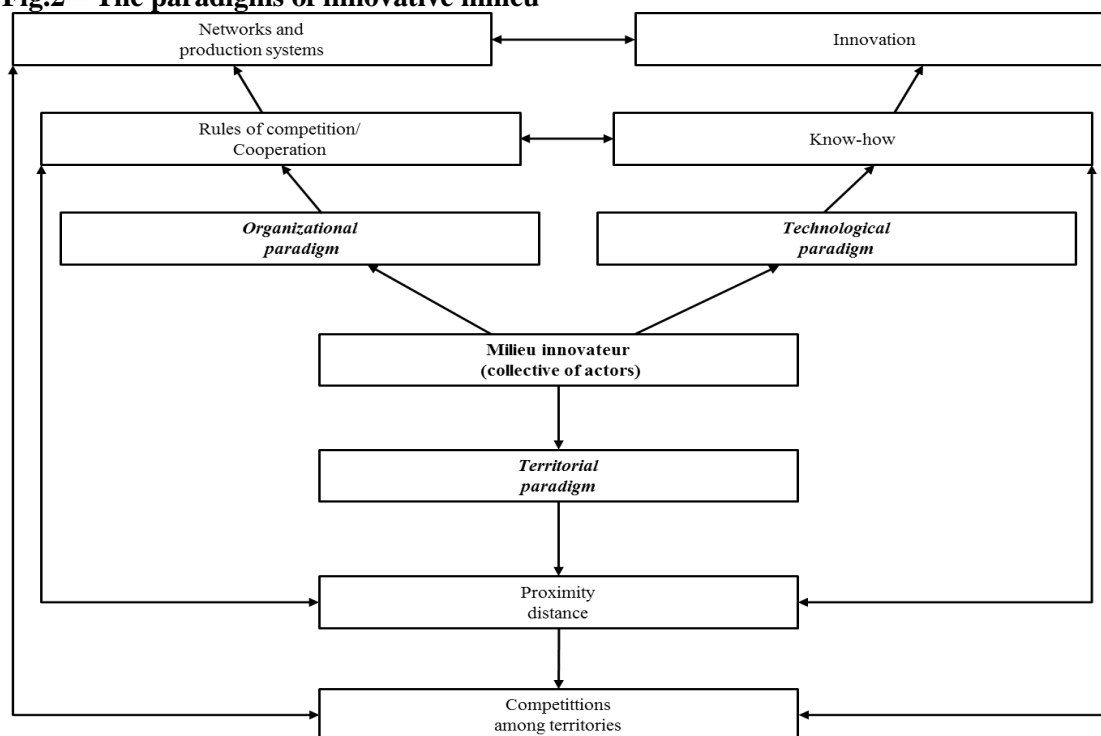
Fig.1 - Actors potentially involved in the qualification process of a GI



Source: Vandecandelaere et al. (2010)

In order to look into eventual differences in the use of “coherent” (with the GI framework) AES and in the innovation adoption, we make reference to the *milieu innovateur* (MI) concept, a largely used approach inside a neo-Shumpeterian theories of territorial production systems (Capello, 2007). By following Crevoisier’s argument, the approach comes out of three paradigms: technological, organizational and territorial (Crevoisier, 2004). The three paradigms converge in defining the *milieu innovateur*, as explained in figure 2.

Fig.2 – The paradigms of innovative milieu



Source: Crevoisier, 2004

- Technological paradigm focuses on innovation adoption as a result of the activation of specific resources. More precisely, the paradigm tests how local tacit knowledge and the savoir-faires affect processes of innovation adoption. As a consequence, the innovation adoption depends on specific territorial resources, which have to be identified and specified. Therefore, the firm depends on its territorial environment: this is particularly true in the case of geographical indications, where specific quality (vs generic quality) leads to product specificity. By making reference to the virtuous circle of a GI (Vandecastelaere et al., 2010) AES are strategic in both identification and qualification steps. Consequently, knowledge content is specific and knowledge transfer may not be equated with generic or conventional knowledge. Against this framework, innovation adoption as exit of knowledge transfer on behalf of extension workers becomes our object of analysis;
- organizational paradigm thinks over coordination mechanisms developing relational capital, that is the local aptitude to create territorial networks, thanks to reciprocity links, trust and cooperation. This paradigm is also relevant in cases of GI, in account of their collective character. As a matter of fact, extension agents are engaged in an origin-based collective action with the purpose of supporting organizational adjustment and the creation of local network. Moreover, actions aiming at promoting awareness and knowledge in the field of GI (Mancini, 2013) are key initiatives to be carried out by extension workers;
- territorial paradigm emphasises the territorial differentiation in the ability of exploiting and valorising local resources. The capability of territories to create specific resources and actors necessary for innovation is not the same. Accordingly, GI areas express different needs of rural knowledge with respect to the conventional circuits: against this background a relevant question emerges: is the supply of agricultural services equipped in order to fulfil a specific demand of knowledge? Different anchoring milieus may result in different mechanisms of knowledge transfer.

The presence of innovative milieus let processes of break/filiation, through which endogenous resources accumulated in the past are mobilised and adapted to new markets and new techniques and incorporated in new innovative products. As a consequence, the role of facilitators of innovation is fundamental in building up a climate of cooperation, trust and reciprocity, whose cognitive exits are collective learning (GI case) and innovation (Camagni, 1995).

To take in the relevance of the MI, it is necessary to look into the two pillars of this approach: the interaction and learning “logics” (Maillat et al., 1991). The interaction sphere sums up the farmer’s aptitude to make use of AES under different forms (individual and collective) and from different sources (private, public, not governmental organization - Ngo). The learning sphere points out innovation adoption, as possible result of interaction: consequently, it is an indicator of AES’s effectiveness.

Materials and methods

Methodological analysis is based on synchronic evaluation (Paus, Reviron, 2011) with the purpose of making out GI and not GI farms in the use of AES. More precisely, by applying the innovative milieu approach, the two “logics” of interaction and learning will be empirically analysed as follows:

- in order to test the interaction logics, the access to AES on behalf of farms will be investigated (by breaking down both the types and sources of AES);
- in order to test the learning logics, processes of farm’s change will be taken into account as directly linked to the use of AES.

The empirical analysis is applied to a representative sample of farms, which refers to 5 Italian regions, being articulated on the basis of AES governance (private/public/Ngo). The sample comes from the database of the Italian Institute of Statistics; it is extracted through a stratified sample with proportional allocation (Cochran, 1977). By distinguishing GI/not GI farms, a multivariate analysis will be put forward, in order to stress the eventual presence of innovative milieus.

With the purpose of specifying eventual differences, farms located in GI areas will be separated from farms located outside of it. A questionnaire has been submitted to the farms, being articulated into the following parts:

- 1) Types of AES utilized by farms:
 - a. individual;
 - b. collective.
- 2) Source of services (public, private, Ngo).
- 3) Duration of the use of AES.
- 4) Introduction of innovation.
- 5) Types of benefits related to farm changes.
- 6) Structural characteristics (average UAA)
- 7) Labour force
 - a. Young farmer and a not young assistant (prevalent or exclusive);
 - b. Young farmers with other (assistant may be young or may not);
 - c. Mature farmer and a young assistant (prevalent or exclusive);
 - d. Mature farmers with other (assistant may be old, mature or may not);
 - e. Older farmers with a young assistant (prevalent or exclusive);
 - f. Older farmers with other (assistant may be mature, old or may not).

Moreover, to discriminate territorial and AES governance other variables have been taken into account:

- 8) territorial contexts, by taking into account areas of the national strategic plan, that is:
 - A – urban areas;
 - B – area with intensive and specialized agriculture;
 - C – intermediate rural areas;
 - D – rural areas with development problems.
- 9) Governance of AES, by comparing (La Rocca, 2012):
 - a) regions with prevailingly public structures of governance (Piedmont – northwestern Italy - and Campania – southern Italy);
 - b) regions with decentralized structures of governance (Umbria – central Italy);
 - c) regions with private+Ngo structures of governance and balanced participation (Lazio - central Italy);
 - d) regions with pluralistic, privatized and participated model of governance (Veneto – northeastern Italy).

After a brief description of the main results, a multivariate analysis has been carried out (multiple correspondence and cluster analysis). As a consequence, homogeneous groups of farms on the basis of use of AES have been extracted. The selected active variables are listed below, in table 1:

Tab.1 –Active and illustrative variables

Active variables	Categories of variables
Professional farmer	2
Change and innovation in farming activity	2
Labour force composition	9

Rural areas as delimited by the national strategic plan	4
Types of used AES	8
Combination services used/introduction of farm changes	4
Number of changes	7
Types of benefits	5
Pdo/Pgi	2
Source of information	8
Source of training	8
Source of advice	8
Illustrative variables	
Region	5
Type of crop	3
Duration (years) of services (information)	4
Duration (years) of services (training)	4
Duration (years) of services (advisory)	4
UAA Pdo/Pgi	Continuous
UAA	Continuous
LSU Pdo/Pgi	Continuous
Standard output	Continuous

Results

The extracted sample is made up by 1349 farms: 1070 of them are conventional while 279 (20.9%) work within GI circuits. As explained in the methodological note, the logic of interaction is coded through the access to AES by the farmers, while learning logic is synthesized through the innovation adoption, coded by the introduction of farm change (organizational, product/process, normative, commercial). Table 1 illustrates both the logics, by linking them and by distinguishing 4 types of interaction/learning processes:

- use of AES with innovation adoption
- use of AES without innovation adoption
- non-use of AES with innovation adoption
- non-use of AES with no innovation adoption

Differences between GI and other farms clearly emerge from table 2: as a matter of fact, if the incidence of GI farms is, on the whole, 20%, the share is systematically higher. Moreover, the lowest percentages of GI farms with the absence of both services and innovation are observed (9.4%). By reading the percentages by columns, it is confirmed that GI farms absorb a higher percentage of farms using AES and adopting innovation as a consequence of this use. Moreover, GI farms are characterized by the lowest percentage of farms with no use of AES and no innovation adoption.

Tab.2 – Interaction and learning logics

	<i>no GI</i>	<i>GI</i>	<i>Total</i>
No AES / no change	173	18	191
No AES / change	69	25	94
AES / no change	90	25	115
AES + change	738	211	949
Total	1070	279	1349
% of row			
No AES / no change	90.6	9.4	100.0
No AES / change	73.4	26.6	100.0
AES / no change	78.3	21.7	100.0
AES / change	77.8	22.2	100.0

Total	79.3	20.7	100.0
% of column			
No AES / no change	16.2	6.5	14.2
No AES / change	6.4	9.0	7.0
AES / no change	8.4	9.0	8.5
AES / change	69.0	75.6	70.3
Total	100.0	100.0	100.0

Multivariate analysis

Multivariate analysis added up homogeneous farms in relation to the access to AES. Moreover, a clear differentiation emerges, attributable to the presence of a GI.

The application of multiple correspondence analysis has brought to 4 clearly identifiable factors, absorbing the 23.3% of the total variance:

1. the first factor identifies the presence of a *milieu innovateur*, being both interaction and learning logics observed (in the negative side, while in the positive neither interaction or logics have been found);
2. the second factor points out the interaction sphere by comparing types of services provided for the farms;
3. the third factor evidences the source of AES, by specifying the presence of public, private or not governmental organization in the provision of agricultural services;
4. finally, the fourth factor enlightens the types of used services, by distinguishing individual and collective agricultural services.

On the basis of the previous factors, the following cluster analysis has aggregated farms into 5 homogeneous clusters.

I cluster (partial presence of interaction and learning - PAILE)

The first cluster is characterized by the partial presence of both the two logics of interaction and learning: as a matter of fact, the 364 farms of the cluster (27% of the total) evidence a strict connection between the use of services (interaction) and the introduction of farm changes (learning): more precisely, as far as interaction is concerned, the farms of the cluster make use of just individual services (information and advisory services), which are essentially provided by non-governmental organizations. In relation to the learning logics, the farm has introduced only one adjustment: the adopted innovations concern organizational features of the farm.

II cluster (no services with innovation - NOSI)

Farms located in the second cluster are 99, with an incidence of 7.3%. The cluster contains innovating farms, but these farms make no use of agricultural services. Therefore, the introduction of farm changes is attributable to the entrepreneurial capability and not to the influence of AES. The innovation adopted by the farm permits to adequate farming activity to compulsory standards of production.

III cluster (farms working in a milieu innovateur - FAMI)

The third cluster is the most numerous and absorbs 43% of farms (580). This could be defined as the excellence cluster, where an innovative milieu let the farms interact positively with the extension workers and innovate. In this group farms the use of AES is longstanding (more than 10 years) and stimulate numerous changes in farming activity. The source of AES is multiple and the presence of private, public and non-governmental operators has been detected.

IV cluster (interaction logic without innovation - INOL)

A scarce effectiveness of AES is observed in the 115 farms (8.5%) of the fourth cluster. As a matter of fact, the use of agricultural services does not entail the adoption of innovation. The

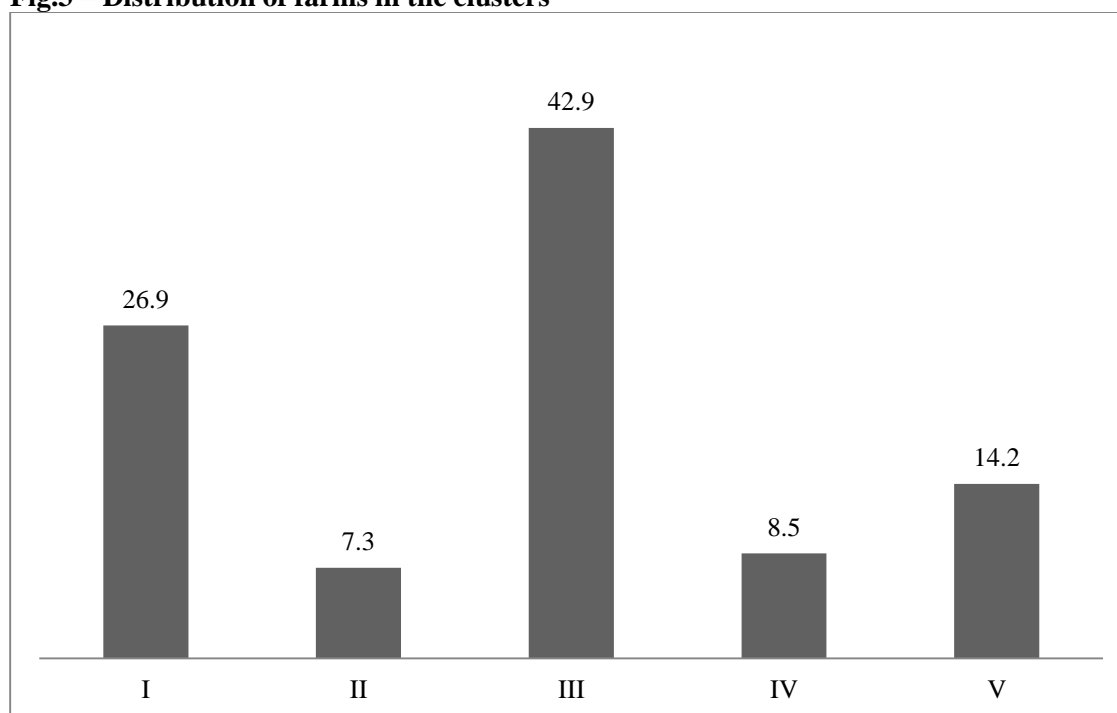
farms have used individual services only and they have not had a positive impact on innovation adoption.

V cluster (no services, no innovation - NONO)

The last cluster consists of 191 farms (14.2%), prevailingly managed by elderly entrepreneurs. This could be a possible explanation of both the low utilization of services and the low innovation adoption.

Figure 3 shows the percentage distribution of the farms in the 5 clusters.

Fig.3 – Distribution of farms in the clusters

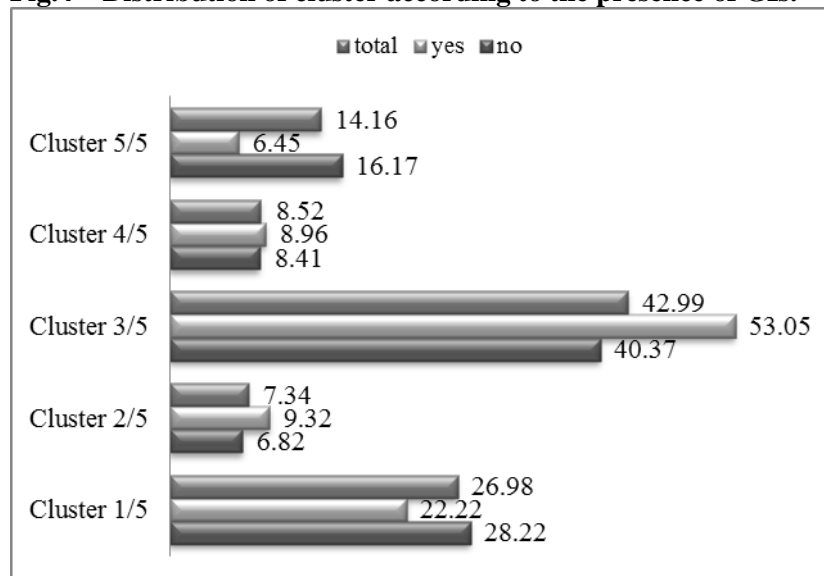


Differentiation between GI/not GI farms

The role of supporting systems in GI areas is primarily analyzed through the empirical test of the relevance of GI farms in each cluster. Figure 4 evidences the percentage of farms distributed in each cluster.

A first interesting insight stems from the big relevance of GI farms in the third cluster. As said before, third cluster is characterized by the presence of a milieu innovateur, where both interaction and learning logics are at work. In this cluster the presence of GI farms is really high: more than the half of farms is concentrated in this cluster, that is the GI farms may count on the presence of an effective support system in order to introduce technical, organizational and other innovations strictly connected to the adoption of the geographical mark. Coherently, the presence of GI farms in the fifth cluster (no use of services, no innovation) is lower than the conventional farms (6,5% vs 16,2%). On the other hand, the share of GI farms is higher in the second cluster, where a non-use of AES is observed but a positive propensity to innovation adoption has been found out. In this case the non-use of AES is essentially due to past negative experiences; therefore, the propensity to innovate is the result of an entrepreneurial alertness to exploit external opportunities without any support from the extension workers. In the first cluster, where limited innovative action is detected, the rate of presence of GI farms is lower than conventional farms (28,2% vs 22,2%). Finally, in the fourth cluster, the presence is really similar.

Fig.4 – Distribution of cluster according to the presence of GIs.



Further information may be presumed, by detailing our information from a territorial and regional perspective, by considering the degree of rurality and the type of governance. As far as territorial contexts are concerned, table 3 shows the distribution of the farms according to the cluster and the area of the national strategic plan (urban, with intensive agriculture, intermediate rural and rural marginal areas) and to the presence of GIs.

If the cluster 3 emphasizes the presence of full consumption of AES, strictly jointed to the introduction of innovation, the performance of farms located in GI contexts is relevant in both urban and rural areas. With the exception of intermediate rural areas, where the distribution is equal, in other areas the rate of presence of GI farms in the virtuous cluster is systematically higher. In area with intensive agriculture, there is the highest percentage of GI farms located in the third cluster (67%). High rates of presence are detected in rural marginal areas (52%), while the lowest percentage is observed in intermediate rural areas (38%). On the other side, rural marginal areas are characterized by the highest presence of farms without any consumption of AES and without any propensity to innovate (15%).

Tab.3 – Distribution of clusters according to the GI and type of rural area

	A			B			C			D		
	Pdo/Pgi			Pdo/Pgi			Pdo/Pgi			Pdo/Pgi		
	no	yes	total	no	yes	total	no	yes	total	no	yes	total
Cluster 1/5	28.7	23.1	27.8	21.8	12.3	19.9	34.4	31.3	33.6	34.7	29.6	33.9
Cluster 2/5	3.2	2.6	3.1	9.9	14.9	10.9	3.4	7.1	4.4	8.8	3.7	8.0
Cluster 3/5	34.0	51.3	37.0	48.2	66.7	52.0	39.5	38.4	39.2	26.5	51.9	30.5
Cluster 4/5	10.1	17.9	11.5	6.3	3.5	5.7	9.6	14.1	10.8	10.2	0.0	8.6
Cluster 5/5	23.9	5.1	20.7	13.7	2.6	11.5	13.1	9.1	12.1	19.7	14.8	19.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

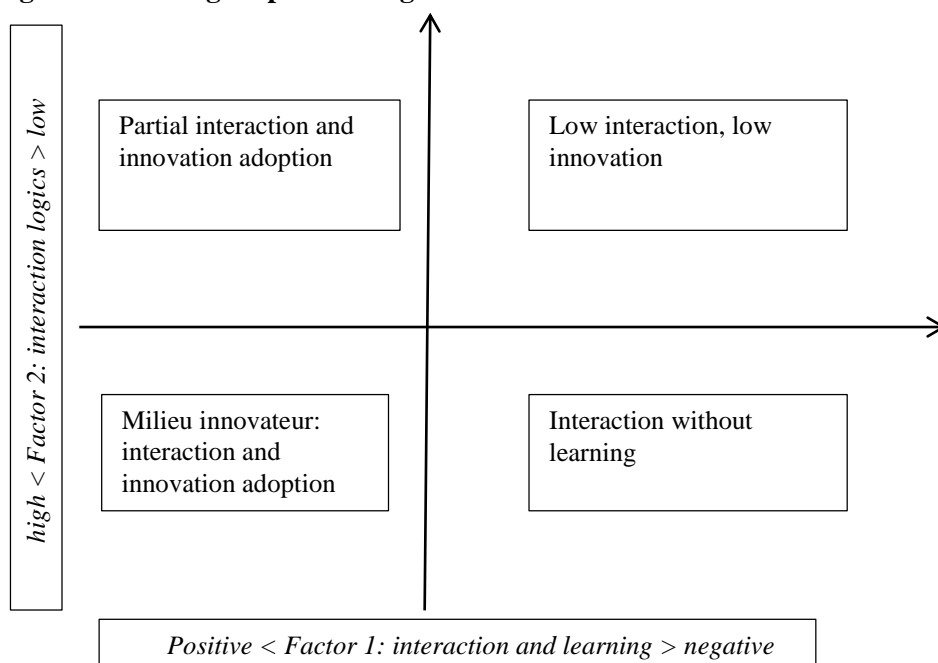
To carry through the descriptive analysis, a final element of differentiation may be observed from a regional point of view, by considering governance of AES in each regional context (table 3). With respect to the total sample, the role of AES in GI circuits is clearly identified in all regions, even though it is really evident in southern regions. As a matter of fact, the region Veneto registers the highest percentage of farms located in cluster 3, without any significant differences between GI farms and other farms: more than 60% of all farms is concentrated in cluster 3.

Tab.3 – Distribution of clusters among the regions

	<i>Regions</i>														
	campania (south)			lazio (centre)			piedmont (north-west)			umbria (centre)			veneto (north-east)		
	Pdo/Pgi		Total	Pdo/Pgi		Total	Pdo/Pgi		Total	Pdo/Pgi		Total	Pdo/Pgi		Total
	0	1		0	1		0	1		0	1		0	1	
Cluster 1/5	19.1	22.0	19.5	47.1	37.0	45.7	40.8	37.7	40.0	45.6	22.7	40.6	11.4	8.0	10.5
Cluster 2/5	6.0	2.4	5.6	0.0	0.0	0.0	1.3	0.0	1.0	3.8	0.0	3.0	16.7	22.3	18.2
Cluster 3/5	32.6	53.7	35.3	30.2	48.1	32.7	32.4	39.0	34.0	34.2	59.1	39.6	61.5	62.5	61.8
Cluster 4/5	11.0	12.2	11.1	10.5	11.1	10.6	10.9	15.6	12.1	6.3	0.0	5.9	3.3	3.6	3.4
Cluster 5/5	31.2	9.8	28.5	12.2	3.7	11.1	14.7	7.8	13.0	10.1	13.6	10.9	7.0	3.6	6.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.5	100.0	100.0	100.0	100.0

This outcome is essentially due to the strong impact of the AES on the entire agricultural sector and is a consequence of the governance of agricultural services (De Rosa et al., 2013). Therefore, the impact on GI farms is exactly similar to the other farms; on the contrary, a significant impact concerns the southern region (Campania) which shows high performance for the GI farms, 54% of which are concentrated in the third cluster. The importance of this outcome is even more significant when considering the high share of farms of the last cluster, characterized by the complete absence of both interaction and learning logics (28.5%). Finally, region Umbria evidences good performance of the AES on GI farms (59%).

To synthetize previous information and size up the role of each variable we have positioned the clusters and put in other key-variables on the basis of factorial coordinates. To this end, in figure 5 the horizontal axis reports the factorial coordinates of the first factors extracted from correspondence analysis, while, on the vertical axis factorial coordinates of the second factor are calculated. By considering that the first two axes of the correspondence analysis synthesise the logics of interaction and learning, we are able to position each cluster and, therefore, to catch further information concerning the presence of milieu innovateur.

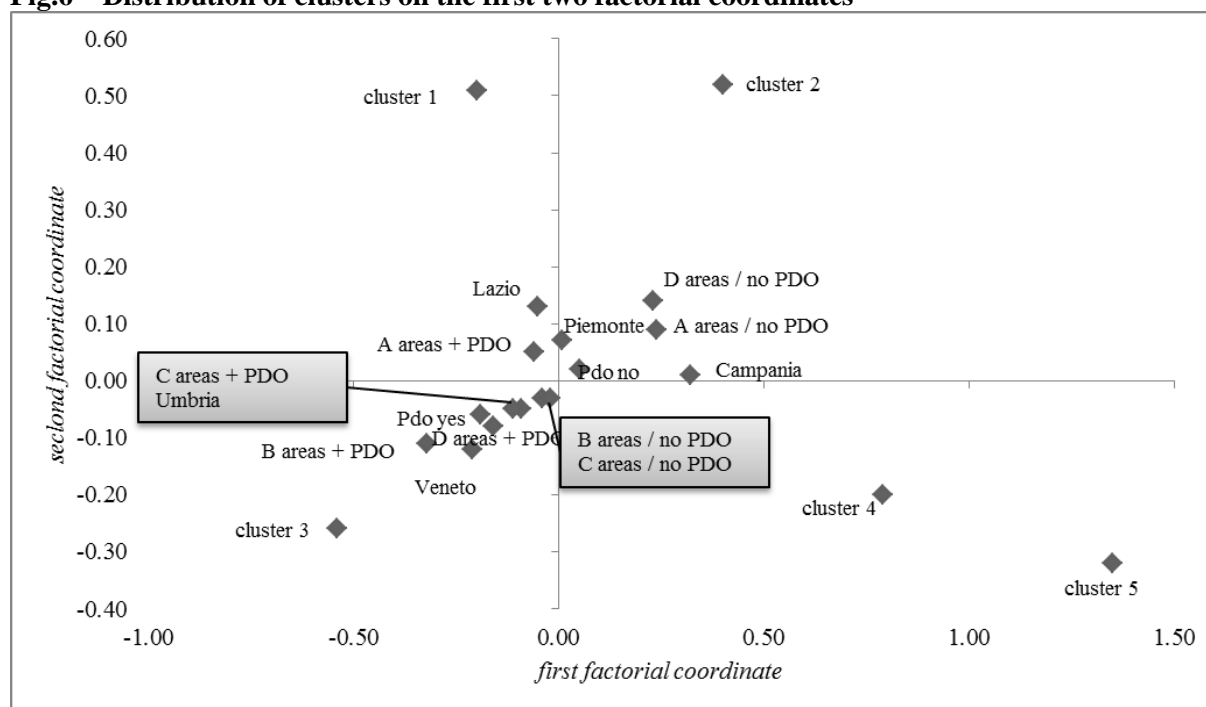
Fig.5 - Positioning map according to the factorial coordinates

The results are presented in figure 6. As expected, the third cluster is positioned in the context of a *milieu innovateur*, taking account of both interaction and learning logics. More precisely, the first factorial coordinate reveals the highest value (-0.54), then confirming the presence of interaction between farmers and agricultural extension workers, and the strict connection between the interaction and the introduction of innovations. Moreover, the choice of a GI mark clearly distinguishes the farms: as a matter of fact, GI are positioned in the area of MI, even if with a lower value of the factorial coordinates (respectively, -0.19 and -0.06).

From a regional perspective, farms in north-eastern region (Veneto) and, with lower intensity, in the central region (Umbria) benefit a MI. This is indirect information concerning the effectiveness of pluralistic systems of governance of AES. Furthermore, a strong association with this quarter is also found in both areas with intensive agriculture and rural marginal areas.

Farms belonging to the first cluster evidence low levels of interaction and learning (value of the first factorial coordinate equal to -0.20). Farms of second cluster evidence low interaction and a relatively positive propensity to innovate: therefore, AES seem of no use and innovation is not the result of a MI, being the exit of an autonomous attention toward the necessity to change farming activity. Farms of the 4th and 5th clusters are not inclined to innovate, even if in the fourth cluster the interaction logics has been observed. The last cluster evidence neither interaction nor learning activity.

Fig.6 – Distribution of clusters on the first two factorial coordinates



Discussion and conclusion

As recently underlined by Mancini (2013), the “effectiveness of knowledge transfer depends on local producers’ capacities to absorb knowledge”. Therefore, in the virtuous origin-linked quality circle the role of extension workers is relevant. This paper tried to investigate how AES lead to innovation adoption by making out GI and not GI farms. To this end a *milieu innovateur* looked like a good toolkit in exploring the role of extension systems in transferring knowledge leading to innovation. The need for taking into consideration how interaction stimulates innovation accounts for the choice of a MI approach: as a matter of fact,

MI seems effective in catching the two key elements for studying knowledge transfer in rural areas: the connection between the two logics (interaction and learning) lets coherent knowledge transfer processes to emerge. Consequently, the presence of MI is observed in presence of both logics and when interaction takes shape of innovation. As well explained in the territorial paradigm of the MI approach, different anchoring processes emerge.

The empirical analysis has enlightened differences between farms working within GI circuits and farms working outside them. As a matter of fact, differences between GI/not GI circuits may be put down to the higher levels of interaction and innovation observed for farms in GI circuits. However, this does not seem a foregone conclusion: if on the one side, GI farms show higher propensity to interact and learn, on the other side, some differences based on types of rural contexts and on types of governance of AES emerge. These differences cast some doubts on the effectiveness of AES even in GI contexts: as far as territorial contexts are concerned, in urban areas farms with GI do not introduce innovation even if using AES. Therefore, it might be possible that either not coherent knowledge or not innovative anchoring milieus typify these areas. Similar results can be found in intermediate rural areas.

On the other side, in areas with intensive agriculture and in rural marginal areas, the effectiveness of AES stimulates changes in farming activity. Furthermore, a pluralistic, participated (Veneto) or decentralized (Umbria) systems of governance of knowledge transfer seems sound in boosting innovation, with respect to other models. In relation to this, a prevalently public system of governance demonstrates the lowest aptitude to boosting innovation, even though GI farms are better off than other farms.

To sum up, this analysis has to be considered a first step toward a deeper comprehension of the role of support system in GI contexts. At the beginning of the new programming period for rural development, we think that further analyses are necessary, in order to investigate on the mechanisms of knowledge transfer and innovation adoption. Knowledge is exactly the first priority of the new programming period: a more effective system of AES is a preliminary condition even in GI areas, in order to sustain the reproduction phase of a GI that is to preserve and maintain over time good performance on economic, social and environmental levels. At this phase of our research, anchoring milieus seem characterising more GI farms than other farms. However, the situation could be improved if both types of rural territories and the governance of AES are taken into consideration. It might facilitate the transition toward a more efficient support system for geographical indications.

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