

**RURAL DEVELOPMENT:
AN ANALYTICAL APPROACH AT DIFFERENT TERRITORIAL LEVELS**

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Summary

The purpose of this work is to contribute a few reflections to the debate that has flourished in recent years around two issues, rural development and systemic reading of the territorial articulation of agricultural development. These issues have become of crucial importance also for institutional intervention at various levels (EU, national, regional). The numerous investigations conducted in Italy and elsewhere have left many issues unresolved. Indeed, the analytical approach adopted (institutional level and investigation units, choice of indicators and of the analytical instruments) has profound repercussions on rural policy, according to its wider or narrower formulation. After a brief reflection on the approaches to rural development, highlighting the contradictions of institutional intervention, and after a succinct description of the results of the investigations conducted in Italy up to this time, this study suggests an analytical model capable of providing some indications regarding rural development at different levels (EU, national, regional). The proposed instrument satisfies certain requirements: repeatability of the investigation at different times and in a variety of contexts, enabling the monitoring of the effectiveness and efficiency of the fund allocations and the comparison with other contexts, national or European. Moreover, the use of multivariate two-stage statistical techniques, Principal Components Analysis and Cluster Analysis, with the selection of further indicators in the second stage according to the peculiarities of the single contexts, ensures sufficient flexibility with regards to the heterogeneity of the situations in the rural world and the varying agricultural and rural policy demands.

WORKSHOP N. 1

1. Foreword

The purpose of this work is to contribute with some reflections to the debate that has flourished in recent years among agricultural economists concerning two issues – rural development and systemic approach to the territorial articulation of agricultural development. These issues have become of crucial importance also for institutional intervention at various levels (EU, national, regional). Whereas rural development has been subject of international, and particularly European, research, the systemic approach has figured largely over the years as an Italian peculiarity, with fluctuating peaks of interest which are not related simply to the country's modes of development. Some recent contributions have focused on rural development and systemic territorial reading (among others, see Saraceno, 1994, Cecchi 2000, Romano 2000, Brunori, 1999), with different approaches and interesting results, but also with a number of open questions that have yet to receive fully exhaustive answers.

The questions that remain unresolved are many. In the first place, does systemic reading provide the key to the interpretation of the dynamics affecting all the territories of a country or region or only some of them? In other words, is it still useful to identify the territorial systems that characterise the different national contexts, or should the systemic analysis be limited only to the presence of elements of competitiveness, as in the investigation of the local systems of agrofood production, or of the less competitive areas of the agricultural world, as in the case of the researches on the ex 5b areas? At what institutional level is it expedient to define sufficiently homogeneous systems from a rural viewpoint, if we take into account the implications in terms of policies and if we do not want this operation to be a mere statistical or econometric exercise?

The second group of questions derives directly from the first and concerns the course to be followed, on which the analytical instruments depend. At the current stage of development, when the evolution of the rural world is the result of a mix of endogenous and exogenous development, both agricultural and otherwise, and when the primary sector no longer plays a fundamental role in the territories for employment and income, does a specific course for agricultural economists still exist? In other words, do they still have a role to play in the reading of territorial processes, albeit with the knowledge that their results must find interrelations with other dynamics? Or, given the decline of agriculture, must they consider other territorial divisions, which have a considerably greater impact on socio-economic development, as preliminary and fundamental?

The purpose of this work is to contribute to the definition of an analytical framework, particularly for policy purposes. The choice of a methodological approach, in fact, implies profound differences from the point of view of institutional intervention, with important repercussions on the territories that are subject to intervention, according to its wider or narrower formulation. Par. 2 contains some reflections on the approaches to rural development, which emphasise the contradictions of institutional intervention. Par. 3 briefly outlines some results of the researches conducted up to this time on territorial articulation in Italy, whereas par. 4 suggests an approach to rural development at different territorial levels.

2. Rural development and related issues

2.1 Some concepts

The numerous researches conducted in recent years on rural development show a plurality of approaches which are related to the goals of the single researchers or institutions. An analysis of the methods used and results obtained prompts a number of suggestions, but if a lay reader were to attempt to undertake this task, he/she might draw from these contributions, though disaggregated according to their trend, a very heterogeneous idea of the subject being studied.

The rural world has intrinsically varied connotations; its definition, especially in the industrialized economies, is connected with the peculiarities of development and lifestyle in each country. The heterogeneous range of settings has prompted some researchers to relegate ruralism to certain portions of territory, marginal or disadvantaged, indicating the possible courses of development. Others have dealt with ruralism in relation to the dichotomy between urban and rural, though stating the need to get over this distinction (OCDE, 1994 and 1996).

Rural territories are, and will increasingly be in the future, the result of complex processes; the interpretation of the disparities from a merely agricultural viewpoint is therefore no longer adequate, but must be widened to include all the existing activities, though it is still needful to pay attention to

the dynamics that originate from agriculture. The great changes we have alluded to have been often analysed from different angles (among others, Kaiser et alii, 1994, and Murdoch, Marsden, 1994), and can be summed up as follows:

- a) *The great changes in demographic concentration*, with the unfolding of de-urbanization processes and demographic growth in some areas, and of desertification phenomena in others. The range of the migrations in progress prompts us to consider ruralism under a new light, which increasingly appears to be the result of choice rather than constraint;
- b) *The social transformation of families and the diversification of the job market*, which are accompanied by a drop in agricultural employment and also, quite often, by diminishing employment in the traditional industrial sectors. This may lead us to believe that the question of rural employment may eventually become a critical issue. Statistical evidence belies this assumption: the creation of new enterprises, especially of medium dimensions, often provides a positive solution in many rural areas, if we except the marginal ones.
- c) *The multifunctionality of rural areas*. The globalization of the economy represents a fundamental element of the foreseeable changes in territorial reorganization. Even the richest rural area may turn out to be weaker when faced with international competition, in view of the smaller density of services and lower productivity. Moreover, the agricultural world markets may undergo considerable changes. Increased productive capacity in the developing nations, the deepening of crises in insolvent countries, the temptation on the one hand to increase protectionism in some areas, while on the other hand international restrictions push towards a further limitation of protectionist policies, the strategies of multinational corporations: all these factors may lead to a gradual delocalization of agricultural productions. In this constantly fluctuating environment the EU policy makers are attempting to find new strategies aimed at ensuring new functions in the territories (environmental, landscape preservation etc.), in order to limit the uncertainty resulting from an exclusive dependence on quantitative goals which are unavoidably unstable;
- d) *The economic outlook of farmers*. The wide universe of farms, especially in the Mediterranean countries, emphasizes the presence of professional and accumulation farms, existing alongside a myriad of small farms (senilized or part time) where the productive function is minimal. The former are remarkably skilful in keeping up with technological innovation, penetrating the agrofood filières, efficiently withstanding the repercussions of the EU policies and implementing production strategies, with constantly decreasing internal transaction costs. The latter will be affected differently by the curtailment of protection policies and by the market trends; however, this will not always, or in all places, affect their persistence¹. How can these processes be governed, keeping in mind that these farms are not always located in marginal areas and do not produce only quality products but also commodities? What measures are needed to safeguard, on the one hand, the economic and social cycle in marginal territories, and on the other hand to allow the adoption of the necessary agroenvironmental measures in the concentration and specialization areas?
- e) *Changes in the EU alimentary systems*. Increased market competition, the role played by the multinationals, the changes in product and process technologies and the growing organizational innovations, the impact of the tertiarization processes, the penetration of distribution, all these factors are already the cause of widening regional gaps. In a market like the European one, characterized by the saturation of consumption and a growing demand for health and quality food products, the behaviour of consumers plays a fundamental role. It can determine a new agricultural geography, with a shift of the center of gravity from some regions to others, i.e. to those capable of satisfying these demands;
- f) *Introduction of the new communication technologies*. The process of information mondialization can revolutionize the concepts of space and distance also with regard to the agrofood systems. The new technologies can help to reduce the isolation of many rural areas, facilitating the access to information and the creation of favourable conditions for the launching of new activities. These developments could prompt the rural territories to concentrate their competitive strategies on the exploitation of their specific strong points (natural resources, quality products and know-how).

¹ The first census data for the year 2000 in Italy show, despite the different interpretations, that a consistent decrease, to the point of disappearance, of smaller farms can hardly be hypothesized, even in the marginal areas.

The predictable increase in competition among the territories must be accompanied by the strengthening of collaboration and organization networks, by the training of human capital, with a crucial role of the institutions;

- g) *The new role of the institutions.* The acceleration in the differentiation processes in rural areas lead to a demand for different policies. However, the local, regional, national and EU institutions, which are being increasingly called upon to implement various forms of territorial measures, are faced with a number of problems which are mainly connected with the still unresolved issue of the ill-defined division of duties and authority among the various decision-making bodies.

2.2 Which approach to rural development?

Besides the many meanings of ruralism, there is also a multiplicity of approaches to the definition of the trajectories of development in these territories (Errington, 1994, Blanc, 1997). Generally speaking, they can be divided into two groups:

- a) The spatial economy models, characterized by a hierarchic view of space. The rural world and its characteristics are perceived as the results of the effects of the ties with respect to the forms of aggregation that are typical of urban and central areas (Blanc, 1997). The result is a functional specialization of space, where the rural and urban territories are differentiated not only by the density of population and employment, but also by their structure. The model of development, in this case, is exogenous (Slee, 1994), since its pattern of growth depends on, and is exogenously determined by, the urban environments. This approach, which seemed on the wane in the 1970's, appears to be gaining new relevance today among those who study the "new geography of centrality and marginality" (Sassen 1994, and taken up by Basile and Cecchi, 2001), though it provides for an innovative distribution of functions between rural areas and medium and large-sized towns;
- b) The territorial approach, which Saraceno (1994) also identifies as local development, in which the close tie of the rural world with agriculture and the rural/urban dichotomy are abandoned. Space is divided into territorial units that cover the entire regional or local economy and include agricultural, industrial and services activities. Certain areas, more densely populated, with a metropolitan center and small open spaces, represent the urban territory, whereas others, with low density of population and the presence of small or medium-sized towns are considered rural (Blanc, 1997). The relations between the different territories are not viewed as forms of dependency but rather as non-hierarchical local economies competing on the world market. The model of development is fundamentally endogenous, i.e. based on the existence of a potential for growth which is only waiting to be discovered and exploited. Also this approach has drawn a lot of criticism. Slee (1994) maintains that endogenous development can exist only if it is supported and stimulated exogenously. Blanc (1997) stresses the fact that the territorial approach, by placing the emphasis on the internal organization of the local economies, allows us to analyze the differences in the performance of territories with comparable attributes, but little attention is given to spaces without a strong internal structure, since they are implicitly believed to be less competitive.

An approach to rural development that refuses the previous polarizations, stressing the interrelations between internal and external forces in the control of the territorial development processes appears to be more appropriate (Lowe et al, 1995). This is a mixture of the endogenous and exogenous models that allows us to understand both the growing globalization processes and the socioeconomic aspects of the local contexts. In a continuously changing global scenario, the rural actors are involved in local and external networks, but the size, direction and intensity of the networks varies according to the specific context. The study of the development of rural territories is thus transformed into an analysis of the networks. Since the networks are power relation structures, this allows us to answer a number of questions: which networks (specific or the result of a mixture of internal and external elements) can bring benefits? Which actors exercise power on the others within or through the networks? What ties bind the external to the internal actors? How can the external actors affect the local dynamics? What are the inequalities and asymmetries within the networks that cause a weakening of the local actors? In this approach the role played by the institutions in bringing the local actors into a growth trajectory and affecting the networks' power balances is fundamental.

More operatively, this focus can be transformed into an investigation of the filières that intertwine in the territories and that originate from the primary sector (agrofood, agroenvironmental, tourist, etc). In this way it is possible to study all the territories within a region or country: those where there is strong concentration and specialization, in that they represent either a stage in a filière or a local system that hinges, for instance, upon a typical product; the peri-urban territories or those with other destinations (e.g. industrial districts), in that the quantitative production of commodities and typical products may be considerable; and, finally, the areas that are traditionally defined as rural, which represent a more or less weak link in the filières.

2.3 Rural development and policies

The difficulties in defining the rural are even greater if reference is made to areas affected by EU intervention policies, given the strong ambiguity that still exists among policy makers. Over the years, the EU strategies have attempted to adopt the new concept of the territorialization of policies, but the implementation of the tools is still limited, despite the great step forward represented by the Cork Declaration. Agenda 2000 has certainly marked a clear transition in the nature of rural policies, which have become the second pillar of PAC, but this new course cannot be excessively emphasized. It is not an accident that Bryden (2000) wonders whether we are witnessing a “new rural policy” or a mere re-adjustment of past policies.

The new regulations for rural development provide, at the institutional level selected by the member States, for a new planning instrument, though it consists almost totally of the re-financing of measures funded with the ex ob. 5 and of previous PAC accessory measures. The measures expressly dedicated to local development, expected by those who had hoped for a new approach to rural development, are extremely limited. The Rural Development Plan, with the related resources, is dedicated to farm investments, to techniques with low environmental impact and to personnel training, to material and immaterial resources, whereas only a negligible share of the resources has been allocated to the other actors operating in the territories, those with a high integration potential². Farms remain the recipients of most of the aid resources.

With this orientation, rural development can hardly be defined as an accessory measure of market policy, and the real reason for the separation of the aid funds appears to be connected with budgetary needs in relation with the WTO negotiations³, with the future extension of the EU and the unsustainability of PAC in its current formulation.

Moreover, there is a lot of confusion in the EU Commission regarding the distinctions between rural and regional policies. The planning policies under discussion do not yet take into consideration other measures with a strong territorial impact, such as PAC, which absorbs almost 80% of the EU budget for the 2000-2006 period. Moreover, the horizontal nature of the new regulations raises questions concerning their relation with the structural and cohesion policies for the ob. 1 and 2 areas.

In this framework, which in many respects is rather confused, the regional and national institutions have had to prepare the new planning instruments. On the one hand, they have had to take into account the current dynamics in the segments of the main filières existing in their territories, in order to evaluate their potential for development and weak points in connection with future institutional and market conditions, and to better organize the interventions for the modernization of the farms and the transformation and marketing structures. On the other hand, they have had to study their entire territory, in relation to the characteristics of the primary sector and the socio-economic dynamics. The purpose was to understand which the main territorial systems were, considered not only as reference units for the policies directed at the sector, but also for a better organization of the environmental interventions as well as for rural development.

² Bryden points out that in France, Denmark, Finland and Scotland, less than 10% of Plan funds have been allocated to non-agricultural subjects; when compared with total funding the figure is only 1%. Brunori (1999) points out that the new regulation makes it possible to strengthen existing local rural systems in territories with a high institutional density (public and private). The danger, therefore, is that the fortuitousness of aid distribution in the territories will be increased, rather than diminished, and that those subjects and areas that are better equipped to interact with the institutions will once again be favoured.

³ As the measures for rural development are included in the green box of subsidies they are easier to defend (being excluded from the Treaty).

The institutions have also had to take into account their governance model, i.e. the self-organizing forms that have been developing over the years in the presence of complex institutional levels that operate contextually in the territories, each of them creating a complex system of incentives, constraints, regulations and bureaucratic controls. They have also had to consider that at some levels of governance, such as the PAC, regional intervention is minimal, even though the regional impact at the territorial level is strong⁴. The scenario is therefore much more complex than the one outlined by the researches on rural development conducted in recent years (examined in the paragraph below), following more or less articulated methodological approaches.

3. A brief review of territorial studies in Italy

Analyses of the territorial production systems. The “systemic” method of territorial analysis, developed in Italy before the Second World War by Serpieri, Rossi Doria and others, lost ground over the years. Signs of renewed interest became apparent only in the late 1980’s. Studies, sometimes directed at the entire national territory (Coppola et alii, 1988; Cannata, 1990; Cannata, Tarsitano 1998), sometimes at specific regional contexts, have led to interesting results that deserve attention in order to evaluate how, and in what measure, this approach should be pursued and implemented.

In the ICI model developed by Coppola and others (1988) the focus was on the methods of interaction of the agricultural sector with the socio-economic context. The indicators took into consideration the endogenous characteristics of agriculture (farm size and typologies, production system, etc.), while, for the socio-economic context, the factor and product markets, the institutional structure and the urban system were analyzed⁵. The study, which led to the identification of three modes of interaction (integration, complementariness and isolation), identifies the essential joints of the agricultural articulation. Limits can be found in connection with the taxonomic investigation unit (the province, Nuts 3), which inhibits a full apprehension of the multiple aspects inside the territories, and in the selection of certain indicators (some of which are difficult to obtain and comparable).

Cannata’s 1990 study (based on municipal census data 1980) also aimed at identifying the territorial differences in agricultural development. The variables used refer to the environmental characteristics, the agricultural structure, the income and consumption levels and the demographic characteristics. The statistical methods are the Principal Components Analysis and the cluster analysis. In a subsequent update extension based on the census data of 1990 (Cannata and Forleo, 1998), the number of indicators increases and they are organized into six macrodeterminants⁶. The defect of both studies, whose extent is in any case considerable, is their failure to adequately analyze the agricultural peculiarities (in particular the land use and agricultural profitability indicators), even though Forleo (2000) hopes for further investigations. The result has been a mapping of the Italian territories which only barely reflects the agricultural dynamics, focusing on some forms of reaction by the sector of the socioeconomic development at territorial level.

The experience of the researches on the local agrifood systems. Since the early 1990s, an increasingly large group of agricultural economists has been investigating the complexity and heterogeneity of the Italian agrofood system, borrowing concepts and instruments from industrial economics, in particular that of the “industrial district” suggested by Marshall (1966) and adopted by Becattini and the industrial economists and economic sociologists studying the problems of territorial development⁷.

This approach proved very stimulating for agricultural economists. Some, realizing that these districts, or local systems, could be identified also in the agrofood sector, attempted to describe the main dynamics of some of them. The analytical methods borrowed from the industrial districts were applied to a multifarious context, in which the researchers pointed out one or more elements of

⁴ For an efficacious description of the various levels of governance, see Esposti and Sotte (2000).

⁵ From a methodological viewpoint, factor analysis was used to identify the main territorial differentiation with respect to the interactions with the rest of the economy, while a cluster analysis was used to identify the main agricultural systems.

⁶ These are the structural arrangement of agriculture, the structure of the population and of the productive economic system; the level of incomes and of consumption; quality of life; dynamism of the socio-economic structure.

⁷ The developments in the theoretical reflections and the numerous empirical investigations have shown the role and elements of competitiveness of the industrial districts in the country’s development model. For an analysis of their evolution see Bramanti, Maggioni.

competitiveness at local level. The main reason for the decline or failure of these studies was the lack of a univocal and strong analytical framework for their definition and investigation⁸. If we agree that the original intuition was a valid one, as the institutional interest shows, it becomes necessary to understand the reasons for this, otherwise there is the danger that the researches may turn out to be sterile exercises or a simple “copy” of the industrial districts, and that the relevance of the spatial aspects in the agrofood investigations might not emerge. This obviously does not mean hunting for the district everywhere, but discovering, also in the rural world, reproductive local systems capable of satisfying two requirements: the connection with “clusters of needs” and the presence of mixed forms of organization of the local production process.

One of the defects of the studies on the local agrofood systems is that they have not adequately investigated the “diversity” of agrofood with respect to the other economic components. Agrofood systems are by their nature extremely heterogeneous, not only because of the agricultural peculiarities, but in that they are the sum of very diversified filières. The differences concern the structures, the levels of transformation incorporated in the foodstuffs, which involve different organizations, the different methods whereby the enterprises and territories deal with distribution and the considerable variations in food demand. For example, the considerable difference between the poultry meat and vine-growing sectors can be compared with the difference between the automotive industry and the shoe industry. This means that, in the agrofood sector, it is not possible to use univocal parameters for all the filières throughout the national territory. These parameters and indicators must be identified each time.

Secondly, the studies have not adequately investigated the relationships outside the systems, i.e. the relationship between local and global contexts. The district investigation may be partial, if the collocation in the corresponding filières is not considered, with respect to other local systems and isolated enterprises, which are often of wider dimensions. The district dynamics, which originate in the local structure, are continually being re-defined by the dynamics in progress in the other territories, more or less closely connected through a system of networks.

Another inadequacy is that of having isolated, often empirically, only the competitive systems, justifying their analysis by the need to understand how such advantages are generated and reproduced (Brunori, 1999, Bramanti, Maggioni). According to Porter, the concept most often referred to is the one of *competitive advantage*. However, Porter bases his analysis on economic sizes to be monitored, i.e. not only those that have been realized, but also the potential ones (the many worlds of production of Storper and Salais). A local system approach cannot therefore be limited to local systems that are competitive, but must take into consideration also the territories which may still have an advantage to be exploited, i.e. to be transformed from a potential into a competitive one.

These considerations, however, do not solve an important issue. How do we define the local systems that have their origins in agriculture? At which institutional level? Only the regional level enables us to draw a comprehensive outline, especially if the approach is on two levels: the first is the sectorial one for each filières that is significant for development, in order to evaluate its current stages and their interrelations, the main economic and social elements involved, the potential with respect to future institutional and political changes and to market dynamics; the second level is the territorial one, aimed at differentiating the types of interventions according to the priority of the objectives and the peculiarities of the single contexts. By this means the local agrifood production systems, whether competitive or potential, can be identified, and their points of competitiveness or crisis evaluated, with special focus on the institutional profile.

Studies on rural development Some researches conducted in Italy in recent years have focused on rural development. These studies, conducted at the national level, are based on the SLLs - Local Work

⁸ These shortcomings have also had an impact on the institutional aspects. Act 317 of 1991 established, for the delimitation of the districts, a “threshold” selection system in the territories defined as “local work markets” (MDL). This led to the exclusion of the agrofood districts, despite the fact that they contribute significantly to the development of entire territorial systems. The reason for this is that the agrofood sector, just like agriculture, cannot of itself represent the main sector for employment at the territorial level, unless the focus is shifted to the multisectionalism of the districts. These considerations also apply to the Local Work Systems identified by ISTAT in 1985.

Systems (Cecchi, 2000; Angeli et alii, 2000⁹, to mention only a few) which are spatial agglomerations defined by ISTAT, connected with the self-containment of the job demand and offer (ISTAT, 1997)¹⁰. Cecchi (2000), using population census information aggregated by SLL (Local Work System) and certain variables¹¹, has identified the rural and agricultural specialization systems¹². It is sufficient for our purposes to underline how the rural systems fill, as the author claims, the portions left empty following the disaggregation of the SLLs carried out by ISTAT; all the northern regions are excluded, with the exception of Trentino Alto Adige. Moreover, the local systems with agricultural specialization are located for the most part in the central and southern regions. We wonder whether these results reflect the complexity of the Italian situation, and how this view of rural development might be interpreted by the policy makers at the various levels who are called to implement the new planning era launched with Agenda 2000.

As regards the institutional level under investigation, if the goal is the identification of rural systems, it does not appear that the national level can provide exhaustive answers. Indeed, the definition of some indicators for the entire country is of little use, since the limitations, which were encountered in the definition of the industrial districts, may prove to be even greater, preventing the apprehension of the complex mosaic of current situations. The reasons for this are many: deep structural and territorial differentiation, halo effects on the territories, which are often unrelated with contiguity, but most of all the fact that the territories with wider development gaps also have a higher degree of agricultural specialization and ruralism. There is therefore the danger of providing only a partial picture, even more partial than the one identified for EU policy purposes.

As regards the investigation units, which must necessarily correspond to an administrative unit or a larger aggregate founded on a country's administrative divisions, the choice depends not only on the accessibility of information, but especially on the possibility of interpreting the results so as to gain factual knowledge and for intervention purposes. The SLLs represent a questionable choice, though they certainly provide some answers concerning the interrelations between socio-economic development and agriculture, and though they represent an important division of the Italian territory. However, they are not referable to any agricultural dynamics and are not comparable with other European contexts. The provinces also do not appear to be the most appropriate units for the definition of rural dynamics, since there are deep territorial differences inside them. Therefore, in order to identify the rural systems, the institutional level of investigation can only be the regional one, and the most appropriate taxonomic investigation unit is the municipal one, not because it is capable of expressing its ruralism (Angeli et alii, 2000), but because it allows the identification, at the sub-regional level, of the main territorial systems that are sufficiently homogeneous for policy purposes.

4) An approach for the analysis of rural development

In the constantly fluctuating EU scenario we now need to identify an analytical model that can be used for the interpretation of the territorial articulation of rural development, not only with respect to the dynamics existing in the single socioeconomic contexts, but also to their susceptibility to the deep changes engendered by institutional reform. This model must provide a key for the interpretation of the main territorial differences (at regional, national, EU level), in support of policy-makers' strategies during a phase of deep transformations of the rural world.

The analytical instruments must satisfy certain requirements. On the one hand, they must ensure the future repeatability of the research, enabling the *ex post* monitoring of the effectiveness and efficiency

⁹ In Angeli et alii's study (2000) the purpose was not to delimit new rural systems but to evaluate the degree of ruralism in the Local Work Systems, using the OECD parameters characterized by the urban/rural dichotomy.

¹⁰ The self-containment of the offer expresses the proportion of the resident employed population that works within the area (internal movements vs. employed residents); the self-containment of the demand expresses the proportion of the job situations in the area that are covered by the resident employed population (internal movements vs. job situations).

¹¹ These are the incidence of agricultural employment on the total, the variance of the percentile distribution of employment among the economic activities, and the density of the resident population.

¹² The system is defined as rural based on the simultaneous presence of three criteria: the agricultural employment exceeds the national average, while the productive differentiation and the demographic density are lower than the national average. On the other hand, the system is agriculturally specialized when the agricultural activity is significant, in terms of employment, but the sectorial differentiation is negligible.

of the adopted measures, as well as of the unfolding of processes that are independent from the public measures. On the other hand, they must enable the comparison with other national and EU contexts, thus providing a reliable guide for the policy measures directed at the competitiveness or gaps within the single systems. Moreover, though scientifically rigorous, they must be sufficiently flexible, so that they can be adapted to the mosaic of current situations and to the consequent agricultural policy demands. Finally, they must be applicable to different territorial levels, so as to satisfy different agricultural policy demands. The objective is to obtain an adequate range of information for each level, to be integrated with the information available from the other levels, based not only on the significance of the results but also of the institutions involved. The accessibility of statistical information, the interpretability of the results and the possibility of rendering analysis dynamic will naturally be different.

The problems encountered in the definition of these instruments are many, ranging from the choice of indicators and methodology to be used. As regards methodology, the techniques adopted in this work are those of multivariate statistics, widely used in the literature on this subject: Principal Components Analysis (PCA) and Cluster Analysis¹³. A further “two-stage” approach was introduced in the investigation; though more laborious, this course ensures the flexibility mentioned above, which is necessary since the zonings are in some cases harder to interpret for the purposes of agricultural policy interventions.

As regards the indicators, the heterogeneity of the situations found in the rural world, as well as the new roles played by agriculture, make selecting the indicators a complex operation. Their number must be limited because of the scarcity of available sources and because of the difficulties connected with their interpretation, though the statistical techniques adopted can provide a valid instrument of selection and simplification. The range of indicators must in any case be adequate for an exhaustive reading of the main rural dynamics.

The indicators utilised in the analysis may be divided into two groups: the first one includes those utilized in the first stage of the investigation, which represent the minimum threshold for the evaluation of the main rural dynamics at the different investigation levels (sub-regional, national, EU); they can also provide a foundation for the subsequent monitoring of the adopted policies. These are the socioeconomic, structural, specialization and income indicators (appendix A).

The socioeconomic indicators supply the minimum information needed for the evaluation of the level of development or disadvantage in the single territories. In fact, these are the parameters used to determine whether certain municipalities belong to the ex 5b areas, when their values are distinctly below the regional average (GNP and population density) or above it (agricultural employment rate and unemployment index). The structural indicators are used to interpret the reaction of farms organizations to the PAC reforms. The specialization indicators for the main crops and stock farms are used to evaluate their level in the single territorial systems. They must be selected based on the main existing product lines, giving special attention to their significance also with regard to the environmental aspects. Finally, the income indicators should provide important clues on the contribution of the primary sector to development.

The selection of the indicators belonging to the second group, on the other hand, depends on the results obtained in the first stage as well as on the policy makers' demands.

Regional level through the use of municipal data. In this case the objective is to define the main territorial systems at sub-regional level, so as to understand their evolution with regard to the impact of the policies, the socioeconomic dynamics and the integration with the food chain at the local level. The need for this investigation is therefore connected with the current need of the Regions to know their main strong points and disadvantages. The objective is not to identify new institutional contexts in addition to the existing ones, but to define sufficiently homogeneous territorial systems from a rural viewpoint, to be placed at the centre of institutional planning at regional and local level. The analysis was conducted in two Italian regions, Emilia Romagna and Veneto, which are characterized by a high

¹³ For a comprehensive description of the different manners of application of PCA, see Fanfani, Mazzocchi (1999) and Mazzocchi, Montresor (1999).

level of development and high agricultural productivity, but also by the presence of territories with various levels of disadvantage¹⁴. The purpose was to compare them as mentioned above.

The investigation enabled the identification, in both regions, of three macro-areas, which may be expected to exist in other regional contexts as well, though with a different weight and dissimilar composition: areas characterized by a high level of socioeconomic development and high agricultural productivity, areas characterized by high agricultural productivity and a medium level of economic development, areas with various agricultural or other disadvantages¹⁵. Inside these macro-areas there are territorial systems with a different vocation (peri-urban areas, specialization areas, traditional rural areas etc).

The investigation also highlighted certain limitations. From an operational viewpoint, the output did not always lead to the identification of territorial systems at which the local development measures can be directed, and therefore it became necessary to proceed to the second stage. Moreover, the analysis is static and outdated, since the sources used, the Agricultural and Population Censuses, are affected by the frequency of the census investigations. Moreover, certain parameters (per-capita GDP and SGM) are static, since they are not obtainable from statistical sources.

The need to proceed to the second stage originated therefore from the fact that some systems, though presenting features of homogeneity, are too widespread to enable the management of the numerous problems that regional planning involves. A large system (almost 30% of the regional territory) was identified in Veneto in the first stage, with very diversified rural specializations, despite the common trait represented by diffuse industrialization and dense settlement areas. In Emilia Romagna, on the other hand, the problem was connected with the different levels of disadvantage found in hill and mountain areas: here the difficulty of interpretation concerned specialized production as well as socioeconomic dynamics.

In both cases, further indicators were introduced in the multivariate statistical analysis to extend the mapping. Aside from the examples provided, the purpose was to demonstrate the flexibility of the instrument and its applicability to other regional contexts, with respect to their peculiarities and the objectives of the policies. This approach can also help to identify the local systems of food transformation, especially those that hinge on small and medium-size enterprises. Some results can be found in Montresor, Mazzocchi, Zanchini (1999), where systems based on typical productions (DOC and IGP) were identified in Emilia Romagna. The information available from the first stage highlighted their strong and weak points, on which public and private, local and regional institutions can base their projects.

National level through the use of NUT 3 data. At the NUT 3 level, which in Italy corresponds to the provinces, the purpose of the investigation was to understand in which scenario the regional strategies are enacted. The output of the analysis enables the identification of the main areas of agricultural concentration and specialization in each country, as well as the role played by food integration at the territorial level, indirectly highlighting the weight of trade relations and the main differentiations in the rural world. The analysis provides a comprehensive picture, enabling the identification of the most suitable planning instruments at the national level, as in the case of Italy and France with the agricultural reorientation acts. Moreover, from an operational viewpoint, this investigation unit often corresponds to an institutional level of intervention. However, the delineated territorial macro-aggregations show certain limitations, connected with the wide range of the investigation unit and the profound disparities that exist inside it, as the regional analysis shows¹⁶. The national statistics were

¹⁴ The results are given in the work cited above (Mazzocchi, Montresor, 1999), in Montresor, Mazzocchi, Zanchini (1999) and in Montresor, Mazzocchi (2001)

¹⁵ In a first approximation, there are no deep contradictions between the models of development of Emilia Romagna and Veneto. The highly developed areas of Emilia Romagna with high agricultural productivity encompass approximately 39% of the territory and contain 75% of the population; these values in Veneto are approximately 45% of the area and 75% of the population. Most of the produced regional wealth is concentrated inside these areas (83% of GDP in Emilia Romagna and 79% in Veneto), just as in the case of agricultural productivity (64%).

¹⁶ In order to interpret the variety of existing conditions with a satisfactory degree of approximation, the investigation of the Italian context introduced three indicators, showing the percentages of hill, mountain and plains areas. The relevance of these parameters was confirmed by the fact that the areas thus identified show comparative agricultural and rural homogeneity.

once more the source of the necessary information, given the absence of a European data bank at this level. For this level of investigation access to information is easier, and no problems arise in connection with the assessment of the indicators, since they are easy to obtain. Moreover, this analysis can be rendered dynamic through an approach that is integrated with other theoretical models, and through the use of information provided by the national FADN¹⁷.

European level through the use of the NUT 2 data. At this level of investigation, the purpose of the analysis was to understand the European scenario affected by the national and regional strategies, as well as the overall EU context in view of the agricultural policies adopted in Agenda 2000, and also of the expansion towards the PECO and Southern Mediterranean Countries (Montresor, Mazzocchi, 2001). It is clear that many of the territorial dynamics identified in the previous territorial levels of investigation are substantially reduced, though the previously obtained results still enable us to understand the main indications provided by this analysis. The statistical information sources are the European FADN and the REGIO data bank. The former, though with the limitations resulting from the different sampling methods adopted by the different member nations, enable us to select the indicators for the agricultural specializations, while the REGIO information is used to define the parameters for the socioeconomic context, the business structures and agroalimentary integration. This investigation allows us to evaluate dynamically the foreseeable scenarios in the European regions, since the historical series of information provided by the European FADN has a wider range, and also because it can be integrated with the models of agricultural offer, national or European.

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¹⁷ An example in this direction can be found in Paris, Montresor, Arfini, Mazzocchi (2000). A theoretical model was presented in this work for the analysis in dynamic terms of the territorial impact of the adopted measures (PAC), and to evaluate the farms' ability to adapt, as a function of the characteristics and opportunities of each territory. The multivariate statistical analysis (PCA and Cluster Analysis) is accompanied by the second stage, based on Positive Mathematical Programming (PMP).

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Appendix A Indicators used in the analysis

Group	Indicators
Main economic indicators	Per Capita GDP, % Employees Agriculture, Industry and Services, Unemployment Ratio
Demographic indicators	Population Density, Ageing Index, Dependency Ratio, Graduated Ratio, Female Activity Ratio
Agricultural structure	Avg. Uaa per Farm, % Farms under 2 Ha, % Farms above 50 Ha, % Uaa of Farms under 2 Ha, % Uaa of Farms above 50 Ha, Tractors per Ha Uaa
Agricultural activities <i>Crops: % of UAA</i> <i>Animal production: heads for hectare of UAA</i>	Cereals, Feeding Crops, Pastures, Horticulture, Fruits, Olives, Citrus Fruits, Vines, CDO Vines, Bovines, Pigs, Chickens, Sheeps and Goats, Bovine Heads per Ha of Feeding Crops and Pastures, Sheeps And Goats Per Ha Of Feeding Crops And Pastures
Productivity of agriculture	Workers Per Ha Of Uaa, Standard Gross Profit Per Ha Of Uaa, Sgp Per Worker
Agricultural Structure dynamics (%)	Uaa Change (80-90), Farms Change (80-90), Agr. Surface Change (80-90)
Integration with food industry	Agr. Worker Per Food Firm, % Employees In Large Food Firms

Appendix B Some features of the proposed model

Territorial level Analysis	Municipality data (for Regions)	NUTS 3 (for Countries)	NUTS 2 (for EU)
Source of data	National sources	National sources National FADN	REGIO EU FADN
Methodology	Statistical	Statistical PMP	Statistical PMP
Theoretical assumptions	Normative/ Positivistic Static	Normative/ Positivistic Static/dynamic	Normative/ Positivistic Static/Dynamic
Change of parameters	Difficult	Easy	Easy