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Organized Session 1 : Rural Development: Economics and Policies

**The Economic Analysis of Rural Development**

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*Summary*

*The changing spatial distribution of activities and people in Europe is leading to difficulties and uncertainties in the rural areas. Therefore the issue of rural development has become increasingly acute and is a matter of concern for policymakers and scientists. This paper aims at presenting the theoretical and methodological aspects of rural development by examining the economic factors which portray the space structuration and its change over time. It stresses the role of aggregation and dispersion forces, the effect of organisational factors, the analytical framework which is available to shed light on the economic mechanisms involved. Econometric and synthetic models that are available for quantifying rural development are also discussed and some conclusions for research are emphasised.*

*Keywords: rural development, location theory, economic geography, input-output analysis*

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## 1. Introduction

The changing spatial distribution of activities and people in Europe is leading to a rapid increase in the economic weight of urban areas, while the traditional organisation of rural areas is often called into question, particularly when it is dependent on primary activities like agriculture or the extractive industries. This restructuring entails difficulties and uncertainties which raise questions as to the economic and social prospects open to such areas. The issue of rural development is therefore laid open. Although not new, it has become increasingly acute as activities once the hinge-pin of rural life have declined. One can now perceive the risks that may arise in allowing huge areas of Europe to wither away from the viewpoint of the economic and social cohesion of the Union while acknowledging that the earlier balance cannot be maintained and that it is probably necessary to envisage new relationships between the different types of space. While the question is particularly relevant in Europe, where History has shaped what was until recent times an often densely populated rural world (European Commission, 1994), it is not without interest either in other economically advanced countries, like the United States of America, despite the much more contrasted geographical distribution of population (Rowley et al., 1996; Hite, 1998). Policymakers are looking for solutions to what is often perceived as regression and questioning specialists in economic analysis, inter alia, on the mechanisms that lead to the current situation, its foreseeable future development and the effects of policies that may be implemented to influence it.

This paper will therefore be dealing with a problem of economic policy; but first we must define the subject of analysis. What is rural development? Many analysts — economists, sociologists, political scientists — have come up with definitions, whether in the context of industrialised nations or developing countries (Bodiguel, 1986; Deavers, 1988; Houée, 1996). In concentrating our approach on economic analysis, we believe, like Hodge (1986) that rural development can be defined as *"an overall improvement in welfare of rural residents and in the contribution which the rural resource base makes more generally to the welfare of the population as a whole"*. This understanding seems to clearly reflect the two key components of the question: rural development concerns people and not just areas or activities; their welfare cannot be dissociated from that of society as a whole. It also refers to the idea of "rural", the definition of which is far from unified. This concept is the subject of highly diversified approaches depending on how the heterogeneity of space is perceived (Blanc, 1997) and how it changes (Saraceno, 1994; Cavailhès et al., 1994; Hite, 1998). For us, it is more of a geographical concept than an economic one, allowing us, in the European context, to identify zones which are both the least densely populated and the most remote from the major urban agglomerations. This definition has the advantage of concentrating on the regions which are genuine subjects of concern in terms of economic and social development. It also implicitly introduces the question of the diversity of the space lying outside the main agglomerations. Beyond the

autonomous rural world, a portion of the non urban area is directly related to urban dynamics: these are zones which, without being fully agglomerated, are no longer completely 'rural' either in the way we mean and which evolve in their own specific manner (Schmitt, 1999).

The purpose of this paper is to propose some theoretical and methodological thoughts on the economic foundations of the actions and policies conducted in favour of rural development, whether implemented by the public authorities, private organisations or citizens to improve the welfare of rural populations and the contribution they make to society as a whole. In view of the fundamental character of the spatial dimension in this analysis, the second section of this paper shall be given over to a review of economic approaches aimed at explaining the dynamics of rural areas. In the third section, based on an analysis of the forces structuring rural areas, we present the underlying economic justification of rural development and the corresponding means of intervention. The fourth section will deal with the tools available to the economist for evaluating local economic growth and the effects of public interventions on the welfare of rural populations. In a final section, we try to draw a number of lessons from this analysis for further rural development analysis.

## **2. The dynamics of rural areas in economic analysis**

Beyond the classical approaches applying the traditional concepts of international economics to the inter-regional distribution of economic activities, on the basis of what are assumed to be immobile factor endowments, the comparatively secondary position of spatial dynamics in economic analysis stems more from methodological difficulties than from any disinterest on the part of economists for questions of location and distance. In a recent paper, Thisse and Walliser (1998) describe the problems encountered in integrating space into economic thought. They formulate a number of reservations about the advances achieved.<sup>1</sup> However, they believe that it is by considering space as a scarce resource for the location of economic activities, or the source of proximity effects for firms, that the analysis has advanced most. It is on these issues that our presentation of the dynamics of rural areas will rely. We focus our development on the two schools of thought that propose an explanation for this dynamic: the spatial approach and the territorial (or organisational) approach.

### *2.1 Rural areas in location theories*

Rural space is seldom the central subject of these theories and the location of activities and people is usually considered by reference to the urban area on which the distribution of economic activity ultimately depends. Rural space is then considered as dependent on the city for the acquisition of certain goods and

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<sup>1</sup> Huriot (1998) presents a more optimistic view of relations between economic theory and space.

the access to certain functions. The earliest location model, that of von Thünen, proposes an explanation of location of activities in an isolated, homogeneous plain in the centre of which stands a city, the marketplace for agricultural products from the plain (Samuelson, 1983, Huriot, 1994). Because of the existence of transport costs related to the distance to the city, economic activities are distributed as a function of rent per land unit paid to the landowner. The lower the rent, the more remote the production activities in question from the city. If the rural area is defined by its distance to the central city, it is characterised by low rent production activities. This very simple model was the basis for most subsequent developments of spatial analysis, which are based on the existence of a hierarchy of cities in geographical space and on the differentiation of the good produced.

Thus Christaller and Lösch, in the first half of the 20th century, came up with the theory of central places, postulating the existence of activities benefiting from scale economies producing central (or superior) goods, which are found in the central cities. A hierarchy of cities forms in what is assumed to be a uniform space, allowing for economies of scale, types of service proposed, the frequency of consumption and the costs of transporting goods and people. In this theory, the rural area is given over to the production of goods with limited scale economies and the provision of ordinary or inferior services.

Although these theories may be easily criticised for the simplicity of the underlying assumptions, they give a good account of the way many European countries are structured. Thus von Thünen's model describes what happens to zones around the centre and in particular the most remote, or 'rural' zones, when transport costs vary (Hite, 1998). The degree of rurality may vary over time, as is being seen today: since rural zones are "closer" to the cities because of lower communication costs (transport and information), whereas other, more remote areas, are little affected by this movement.

It is work by Fujita (1990), Krugman (1991), Krugman and Venables (1995), Fujita and Thisse (1997) and research in New Economic Geography (NEG) that have revitalised spatial dynamic analysis (Huriot, 1998). Without challenging the founding models, NEG has substantially enhanced analyses of firm location. Its contribution seems decisive on two points: the introduction of imperfect competition and of proximity externalities in location models.<sup>2</sup> In a context of generalised fall in transport costs, firms benefiting from substantial economies of scale have an advantage in concentrating their production. But they also wish to free themselves from the constraints of price competition and seek to differentiate their production from that of competing firms. In addition, firms have an advantage in benefiting from agglomeration economies which stem from (i) non market interactions, generating external proximity effects, (ii) monopolistic

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<sup>2</sup> This second concept is taken directly from Marshall (1920) and his thinking on increasing returns achieved by small firms not benefiting from scale economies.



competition structures, for satisfying consumer preference for variety, and (iii) strategic externalities related to geographic proximity of competing firms (Huriot, 1998).

Another set of analyses proposed by this school of thought is just as important and concerns the consequences of agglomeration effects on spatial dynamics. It shows that, in a given territory, a uniform spatial distribution is unstable and necessarily changes towards a heterogeneous structure. Once started, the agglomeration phenomenon is self-sustaining and cumulative. In other words, concentration of firms and consumers in a given place tends to reinforce itself and conversely a zone that does not benefit from this effect may be destructured by the movements of human, material and immaterial production factors towards the agglomeration. Irreversible effects are then created. They make a return to the earlier equilibrium hypothetical.

Faced with the process described above, the status of rural areas is varied (Cavallières *et al.*, 1994; Saraceno, 1994). A fraction of them, close to cities, are absorbed by the polarising dynamic of the space driven by agglomeration of activities, and are directly influenced by this dynamic. The characteristics of this part of rural space make it a periurban zone.<sup>3</sup> The other part, which we term the "autonomous rural area", is characterised by the continued presence of forces opposing polarisation; these forces are linked to distance to the centre, the fixed or almost fixed nature of the production factors used, specific modes of organisation, and, to some extent, the nature of the goods produced (Jayet, 1996; Schmitt, 1999).

Agriculture and other traditional activities related to the land used to be central in structuring space, pinning down a large number of jobs outside the cities. Technical progress in these sectors has brought about a substantial reduction in their labour requirements, which reduction is seldom offset by job creation in other activities. Modern agriculture is therefore no longer able to act as a "dispersive force" as traditional agriculture used to do. This general picture is to be refined, as we shall see below, because of the other functions that farmers can fulfil for the management of rural areas. Moreover, agriculture, intensive or otherwise, can promote the creation of supply or processing businesses close to the production sites. The distribution of firms in the agro-food industry in a region like Brittany (Mahé *et al.*, 1998) is enlightening in this respect. Agriculture and the related industries may contribute to initiating local polarisation within the autonomous rural area. Other sectors of economic activity can have the same effect round rural towns or small cities (Saraceno, 1994).

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<sup>3</sup> When the spatial fabric is well structured, agglomeration dynamics may occur at different urban size scales. This is the case of Italy where the network of small and medium-sized cities is well developed. Its existence allows economic activity to extend to only slightly urbanised areas. This might also be true of Germany. When the spatial mesh is larger, as in France or Great Britain, agglomeration occurs above all around the metropolitan areas. See the territorial approach to spatial dynamics below.

## 2.2 *The contribution of the territorial approach*

Location theories concentrate mainly on spatial and urban polarisation phenomena and analyse dispersive forces less thoroughly. Conversely, territorial or organisational approaches may be considered as a corpus of assumptions liable to account for spatial distribution or, more precisely, for local polarisation. As such, they are of direct interest to rural dynamics.

The territorial approach<sup>4</sup> has no founding paradigm, in the proper sense, and like the previous approach draws on the existence of Marshallian externalities. By contrast, it emphasises that their use by small or medium-sized firms organised into networks allows the development of stable economic poles comparable in terms of competitiveness with those of larger agglomerations. It is the "organisation" of relations within a territory that is the key concept to this proposal. The canonical example of the territorial approach is that of the industrial district, which is defined by Becattini (1991): it is a "*socio-territorial entity characterised by the active presence of a community of persons and of a population of firms in a given geographical and historical area*".

The main interest of this approach for the analysis of the dynamics of rural areas is that it postulates the existence of sufficient dispersive forces for a lasting equilibrium to be established in territories remote from the main agglomerations. This is a shift away from the rationale of NEG analysis which postulates a cumulative agglomeration process around the metropolitan areas. Some observers like Saraceno (1994) consider that the "local economy" concept allows better analysis of the recent demographic and economic trends of areas outside agglomerations in Italy, France or Great Britain than the traditional separation between rural and urban.

It seems that the "local economy" model is well adapted to the territorial structure of Italy, which has allowed the emergence of industrial districts. It may be less well adapted elsewhere. As Saraceno remarks, a local economy needs a sufficiently rich environment in people and economic activities in order to thrive. This environment is found in many rural areas of Italy, but it is far less common in France or Great Britain because of the much earlier concentration of economic and social life in metropolitan areas in these countries. The appearance of "local economies", not to speak of industrial districts, requires a certain economic and demographic "density".

What is to be made of this approach for the autonomous rural areas? It seems clear that dispersive forces can only fully exert their effect when there are people capable of making them work for them. This requires a local organisation, a network of interactions based on proximity and trust, which can be found in many rural areas. As Jayet (1996) points out, the rural area is characterised by

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<sup>4</sup> We group under this heading highly diverse approaches which share the common point of emphasising the idea of geographic proximity and interaction between agents (Blanc, 1997).

organisational assets related to the land. They play a key role from the point of view of local economic organisation, inasmuch as they cannot readily be transferred elsewhere. These organisational assets can be found, for example, in local labour markets. The "paternalistic" management of labour relations, combined with a low skilled work force is a comparative advantage and may become a factor of development (Blanc *et al.*, 1999).

### **3. Spatial dynamics and rural development**

The way in which rural areas evolve and are structured influences rural development in the sense defined in the introduction. Thus the economic and social welfare of resident populations is affected positively or adversely by this evolution; the same is true of their involvement in global growth. From another point of view, society is legitimately concerned about the future of rural areas and the way they can be used in future by their residents, but also by all citizens. The question of rural development lies then at the confluence of an internal concern for local growth and an external interest in regional development. The European Union translates this double concern into a broader objective of economic and social cohesion expressed by its regional structural policy. In this section, we examine in turn the question of rural development with regard to equity and economic efficiency and the contribution of economic analysis to the search for factors behind rural development.

#### *3.1 Rural development between equity and efficiency*

Rural development can be envisaged from either of two points of view: it may involve a concern with equity or contribute to a quest for efficiency (Petit, 1982). These two conceptions are found in the collective interventions in favour of rural areas, but their weighting varies considerably depending on the time, the place or the players involved.

The concern with equity is based on the principle that all the citizens of the same political area should enjoy the same possibilities of access to public goods and services, whether transport infrastructures, access to social and health services or to education, for example. Yet current spatial dynamics means this principle is wanting in many rural areas belonging to the autonomous rural area in particular. This situation contributes to the reduction in welfare of the populations in question and the economic and social regression of the corresponding territories. It is judged unfavourable by the governments which see in it a destructuring factor for society as a whole (European Commission, 1994). The authorities (European, national or regional) then assume their allocative function by adopting a corrective policy. However, if the spatial equilibrium observed is judged inequitable from the social standpoint, economic analysis does not provide any standard for fixing the degree of improvement of spatial equity procured by another equilibrium (Fujita and Thisse, 1997).



While it is a concern for equity that forms the basis of action in favour of rural development in the first place, the question of economic efficiency of the new equilibrium sought cannot be ignored. Regional development has a cost and this cost must be compared with the variation in global welfare involved. This question is at the heart of the economic analysis of European or national policies for rural development, industrial re-conversion or, more generally, cohesion. For the policy promoters, economic equity within Europe is a prerequisite to any decentralisation policy, to any exercise of the principle of subsidiarity, which themselves are the conditions of increased competitiveness of the European Union. Equity and efficiency seemingly therefore pull in the same direction, the improvement of the economic situation of rural areas accentuating their contribution to global welfare. These premises have often been contested (Mougeot, 1975) and have not been verified at present for want of a suitable theoretical model (Martin, 1998).

More generally, the question of the efficiency of regional development policies may be asked by referring to growth theories. The neo-classical model provides for convergence between the regions belonging to the same economic space which should abolish or reduce development disparities and reduce the interest of corrective policies. Very rural areas should therefore benefit from this process. As regards Europe, empirical tests show some degree of convergence between States has occurred, but regions in difficulty — which often include extensive rural areas — are less affected by this movement (Martin, 1998). It must be admitted also that the neo-classical theory of growth does not account very well for ongoing changes in spatial patterns. Conversely, the endogenous growth approach argues that the development process is cumulative by nature and entails spatial polarisation which is a source of efficiency.<sup>5</sup> Under these circumstances, a corrective policy is not optimal and is paid for in terms of global growth. However, it can be justified if spatial equilibrium aimed at revitalising rural zones, say, is judged preferable by society. The transition from one state of equilibrium to the other may then cause substantial difficulties (Jayet *et al.*, 1996).

### *3.2 Economic factors of rural development*

Beyond the debate about efficiency and equity comes the question of the local relevance of rural development policies. Present-day spatial dynamics and the mode of economic growth are not spontaneously favourable to rural development. To ensure such development, particularly in regions remote from cities, requires a value creation strategy. This cannot be achieved by the market exclusively, as the incentives provided are insufficient. In this sense, rural development may be

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<sup>5</sup> This theory, combined with the contributions of NEG describing the role of proximity externalities in agglomeration phenomena, provides a conceptual framework for the interpretation of current spatial dynamics. On this point see Ottaviano and Puga (1998).

considered to some extent as a public good, production of which is assured by a collective effort stimulating those economic factors favourable to dispersion.

Before even considering forces that pull in this direction, questions can be asked about a possible repulsive effect to continued agglomeration. Above a certain threshold, the cost of congestion and competition for land may distance certain activities and some of the population from urban areas, which contribute to revitalisation of the periurban areas and to a degree of "rural renaissance" (Cavailhès *et al.*, 1994). Social factors such as the rise in urban crime and poverty, may encourage some residents, particularly retired people, to move to quieter zones in the autonomous rural areas; provided that the essential services are available.

Dispersive forces may rely on comparative advantages specific to rural zones: endowment in land and capacity to produce agricultural goods; particular characteristics of the rural work force and labour markets; existence of spaces able to satisfy demand for housing attracted by a less densely concentrated living conditions; presence of landscape and environmental heritage and amenities liable to meet the expectations and tastes of some groups of consumers.

Reinforcing these comparative advantages involves turning to advantage forces that are *a priori* a hindrance to rural regions. These forces involve transport costs, scale economies and imperfect competition. For the first factor, NEG models show that lower transport costs promote agglomeration. Accordingly production of goods with high relative transport costs or which are even untransportable is to be encouraged (Camette and Le Pottier, 1995; Kilkeny, 1998a, 1998b). These goods are those procured by the specific endowments of rural environments in open spaces, landscapes and peace and quiet. However, the increase in rural amenities must go along with the development of services to individuals. These services constitute another category of goods favouring dispersal, inasmuch as they reduce the need for people to travel. Finally, in order for rural zones to benefit from these advantages, the supply of specific goods and services they propose must be provided at the lowest cost. This generally means improving accessibility to these areas (Daucé, 1997).

The reduction in communication costs may be used to allow small and medium-sized firms in rural areas to benefit from internal and external scale economies. Networking of such firms allows them access to more lucrative markets (Ward and Hite, 1998). It is important therefore to promote regional co-ordination among firms, which use the organisational assets available to rural areas or the specific forms of management of the work force they enjoy. One thinks in particular of the fabric of agro-industrial firms formed in highly agricultural regions such as Brittany or the island of Seeland in Denmark. This amounts to stimulating local polarisation in a similar way to that of industrial districts, but under more difficult circumstances because of the lesser density of people and economic activities. Such polarisation requires adequate accessibility and

minimum facilities in public and private services of medium-sized rural towns around which such industrial sites can develop.

Finally, the main asset to be used seems to be that of product differentiation. Rural regions can play on consumer preference for variety by proposing goods whose specific features are linked to the area they come from. The objective is to put in place a strategy for value creation for giving greater remuneration to specific factors which tap a source of rent or profit (Mahé *et al.*, 1998). The *Protected Denominations of Origin* set up by the European Union in agriculture are an example of the regulatory means that can be used, but it is clear that the sphere of specific products must extend beyond foodstuffs and concern all activities related to human or natural particularities of rural areas: e.g. arts and crafts, and tourism.

More generally, the economic development process cannot get into gear without adequate short-term and long-term induced effects. In the short term it is the local propensity to consume that sets the value of employment and income multipliers. In the longer term, it is the improved competitiveness of rural zones that is the decisive factor. This improvement depends on the ability of local economic players to cash in on the technical and pecuniary externalities available to them.

#### **4. Evaluating rural development: tools and methods**

On the basis of the definition of rural development given at the beginning of this paper, the methods and tools used to evaluate it must allow us, on the one hand, to assess the economic growth of rural areas in terms of income, jobs and access to public services and, on the other hand, to pass judgement on the public policies responsible for promoting such growth.

The first question to resolve in general is that of the delimitation of the regions under study, since the very definition of what is "rural" is a matter of debate, as shown above. It is a category that fluctuates with administrative or scientific requirements. For some investigators (Saraceno, 1994) the very use of the notion should be avoided when speaking of rural development, since, by definition, rural, as the spatial complement of urban, is a residual category destined to dwindle when there is economic growth and urbanisation. Although a valid point, the fact is that we still need to be able to study areas that are neither urban, nor periurban. The way they are delimited is largely dependent on the objectives the European Union and Member States set themselves with regard to these regions and the political or budgetary contingencies. For example, the array of regions benefiting under objective 5b has varied considerably between the earliest programmes (1991-1993) and the current programmes. Eligible rural regions from 2000 under the new objective 2 will also be differently configured.<sup>6</sup> In

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<sup>6</sup> Let us mention the OECD Project on Rural Indicators, which allows comparisons between developed countries and forms a basis against which other typologies can be situated. The OECD classification is based on population density at the level of the basic administrative unit, which is

France, a new typology elaborated by the INSEE and INRA<sup>7</sup> involves defining categories of *commune* (basic administrative unit in France) ranked by the size of the labour market of which they are the centre or on which they depend. Predominantly rural space is divided into four zones: rural under a slight urban influence, rural poles, periphery of rural poles, isolated rural (Hilal and Schmitt, 1997). Our definition of autonomous rural areas corresponds to the last three zones together. The choice of such a grouping raises problems as it has no administrative substance. It is therefore not the basis of any specific statistical data. Consequently for research in France like in other countries, the practical solution is to take the basic administrative unit and to reconstitute the region to be studied on that basis.

The question then arises of the data available for evaluating local development. While generally difficult to solve, this is a crucial point for the credibility of the quantitative work to be done (Dormard, 1999). The use of different indicators — population, employment or wealth creation, say — may be contemplated but is usually restricted because the availability of such indicators is often insufficient at a fine geographical scale or over an adequate time span. Thus localised statistical data reflecting economic activity are generally non-existent. We are therefore usually led to use administrative information that indirectly fulfils the objectives of the research. This is the case of tax data when they can be localised. Income tax is an example. A study underway aimed at evaluating the impact of objective 5b policy in two regions of France uses the local tax paid each year by industrial and commercial plants as an indicator of localised value added. This tax data is available for the *commune*. After possible aggregation at a larger geographical scale, it is set against the policy variables (Berriet-Sollicet *et al.*, 1999).<sup>8</sup>

We now concentrate our presentation of the evaluation of rural development on the quantitative methods which are one of the aspects of the very broad field of public policy evaluation. This type of evaluation may be conducted by using diverse approaches, of a qualitative nature, based *inter alia* on political science, sociology or law (Conseil supérieur de l'évaluation, 1996).

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classified as rural or urban. The proportion of these two types of unit within each region (NUTS 3 level in the European Union) means they can be divided between mainly urban regions, significantly rural regions or mainly rural regions (OECD, 1994). See also the contributed papers of the 48th AEEA Seminar on conceptual and statistical approaches to rural areas and in particular Dax (1997) and Terluin and Post (1997).

<sup>7</sup> INSEE (Institut national de la statistique et des études économiques) French public office for economics and statistics; INRA (Institut national de la recherche agronomique) French public institute for agricultural research.

<sup>8</sup> The data used are the local tax bases termed *taxe professionnelle* levied on industrial and commercial plants. These bases are established from the wages paid by the plants and the rental value of the fixed assets. The components of these bases may therefore be likened to the remuneration of the production factors used by the plant.

The specific feature of the evaluation of rural development policies, shared with that of other localised economic development policies, is that it concerns the entire economic fabric of a region. As such, a model aiming to explain the level of synthetic indicators such as population, gross internal product or employment must be supplemented by a more global model providing information on the structure of the economy and the induction effects between the different economic sectors, between agents and between the territory under study and the rest of the world. It is important to determine the key sectors of the economy, the feedback effects, leakages from the system and, for that, to effect the closure of the economy of the zone being analysed. Research on evaluating economic policies of rural development is therefore oriented in two main directions: econometric analysis and structural models, some examples of which are now presented.

#### *4.1 Econometric analysis*

Econometric analysis has several advantages: flexibility, the possibility of rigorously testing the selected assumptions and a good adaptation to dynamic analysis (Nelson, 1996). This last characteristic, which necessitates the availability of time series data, makes it less suitable for analysing small regions. This drawback may be offset in part by the use of cross section data between several regions, as we shall see below.

Among the advantages of econometric analysis listed above, it seems to us that flexibility can be put to the fore, as an econometric model can be used with a minimum of theoretical constraints. Its structure may evolve with the degree of knowledge one has of the underlying economic relations. Starting from a simple model, refinements can subsequently be made. The downside of this simplicity is that we do not get inside the "black box" of economic mechanisms but measure the change of a few indicative variables. Research in the 1970s based on the extension of past trends and comparison of two periods — policy off and policy on — were renewed by the use of more sophisticated econometric methods involving several equations. An example of this approach is provided by the analysis of rural area dynamics conducted by Schmitt (1999). The zones under study are either characterised by the influence of an urban pole or correspond to a labour market area and a system of simultaneous equations is worked out whose endogenous variables are variations in population and employment between the dates of two population censuses. The author highlights a number of explanatory factors of the dynamics observed. As the aim was not to conduct a policy analysis, the corresponding variables were not introduced. It would be interesting if they were to be included at a later stage in this research. Another example of econometric modelling is provided by research into evaluating the effect of two rural development policies in the United States; this concerns regions covered by the Tennessee Valley Authority and the Appalachian Regional Commission (Freshwater *et al.*, 1997). The approach is very similar to the previous one, but the aim is to compare the performances of counties that benefited from one or



other development policy with counties that did not. The influence of the policy is introduced in the form of a dummy variable.<sup>9</sup>

#### 4.2 Synthetic models

Sometimes termed structural models, synthetic models attempt to give an explicit representation of the economy studied through relations between different categories of income and expenditure accounts for productive activities, institutions and the rest of the world. They have a very precise basis in theory and lend themselves readily to impact analyses. This type of model seems suited therefore to the analysis of rural development mechanisms, given their multi-sectoral and multi-agent nature (Henry, 1996).

At the base of these models lies Leontief's input-output approach describing the productive sphere of the economy and the employment in goods and services it provides. By extending the basic table to factor and institution accounts, in the form of a social accounting matrix (SAM), the remuneration of factors and the use of income can be analysed. Finally, with the introduction of behavioural equations, the approach breaks free from the restrictive assumptions of the input-output model and leads to the construction of a computable general equilibrium model (CGEM).

These approaches make it possible, by calculating various multipliers, to evaluate the leading role of key sectors of the economy and the dissemination of direct, indirect or induced effects of a given policy measure. By contrast, they suffer from several limits relating to the assumptions of the model — fixed input-output coefficients, idle production capacity, fixed prices, static character — some of which are overcome in the CGE model. Moreover, rural regions are often characterised by a narrow productive base which does not justify the construction of a complete picture of the economy.<sup>10</sup> Finally, the large volume of data required means they are not always suitable for analysing the situation of small geographical zones (Midmore *et al.*, 1997).

These difficulties can be overcome through the combined use of data from field surveys or generated by mechanical methods, such as the GRIT approach (Generating Regional Input-Output Tables). These models must be used discerningly though, as Midmore (1997) emphasises, reserving the most elaborate (CGE approach) for large regions, or even states in a network of international

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<sup>9</sup> We do not expand on this example here as it is covered by one of the contributions in this session.

<sup>10</sup> Hence the value of research grounded on the economic base model theory, which is consistent with the same line of thought, but better adapted to analysis of certain issues of economic development. On this point see the recent work of Vollet (1998).

commercial relations. Accordingly, dynamic analysis of rural development in Europe is generally conducted with the input-output model possibly extended to a SAM. Among recent or current studies are Doyle *et al.*, (1997), Roberts (1998), Efstratoglou *et al.*, (1998) and Bossard (1999). The first two studies concern rural regions of Scotland with different optics. Doyle *et al.*, try to evaluate the impact of agricultural policy on rural development. To do so, they combine an econometric model that estimates the impact of variation in agricultural support on the regional agricultural output, an input-output model that evaluates income and employment multipliers, and a gravity model for the diffusion of spatial effects. Roberts constructs a rural-urban model based on an inter-regional SAM to investigate financial flows and relations with the rest of the world. Both these studies show the importance of links between rural and urban areas and the economic leakages outside rural areas to which any development policy is subject. Both Efstratoglou *et al.* and Bossard specifically endeavour to evaluate the effect of European structural policies on peripheral or underdeveloped regions in the UK, Finland, Greece and France. These two independent studies employ similar methods but Bossard uses a simple input-output model while Efstratoglou *et al.* construct a SAM. Comparison of their results should give interesting conclusions in particular on the way the authors have adapted their model to allow for short term effects and structural effects.<sup>11</sup>

## 5. Conclusion

Substantial changes have affected the European agricultural sector over the last fifty years. This real revolution, reflected by unprecedented gains in output and productivity but also by spectacular demographic decline, has produced a considerable backlash effect in the countryside areas where agriculture was the traditional base. The regions closest to cities or those with specific resources have been able to offset the decline in agricultural employment to some extent. However, the areas more remote from urban agglomerations have gone into decline, which the public authorities, and the European Union in particular, have become gradually aware of, implementing "rural development" policies alongside agricultural policies.

This idea of rural development has long been addressed by sociologists. However, it fits much less readily into the economists' conceptual frameworks. Here we have attempted to show, in an exploratory way, how the question could be approached with tools and benchmarks of economic analysis and by taking advantage of recent advances in regional science. It seems important to look more closely at theoretical work in spatial dynamics so as to better understand the part played by amenities and organisational factors in the location of people and firms in rural areas. This research will become fully meaningful if, in parallel, a substantial effort is made to link the economic approach to rural development

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<sup>11</sup> P. Bossard's work for a doctoral thesis in economics is still underway.

with the theories of growth and of regional development. In methodological terms, the combination of econometric and synthetic approaches to evaluate the effects of rural development policies seems promising. It may allow us to overcome a number of difficulties currently encountered in the related field of regional development policy evaluation (Dormard, 1999). But the credibility of modelling and evaluation work depends largely on obtaining suitable data. It is therefore through a simultaneous advance in these three domains that relevant rural development policies can be developed and their effects evaluated.

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Merci.



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