

Aspects of Rural Development in Greece: Indicators, Policies and New Opportunities

Polixeni Iliopoulou¹ and Panagiotis Stratakis²

Abstract

Rural development has attracted the interest of European regional and agricultural policies in the last two decades. This is more evident after the late 1990's when rural development became the second pillar of Common Agricultural Policy (CAP). In Greece, traditional agricultural programs have given their place to rural development programs. This shift of emphasis in European agricultural policy reflects the change in the way rural development is perceived at an international level. Rural development is no more synonymous to agricultural development and the role of other factors such as alternative employment opportunities and accessibility to urban centers is widely recognized.

Greece has a large agricultural sector compared to the European average, although employment in the primary sector has decreased significantly in the last three decades. In terms of rural development great differences are observed among regions which can be attributed to differences in agricultural potential and accessibility to the markets as well as to a differentiated degree of incorporation to international markets. The prospects of the agricultural sector in Greece would not be considered as favorable, especially after the latest CAP reform. Therefore rural development has to be promoted through non-agricultural activities or through some innovative agricultural activities.

In this paper a series of indices describing the agricultural potential in the NUTS III regions in Greece as well as several aspects of rural development will be presented. Statistical analysis, mostly classification techniques, will be employed in order to explore the factors contributing to rural development in Greece. Special attention will be given to the introduction of organic farming in Greece and its potential contribution to rural development. Organic farming is considered as an innovative agricultural activity and it can be a viable alternative for declining rural areas.

¹Technological Educational Institute of Athens, e-mail: piliop@teiath.gr

²National Technical University of Athens, e-mail: pstratakis@gmail.com

Finally, rural development policies in Greece, through regional policy programs and the current Rural Development Program, will be presented, with emphasis on the shift from measures for the agricultural sector to measures for rural development. Special consideration will be given to the measures addressed to organic farming and their effectiveness in the development of the sector will be discussed.

KEYWORDS: Rural areas, CAP, Rural Development, Greece, Organic farming, rural typologies

1. INTRODUCTION

Employment in the primary sector of production in Europe has been decreasing in the last decades. Rural areas used to depend mostly on agricultural activities but in recent times their development cannot be supported by the agricultural sector alone. The Common Agricultural Policy directed important funds towards the rural areas in the early years of the European Union supporting agricultural activity. Since the late 1990's the role of the primary sector in rural development was diminished and non-agricultural activities in rural areas proved important. New concepts, such as the preservation of the natural environment, were introduced in the context of rural development. In addition, the great diversity of rural areas in Europe was recognized. Spatial patterns of rural areas were described through rural typologies, in an effort to suggest appropriate policies for rural development. Policies for rural development were transformed; the CAP reform in 1999 established rural development as the 'second pillar' of CAP (Council of the European Union, 1999), while in the current programming period rural development programs have been introduced (Council of the European Union, 2005; Council of the European Union, 2006).

In Greece, the primary sector is still more important, compared to the European average, mostly in terms of employment but it steadily decreases; it faces a series of structural problems and a decreasing share in GDP. The growth of rural areas traditionally was considered to depend on agriculture, although this was not actually the case for several rural regions in Greece. Some regions with considerable agricultural potential, for example in the lowlands, and with good location relative to transportation and urban centers, were characterized by demographic and economic growth, while deprived regions, mostly mountainous or islands, experienced declining tendencies. Several islands however experienced growth, based on tourist activity. Rural patterns in Greece are complex and

changing over time. The traditional dichotomy between urban regions and the periphery is not evident any more. Rural development policies cannot depend on the primary sector alone and they have to address specific development problems according to the difference observed in rural areas. However, since the primary sector is still important, especially for the less developed rural areas, it is important to promote profitable agricultural activities as well.

In this paper, the diversity of rural areas in Greece will be presented employing indicators concerning the agricultural potential, demographic growth and non-agricultural activities. Rural areas in Greece will be described in a European context and a classification will be presented resulting to a typology of rural areas in Greece. This typology will be related to the Rural Development Programme for Greece for the current programming period 2007-13. In terms of new opportunities for rural areas, the prospects of developing organic farming in Greece will be discussed.

2. RURAL AREAS IN EUROPE

Rural areas in Europe are defined according to the OECD definition (OECD, 1994) after some adjustments. According to this definition the density threshold is 150 inhabitants per square kilometer for rural areas in Europe, North America, Australia and New Zealand. Three types of regions according to their degree of rurality are identified: “predominantly rural” - if more than 50% of the population lives in rural communities; “significantly rural” (“Intermediate rural” in the European Union) – if the share of rural population is between 15 and 50 per cent; “predominantly urbanized”-if less than 15 per cent of the population is classified rural. An “urban center” in Europe is defined as a local unit LAU2 (e.g. municipality) with a population density above 150 inhabitants per km² and total population above 200.000 inhabitants (European Union, 2009).

According to this definition rural areas accounted for 90% of EU territory in 2006, of which more than half is farmed, and 56% of the population (Figure 1). It can be observed in Figure 1, that most of the territory in Greece, at the NUTS 3 level, is considered predominantly rural. Only one NUTS 3 region, the prefecture of Attiki, is considered predominantly urban.

The corresponding shares for predominantly rural areas were 54% of the territory and 19% of the population. These regions generate 43% of Gross Value Added in the EU and provide 55% of the employment, but tend to lag behind non-rural areas as regards to a number of socioeconomic indicators, including structural indicators.

The importance of the primary sector is declining representing 9% of the employment and 3% of the value added and the majority of the economic activity depends more and more on the service sector (European Union, 2009). In rural areas, per capita income is lower by approximately 30%, activity rates for women are lower, the service sector is less developed, higher education levels are generally lower, and a smaller percentage of households have access to broadband Internet (Council of the European Union, 2006). Remoteness and peripheral location are major problems in some rural areas. These disadvantages tend to be more apparent in predominantly rural areas, although the general picture at EU level can vary substantially between Member States.

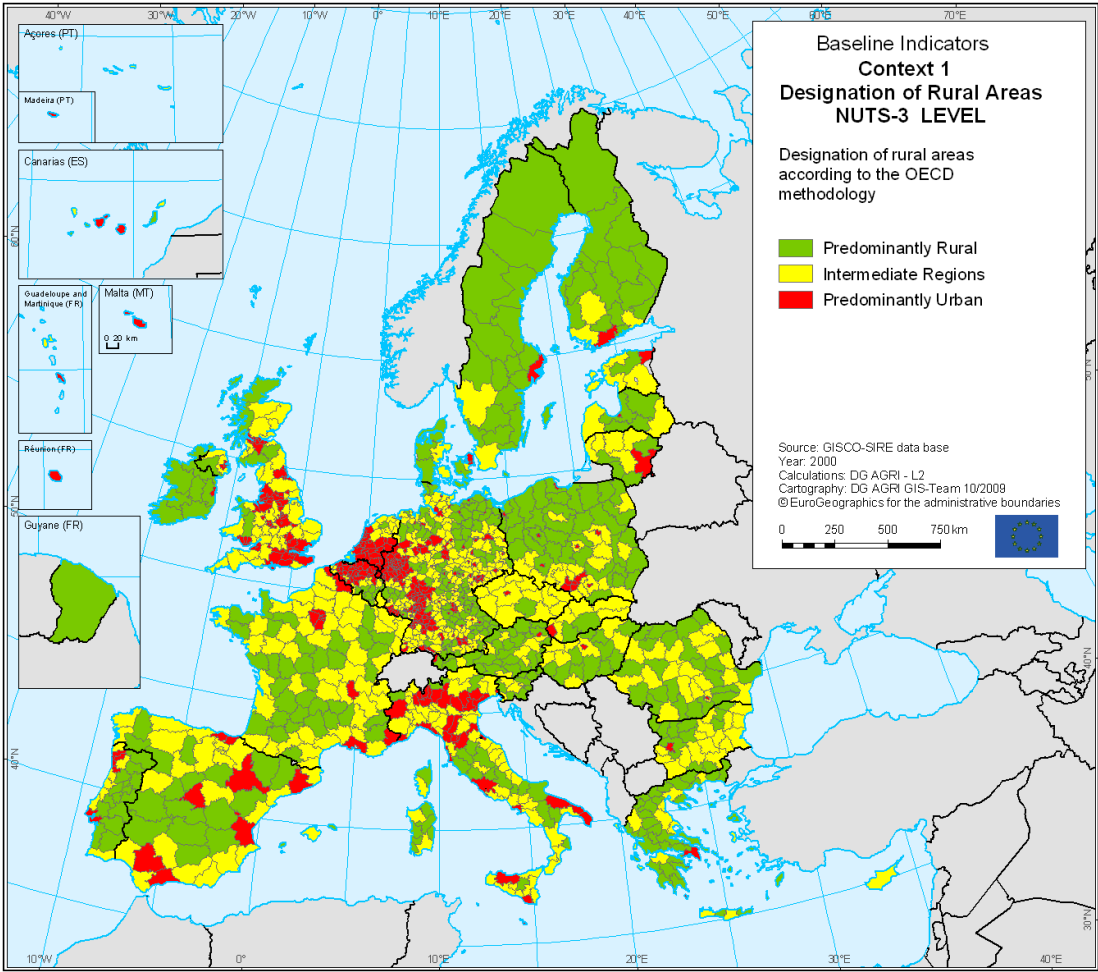


Figure 1. Rural Areas in Europe

Source: "Rural Development in the European Union, Statistical and Economic Information - Report 2009" of DG Agriculture.

On the other hand, the diversification of the rural economies towards other sectors than agriculture is progressing; 35% of European farmers had another gainful activity than agriculture in 2007, while 82% of employment and 95% of value added in predominantly rural areas of EU-27 came from the non-agricultural sectors.

Tourism is a major opportunity in terms of potential growth for rural areas and 27% of bed places are in predominantly rural areas (European Union, 2010).

The differences among rural areas in EU have been studied since the late 1980's, when the importance of the rural areas was explicitly recognized. A comprehensive study was presented which was the first one to address the importance and the complexity of rural space and lay down the principles for rural development in Europe (Commission of the European Communities, 1988). In this study it was pointed out that 80% of the European territory was considered to be rural, including small towns as well, which play the role of service centers for the surrounding rural areas.

The high share of rural areas in the European territory alone justifies an increased interest for rural areas. On the other hand, the differences observed in the level of development of rural areas and the increased attention for issues of environmental protection led to a classification of rural areas in groups of similar characteristics, problems and development perspectives.

A typology of rural areas was proposed which indicated three major types:

1. Rural areas which are close to major urban centers and they are ecologically at risk.
2. Declining rural areas, mostly Mediterranean, facing problems of development and economic differentiation.
3. Remote and non-accessible areas, e.g. mountainous zones and islands, where rural decline, desertification and the abandoned agricultural land are prevailing and the possibilities for economic differentiation are extremely limited.

According to these three types of rural areas, different approaches for rural development were proposed such as: emphasis on environmental protection for the first type, reinforcement of economic activities for the second type and social policy aiming to demographic stabilization for the third type.

Similar studies of rural areas followed both in the EU but also in OECD, proposing rural typologies (Commission of the European Communities, 1992; European Commission, 1994; OECD 1993, 1995). Usually three types of rural areas are identified which can be generally characterized as dynamic rural areas, rural areas of intermediate development and declining rural areas. The criteria employed to describe these types of areas involve

demographic and economic indicators combined with accessibility and infrastructure characteristics.

The purpose of these studies of rural areas is to identify the factors which can contribute to rural development. New approaches for rural development have been described in detail in OECD and EE documents (Council of the European Union, 2006; European Commission, 2007; OECD 2003, 2005, 2006). Four key directions may be identified:

1. Rural is no more synonymous to agriculture. Despite common beliefs which still influence rural development policies, rural areas and rural population are not solely dependent on the agricultural sector. Although employment in the primary sector is still important to rural areas, the diversification of rural economy is required for rural development.
2. Non-agricultural activities become increasingly important in terms of employment. Actually those rural areas which experience economic growth have managed to develop non-agricultural activities, such as manufacturing. In addition, tourism, crafts and the provision of rural amenities are growth sectors in many regions and offer non-agricultural employment opportunities.
3. Rural development policies should promote non-agricultural activities together with measures for environmental protection and the improvement of the quality of life in general. Rural development policies are no longer sectoral but place-based and involve integrated development programs.
4. Sustainable rural development is increasingly becoming a priority including economic growth, improvement of social conditions, and conservation of natural values, with sustainable agriculture playing an important role.

3. RURAL AREAS IN GREECE

3.1. Definition of Rural Areas

In Greek Censuses rural areas are not defined in terms of demographic density but according to population size. In the 2001 Census rural areas are defined as those municipal departments (LAU2 regions) in which the largest locality has less than 2000 inhabitants. According to this definition rural areas were 85% of total area and rural population was 27.2% of total population (10,934,097 inhabitants in 2001). Rural population has gradually decreased from 35.2% in 1971 to 27.2% in 2001.

However, according to the EU definition of rural areas and estimations for the year 2006 (European Union, 2009), rural territory and especially rural population in Greece are much higher: 73.9% of the territory belongs to predominantly rural areas and 23.2% to intermediate rural areas, while 36.6% of the population is in predominantly rural areas and 27.4% in intermediate rural areas. The corresponding percentages for EU-27 are 54.4% of territory and 19.2% of population in predominantly rural areas and 36.6% of territory and 36.5% of population in intermediate rural areas. Therefore it appears that rural areas in Greece are more important compared to the average in EU-27, especially concerning the predominantly rural areas category.

In Figure 2 the spatial distribution of the share of rural population is presented for the 51 NUTS3 regions in Greece, employing the national definition of rural areas (Hellenic Statistical Authority, 2010). What appears in this figure is a familiar for Greece spatial pattern. Rural population is lower along the S-shaped axis which lies along the eastern coast of the country and connects the two major urban centers, Athens and Thessaloniki, through the major highway of the country. Dynamic regions are mostly concentrated along this axis and rural population is low in these regions.

3.2. Agriculture in Greece

Agriculture is still important for rural areas in Greece. Employment in the primary sector is double the European average (11.4% vs. 5.4% in EU-27 in 2008). However, employment in the primary sector steadily decreases from 30% in 1980 to 11.4% in 2008.

Utilized agricultural land is only 27% of the total area of the country (13,196,887 ha), because of the mountainous character of Greece, while 82.7% of the total agricultural land is classified as less-favored areas (LFAs). On the other hand, a significant part of agricultural land (14.2%) is considered to have important ecosystems and belongs to the Natura 2000 network (Hellenic Republic, 2010).

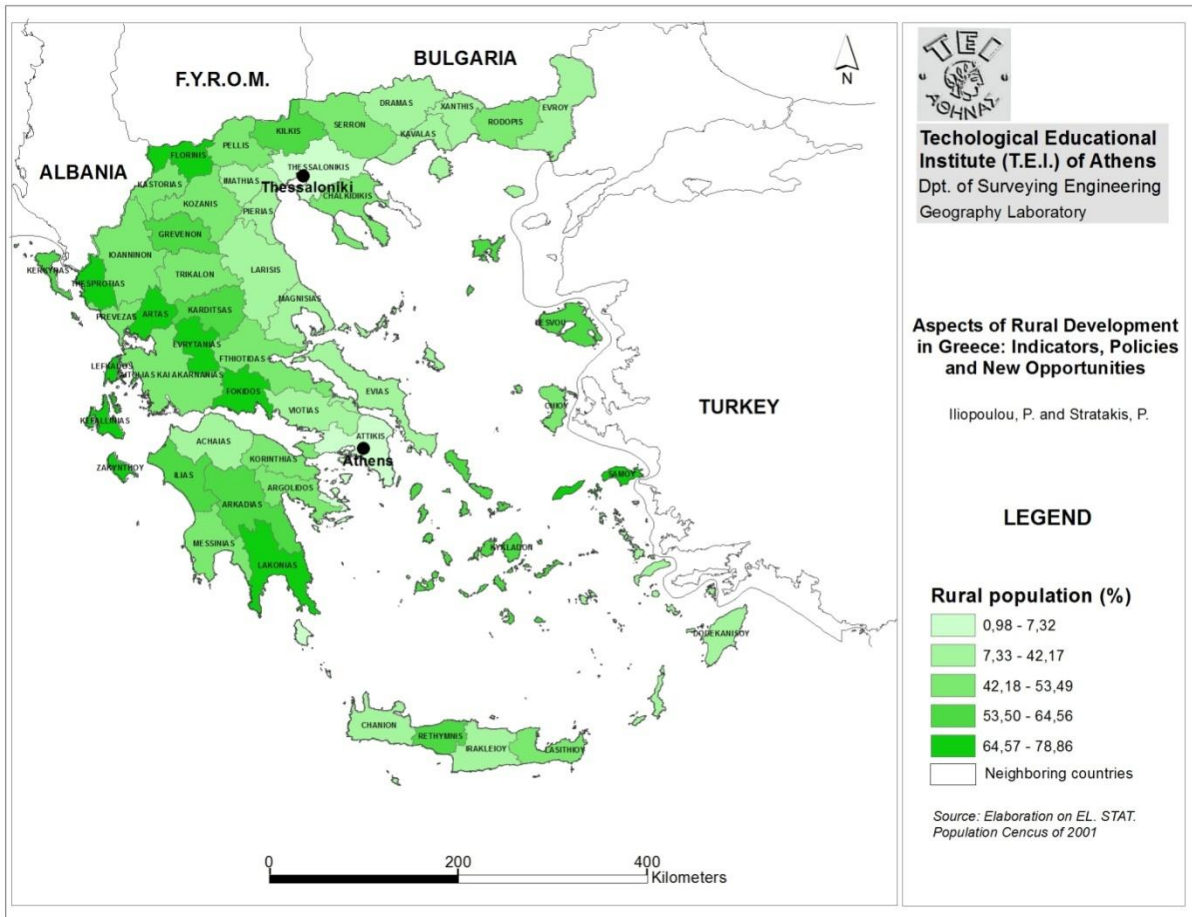


Figure 2. Rural population in Greece (2001)

Agriculture in Greece faces structural problems such as the small farm size. Holdings with less than 5 ha are 76% of total exceeding the European average, while the average size is 4.7 ha per holding in 2007 vs. 12.6 ha in EU-27. Moreover holdings consist of several detached parcels with an average size of 0.7 ha. The share of the primary sector in GDP is decreasing (2.3% in 2008), while investment in the sector is decreasing as well. New technologies are slowly introduced in production, while expenditure in research and development is small. The linkages between agricultural production and manufacturing are insufficient. In terms of human capital, a serious problem is the ageing of farmers (18.5% over 65 years old in 2007). In addition their educational level is low; 14.3% have no or some elementary education, while 69% have completed only elementary education (European Union, 2010; Hellenic Republic, 2010). Finally, Greece is a net importer of agricultural products, especially of livestock products. Only some crop products, such as fruits and vegetables and olive oil present a positive export balance (Hellenic Republic, 2007).

In Figure 3 the percent of active population in the primary sector for the 2001 Population Census is presented. It is apparent that the two largest urban areas in Greece, Attiki and Thessaloniki, have the lowest percentage of employment in the primary sector. However, given their population, employment in the primary sector in these two regions is of considerable size. It is also remarkable that the small islands of South Aegean (Kyklades and Dodecanesos) are not dependent on agriculture due to their tourist development. Finally, employment in the primary sector is significant for the mountainous areas.

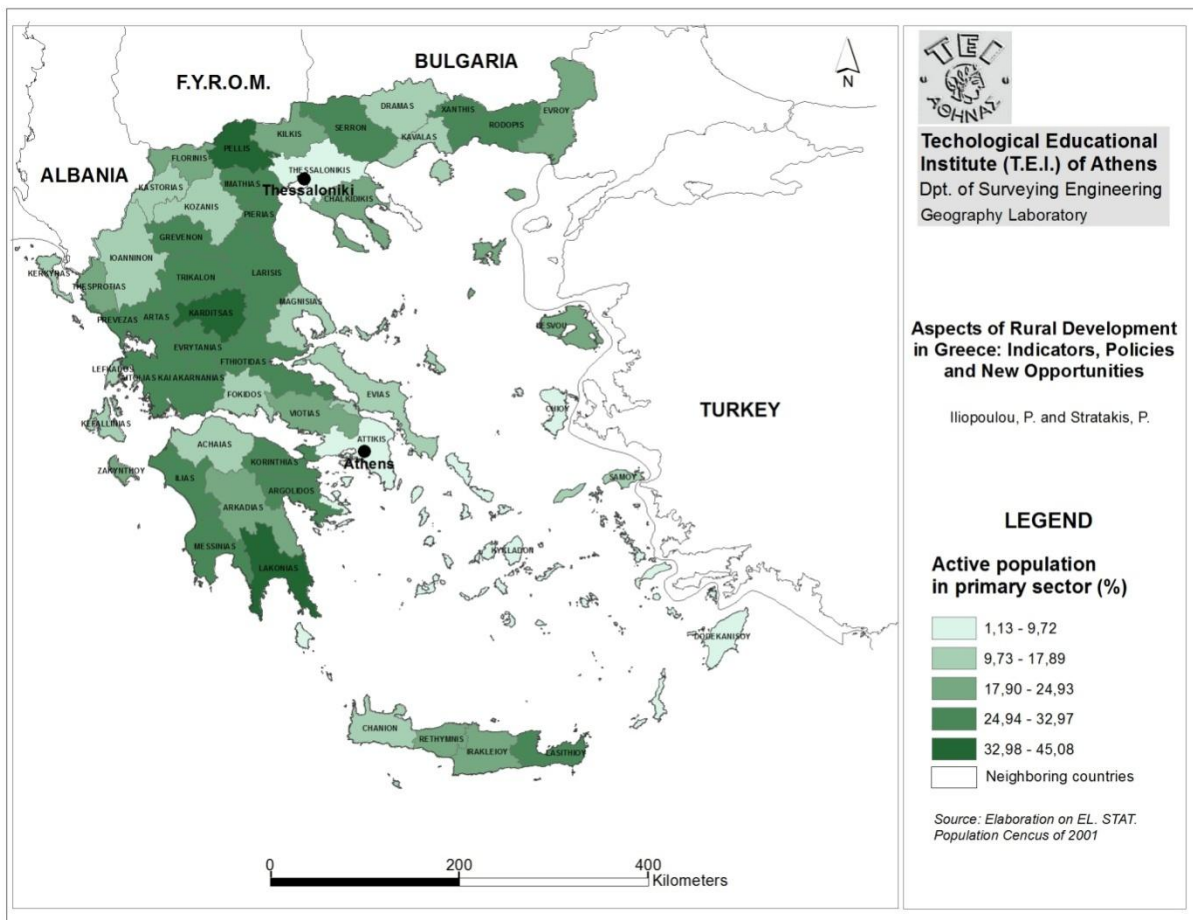


Figure 3. Percent of population in the primary sector (2001)

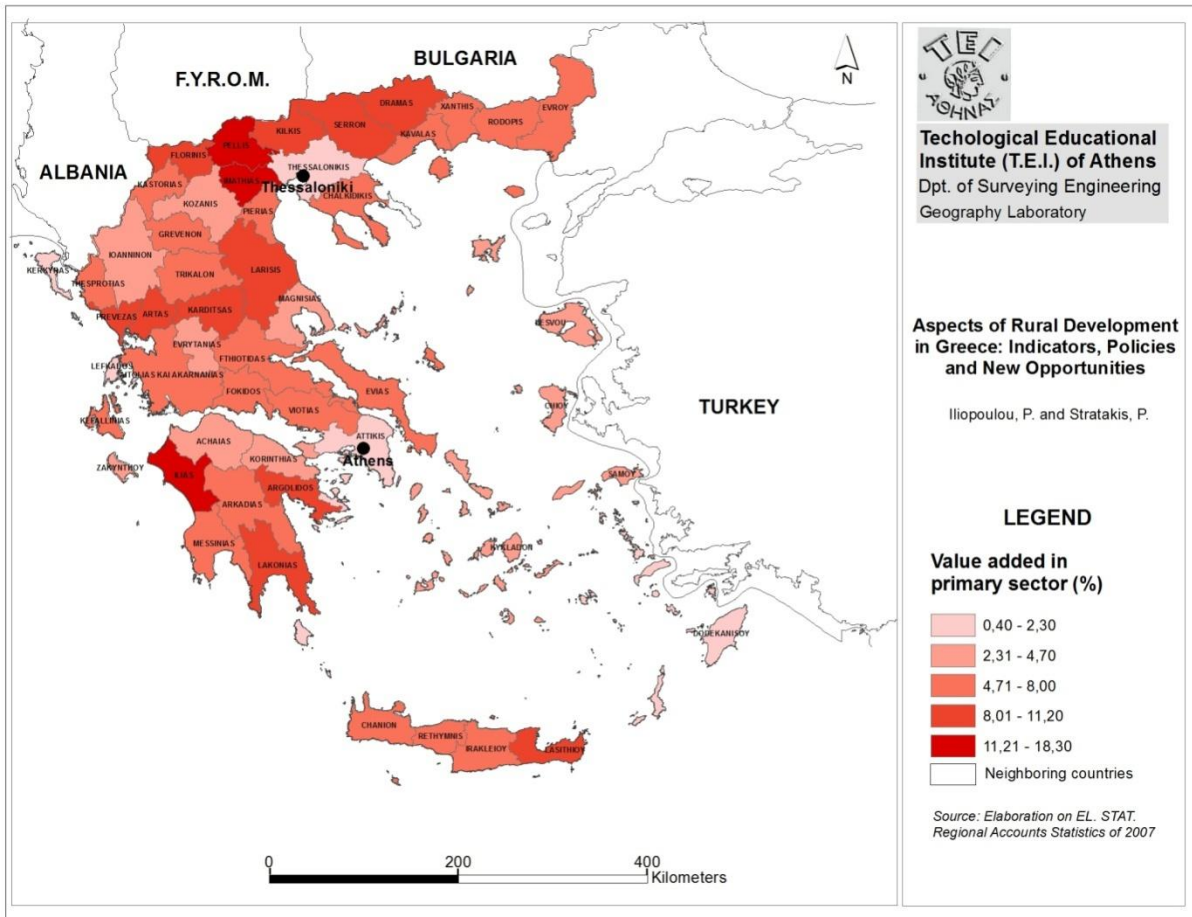


Figure 4. Percent of value added in the primary sector

In Figure 4, the percent of value added in the primary sector is presented, where some of the most dynamic agricultural regions in Greece can be identified; the departments of Iliia, Pella and Imathia, where the share of value added in the primary sector is well over 10%. Due to the latest CAP reforms and the decoupling of aid from production in particular, agricultural land formerly devoted to certain key crops in Greece, such as tobacco, cotton and sugar beets remains uncultivated and new crops have to be introduced so that agricultural land will not be abandoned. Only a few large holdings are viable under the new conditions and usually in terms of combined economic activity with livestock production. Several farmers have abandoned production, while receiving subsidies, and seek to rent their land. As a result incomes have decreased in these areas and a restructuring of the agricultural production system is necessary. Some alternatives in that respect are non-food crops for the production of bio-fuels as well as competitive high-quality agricultural products which are produced with methods friendly to the environment and the society. Organic farming is one of these alternatives.

Organic farming is a basic activity towards sustainable development of rural areas. It contributes to the preservation of biodiversity, soil fertility, the production of safe agricultural products and the reduction of emissions of greenhouse gases (International Trade Centre, 2007). Furthermore, it has the potential for significant contribution to rural development (Banks and Marsden, 2001; Grando, 2003) due to its emphasis on sustainability and the preservation of local products and local agricultural practices (Darnhofer, 2005; Pugliese, 2001). It is considered as an alternative innovative activity which contributes to environmental preservation (Dima and Otero, 1997; Mccan et al., 1997; Rigby and Cáceres, 2001). Organic farming in Greece started at the 1980's with limited development until 2001, when a rapid increase started, stimulated by European subsidies. Recent data indicate that the area under organic farming in Greece has reached 6.9% of the total utilized agricultural area in 2007 and is among the top ten countries in EU-27 in that respect together with Austria (15.7%), Sweden (9.9%), and Italy (8.9%) (Eurostat, 2010). In Figure 5 the geographical distribution of organic farming in Greece is presented.

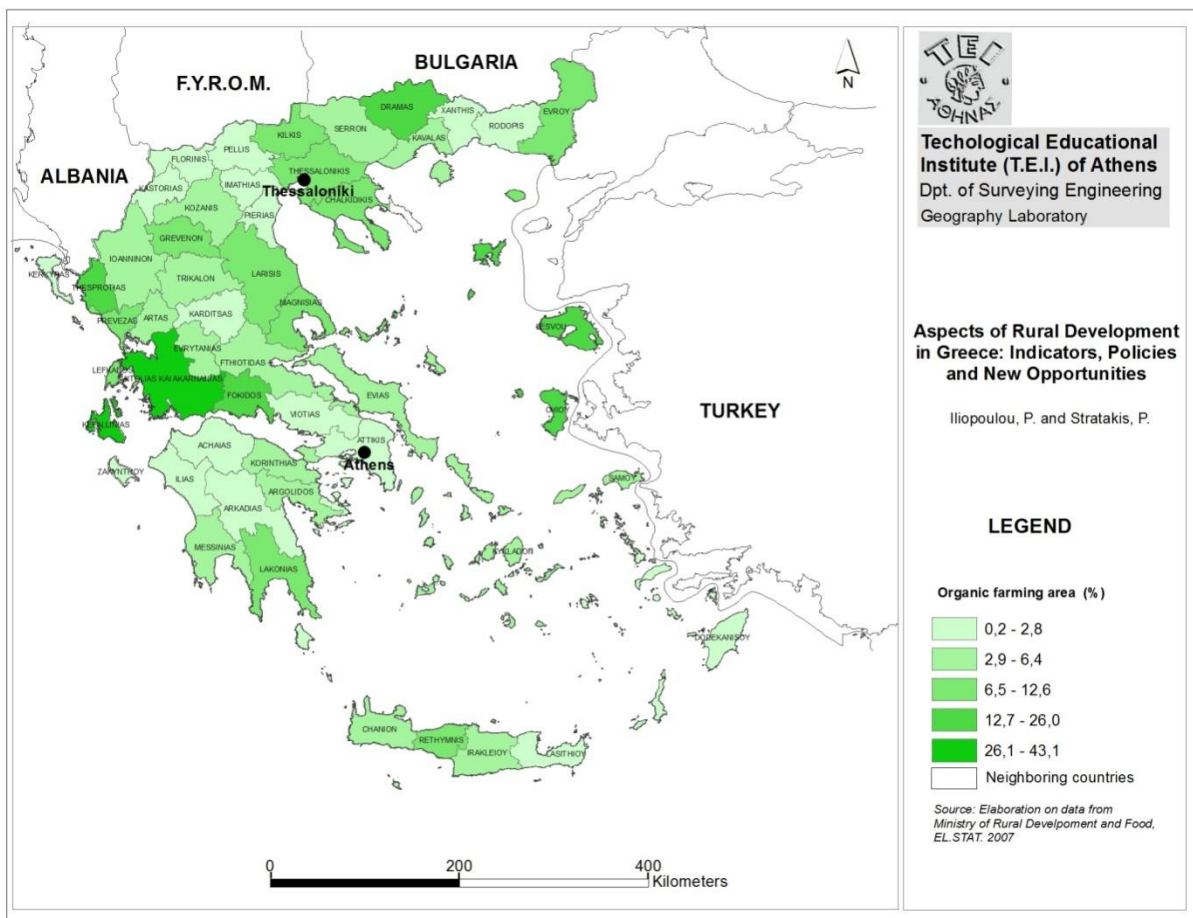


Figure 5. Percent of organic farming area in Greece (2007)

On the other hand, non-agricultural employment is prevailing in rural areas. It is estimated that only 12.3% of the heads of agricultural holdings are fully occupied in agriculture, the rest has income from other sources as well. The tourist sector is crucial for rural development, since it provides development possibilities for small islands and mountainous areas which have very limited agricultural or manufacturing possibilities.

3.3.Rural Patterns in Greece

Until the 1980's, Greece was characterized by the traditional dichotomy between the city and the region or between urban and rural areas. In the 1960's and 1970's internal and external migration resulted to the demographic decline of rural areas, often accompanied by the abandonment of agricultural land, especially in the mountainous and island regions. In the 1980's which was the time of the country's accession to EEC, the above dichotomy gradually gave its place to more complex spatial patterns. Rural incomes in this period experienced a significant increase, which was attributed both to the agricultural sector with increased CAP subsidies and to tertiary activities, especially tourism. Since 1989 the construction of infrastructure in rural areas was accelerated through the structural funds of the Community Support Frameworks (CSFs). Small and medium-sized towns present functions similar to those in large cities, especially when retail and recreational activities are considered, while the urban lifestyle is diffused into rural areas. However, these developments do not apply to all rural areas.

Rural areas which have successfully assimilated structural change present quite satisfactory incomes and standards of living, while rural areas in remote areas without significant agricultural capacity tend to decline. Thus, in the present time rural areas in Greece are characterized by complexity and uniformity at the same time.

The new situation of rural areas in Greece was first studied in the late 1980's (Agricultural University of Athens, 1991) and a typology of rural areas in Greece was proposed combining agricultural potential and proximity to urban centers.

A number of other typologies of rural areas in Greece have been performed (Hellenic Ministry for the Environment, Physical Planning and Public Works, 1998; Iliopoulou 2001, 2005) which identify mainly three regional types; dynamic, intermediate and declining rural areas. If however the analysis is performed at a more detailed geographical breakdown, a fourth regional type appears the peri-urban rural areas (Iliopoulou et al., 2008). In the peri-

urban and the dynamic rural areas policies have to cope with environmental issues, due to the intensive use of these areas, while agricultural modernization is appropriate for the dynamic agricultural regions. The intermediate areas need to strengthen the diversification of their economies, while the declining regions need small interventions in social infrastructure and selected local economic activities in order to sustain population and prevent the abandonment of agricultural land. However, rural patterns are not stable and several NUTS 3 regions belong to different regional types in different time periods.

3. CLASSIFICATION OF RURAL AREAS IN GREECE

4.1. The choice of indices

In this paper a classification of the NUTS 3 regions in Greece is presented, employing a series of indicators concerning agricultural potential, demographic growth and non-agricultural activities. A total of 14 indicators are employed for the 51 administrative departments (NUTS 3 regions) in Greece (Table 1).

Table 1. Indices for the classification of rural areas in Greece

- | |
|---|
| <ol style="list-style-type: none">1. Population density 20102. Population change 2001-20103. Natural increase of population 20094. Percent of rural population 20015. Percent of utilized agricultural land 20076. Percent of irrigated land 20077. Agricultural land per holding 20078. Percent of value added in primary sector 20079. Percent of organic farming area 200710. Percent of olive trees area 200711. Percent of active population in the primary sector 200112. Percent of active population in food, beverages and tobacco industries 200113. Percent of active population in hotels and restaurants 200114. Construction activity per inhabitant 2005-2009 |
|---|

The choice of indices is based on previous research (Iliopoulou 2005); however it is also determined by the availability and reliability of data at the department level. Since the latest Population Census was performed in Greece in May 2011, employment and rural population data are based on the 2001 Census. A difference from previous classifications is that data related to organic farming are included, since a special attention is given to new opportunities in agriculture.

Demographic indices are very important in order to describe social and economic development. **Population density** is one of the main criteria for delineating rural areas. **Population change** is crucial for assessing the development perspectives of regions in Greece. In the same way **natural increase** of population (the difference between live births and deaths over 1000 people), is an important indicator of demographic growth, since population ageing characterizes most of rural areas in Greece. The percent of **rural population** also constitutes a criterion for delineating rural areas. Since rural population is defined as the people living in settlements with less than 2000 inhabitants, this index is probably an underestimation of the size of rural population, if a population density criterion would be used.

The **percent of utilized agricultural land** and the **percent of irrigated land** are indicators of agricultural potential. The percent of **value added** in the primary sector can be considered as an indication of the profitability of agricultural holdings. Organic farming is described by two indices the **percent of area under organic farming and the percent of area with olive trees**, since olive trees is the most important cultivation under organic farming and it characterizes agricultural land in several mountainous areas.

Employment in the primary sector is one of the basic indices to describe agricultural potential in Greek regions, although dependence on agriculture might be a characteristic of declining regions. Employment in the tourist sector is the main alternative employment opportunity in several rural areas, mostly in islands, in which the agricultural potential is very poor. The **percent of active population in hotels and restaurants** is the index used to express employment in the tourist sector, although several tourism-related activities, such as retail and handicraft activities are not included. **Employment** in the manufacturing sectors which process agricultural production, i.e. **food, beverages and tobacco industries** (agricultural industries) is included in order to describe integrated agricultural development. Finally, **construction activity per inhabitant** is an index of non-agricultural activity related to economic development.

Most of the indices presented in the analysis are the result of elaborations on unpublished data derived from the Population Censuses and agricultural statistical researches carried out by the Hellenic Statistical Authority (EL. STAT.).

4.2. Cluster Analysis

In order to identify rural spatial patterns in Greece the method of cluster analysis was employed. The Ward's method was employed in particular, in order to minimize the variance of distance within the clusters (Johnston 1976). After several trials of cluster analysis, a solution of six clusters was selected. The results are presented in Figure 6.

As it can be observed in this figure, one of the clusters is comprised by the department of Attiki alone where the city of Athens, the capital of the country, belongs. Apart from Attiki, five regional types can be identified: The dynamic agricultural areas, the intermediate rural areas, rural areas under organic farming, tourism-oriented areas and the diversified areas.

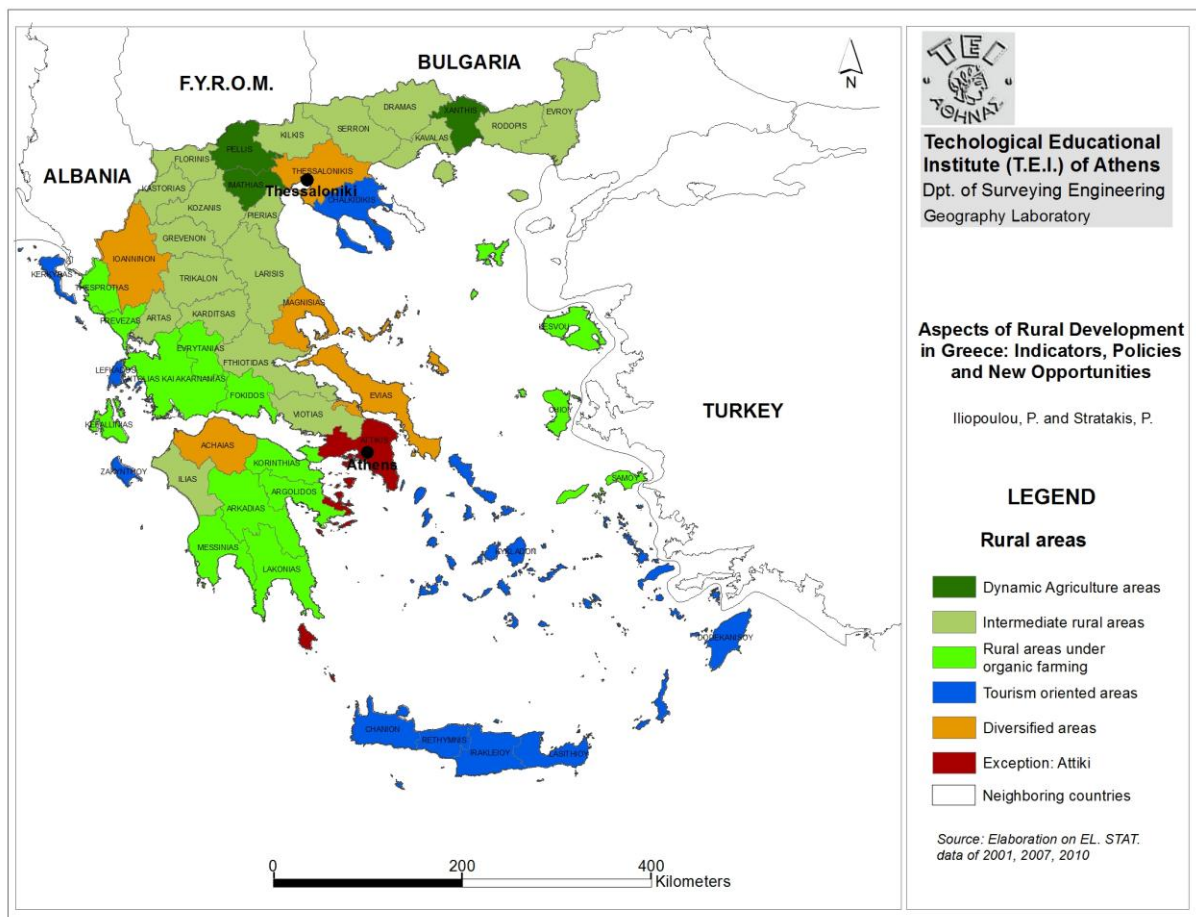


Figure 6. Classification of rural areas (Cluster Analysis)

All the clusters showed considerable stability in all cluster analysis trials, with the exception of the intermediate rural areas and the rural areas under organic farming which did not have very distinct boundaries. However, the introduction of the variable “Percent of organic farming area” was sufficient in order to identify the regions with considerable presence of organic farming. The description of all clusters in terms of the variables employed in the analysis is presented below.

The cluster of the **dynamic agricultural areas** consists of three departments (Imathia, Pella and Xanthi). They are characterized by lower than the national average population density, positive population change, quite below the national average, but the higher natural increase among clusters. The percent of rural population is much higher than the national average (43% vs. 27.2%).

Employment in the primary sector accounts for 30.1% of the economically active population, which is the highest percentage among clusters. The percent of utilized agricultural land as well as the percent of irrigated land are the highest among clusters (33.6% and 87.1% respectively). The average area per holding is close to the national average, while the percentage of value added in the primary sector is the highest among clusters (11.5%). However, the percent of area under organic farming and the percent of area with olive trees are the lowest among clusters (with the exception of Attiki for organic farming).

Employment in tourism is the lowest among clusters, while employment in agricultural industries is the highest among clusters (4.9%). Finally construction activity is a little over the national average.

The departments which belong to this cluster are characterized by significant agricultural potential and processing of their agricultural production. In addition, they are close to major highways; the Athens-Thessaloniki highway and the Egnatia motorway, which runs through the northern part of the country from the borders to Turkey to the Ionian Sea. Actually Egnatia motorway which gradually operated for the last few years and it is still under construction has improved greatly the accessibility of northern Greece to major urban centers, i.e. Thessaloniki and it has probably altered significantly the spatial patterns in the area. The combination of agricultural potential and proximity to markets and services results to their demographic growth and profitable agricultural activity.

The cluster of **intermediate rural areas** consists of 18 departments which demonstrate an overall moderate performance in most indices. These departments present low population density, negative population growth and negative natural increase. The percentage of rural population is among the highest (49.1%). Employment in the primary sector is also high

(25.3%). The indicators for utilized agricultural land, irrigated land, value added and the size of the holdings are above the national average. Employment in tourism is low, while employment in the agricultural industries and the construction activity are close to the national average. The percent of area under organic farming and especially the area with olive trees are low. This cluster consists of several departments in northern, central and southern Greece, which are characterized by sufficient agricultural resources and some diversification of their economies. They experience declining demographic tendencies however.

The cluster of **rural areas under organic farming** consists of fourteen departments. This cluster is characterized by the highest percentage of area under organic farming among clusters (15.6%). Population density is the lowest among clusters, while population change and natural increase have the largest negative signs among clusters. The percentage of rural population is the highest among clusters (59.1%) and employment in the primary sector is almost double the national average. The percentages of utilized and irrigated land are the lowest, after Attiki, while value added is above the national average. The indices for employment in tourism and construction activity are above the national average, but employment in the agricultural industries is lower. The percent of areas with olive trees is much higher than the national average, possibly due to the fact that organic olive trees cultivation is the most frequent in organic farming.

Several of these departments are in mountainous areas or islands, therefore their agricultural potential is poor and their accessibility is limited. There is a limited presence of alternative economic activities but demographic decline limits their development possibilities. On the other hand organic farming seems to contribute to a strong presence of the primary sector of the economy.

The cluster of **tourism-oriented areas** consists of ten island departments in which the tourist sector is well developed. The share of employment in tourism is the highest among clusters (14%). They are characterized by population density close to the national average and a high percentage of rural population (52.8%). They present positive population change and natural increase, above the national average. The percentage of irrigated land is low. Utilized agricultural land and value added in the primary sector are over the national average. The average holding size is the lowest among clusters, very similar to the one for the rural areas under organic farming. The percent of areas with olive trees is the highest among clusters and organic farming is below the national average. Employment in the primary sector is higher than the national average, while employment in agricultural industries is the lowest. Finally, construction activity is the highest among clusters.

These departments include some of the most famous tourist destinations in Greece (e.g. the Dodecanesos, Kyklades, Kerkyra). Agricultural potential is limited and manufacturing is not developed. However, it seems that agricultural land is utilized, possibly in terms of olive trees and the primary sector is quite significant. Tourism however is the sector on which economy in these rural areas is based and to which they owe their demographic and economic growth.

The cluster of **diversified areas** includes five departments which are characterized by their proximity to major urban centers and the diversification of their economies. This cluster is characterized by demographic growth, i.e. the highest population growth among clusters, well above the national average, quite high population density and positive natural increase. Rural population is the lowest among clusters, with the exception of Attiki, due to the presence of major urban centers, such as Thessaloniki and Patra. All the agricultural potential indicators, together with organic farming and areas with olive trees, are below the national average. Employment in the primary sector is lower than the national average (10.9%). Employment in tourism is close to the national average, while employment in the agricultural industries is higher. Finally, construction activity per inhabitant is above the national average. The above description of indices indicates that this cluster of regions is quite densely populated, with a low percentage of rural population. The presence of major urban centers limits the share of the primary sector and the economies are diversified with activities in the tertiary and secondary sectors.

Attiki is the region with the highest population density 1080 inh./km², a population growth of 5.6%, larger than the national average, positive natural increase and a very small percentage of rural population (1%). All the indicators describing agricultural potential present the lowest values among clusters. Area under organic farming is very low (1.5%) but the percent of areas with olive trees is much higher than the national average.

Employment in the primary sector is very low (1.1%) but it is profitable as previous research has indicated (Iliopoulou, 2005). Employment in tourism and in the manufacturing sectors related to food, beverages and tobacco is lower than the national average. Similarly, construction activity is lower than the national average.

The above characteristics relate to the fact that Attiki concentrates over one third of the population in Greece, it is characterized by demographic dynamism and many non-agricultural employment opportunities. Its agricultural resources are under the competition from urban land uses; however agricultural activity is profitable due to the increased demand from urban population.

When the results are compared to previous analysis (Iliopoulou, 2005; Iliopoulou, 2001; Agricultural University of Athens, 1991) it appears that spatial patterns are not as stable as in earlier decades and rural areas are undergoing significant transformations. In addition, the variable of organic farming which was included for the first time in this type of analysis indicated that organic farming concerns rural areas which in previous classifications belonged to the peripheral or the declining regional types.

In Table 2 the mean values for all indicators employed in the cluster analysis are presented for the six regional types.

4.1. Policy Implications

The analysis presented indicated that the most dynamic areas do not depend on agriculture. Economic diversification, proximity to urban centers and tourist development seem to contribute most to rural development.

Employment in the primary sector is more important for rural development in regions with significant agricultural potential but also in less developed rural regions. With the exception of the dynamic agricultural areas employment in the primary sector is not sufficient to support demographic growth. Only in a few rural regions agricultural development is integrated with the processing of agricultural production.

In regions with sufficient agricultural potential, modernization of agriculture and economic diversification are more appropriate. In the tourism-oriented areas the protection of the environment is a priority, given the fact that this is their most important resource.

In less favoured rural areas organic farming seems to be a viable alternative. The dynamic areas and the tourism oriented areas present low shares of organic farming. Therefore organic farming in Greece seems to be an activity which may contribute to local development and to the preservation of rural population in the less favoured rural areas.

Table 2. Cluster means

Clusters	Dynamic agricultural areas (N=3)	Intermediate rural areas (N=18)	Rural areas under organic farming (N=14)	Tourism oriented areas (N=10)	Diversified areas (N=5)	Exception: Attiki (N=1)	Greece (N=51)
Population density 2010	67,6	43,4	40,3	79,3	117,6	1079,5	85,7
Population change 2001-2010	2,3	-1,5	-1,5	4,3	6,7	5,6	3,4
Natural increase of population 2009	2,2	-2,3	-2,4	1,7	1,1	1,8	0,9
Percent of rural population 2001	43,0	49,1	59,1	52,8	32,4	1,0	27,2
Percent of utilized agricultural land 2007	33,6	31,4	21,9	33,0	25,2	19,3	26,9
Percent of irrigated land 2007	87,1	50,8	29,0	30,1	33,5	27,8	44,4
Agricultural land per holding 2007	39,3	61,2	30,5	30,2	38,4	18,3	41,2
Percent of value added in primary sector 2007	11,5	8,4	6,6	4,8	3,4	,4	4,3
Percent of organic farming area 2007	1,6	5,5	15,6	5,1	6,7	1,5	6,9
Percent of olive trees area 2007	,5	5,7	39,7	43,3	16,4	33,6	20,8
Percent of active population in the primary sector 2001	30,9	25,3	24,6	18,1	10,9	1,1	13,0
Percent of active population in food, beverages and tobacco industries 2001	4,9	2,4	1,9	1,5	2,9	1,8	2,2
Percent of active population in hotels and restaurants 2001	3,7	4,7	6,5	14,0	5,4	4,7	5,9
Construction activity per inhabitant 2005-2009	35,9	34,6	38,8	50,3	39,7	24,7	33,0

5. RURAL DEVELOPMENT POLICY IN GREECE

Rural development policies in Greece traditionally emphasized the role of agriculture. The recent trends in rural development policy (Council of the European Union, 2005, 2006) led to a shift in the way rural development is perceived in Greece. The gradual transformation of Greek programs for agriculture and rural development is an indication of this process. In Community Support Frameworks (CSF) 1989-93 and 1994-99 the measures for rural development were included in the operational program (OP) "Agriculture" as well as in the Regional OP's for each of the thirteen programming regions (NUTS2) of Greece. In addition the Leader initiative promoted rural development. In CSF 2000-2006 the O.P. "Agriculture" was replaced by the O.P. "Rural Development – Restructuring of the Countryside 2000-2006". In the new programming period (2007-13) a "Rural Development Program" is implemented.

In the O.P. "Rural Development – Restructuring of the Countryside 2000-2006" the main innovation in terms of rural development policy was the introduction of a (seventh) priority axis "Integrated development programs for rural space" with a budget of 452.1 million euros (12.7% of the OP's budget) which included solely actions for rural development. It was implemented in 87 selected areas of intervention, which still are the most deprived in the country, several small islands and mountainous areas among them.

The seventh priority axis consisted of 14 measures. Several of these measures concerned agricultural production (e.g. reclamation projects, water resources management, provision of services to agricultural holdings, marketing of high quality agricultural products). On the other hand, several measures concerned basic social services for rural population, technical infrastructure and preservation of the cultural heritage in rural settlements, as well as diversification of agricultural employment towards rural tourism and manufacturing (Hellenic Republic, 2010).

However analysis at the LAU 2 level (Iliopoulou et al., 2008) indicated that the number of the assisted municipal departments is very small, while the ones selected for the "Integrated development programs for rural space" are not the most deprived ones.

The Leader initiative complemented the rural development measures of the seventh priority Axis of O.P. "Rural Development – Restructuring of the Countryside 2000-2006" with the implementation of 40 local programs.

In the new programming period a “Rural Development Programme of Greece 2007-13” is implemented with an increased budget of 5,295 million euros. The program focuses on four priority axes in accordance to EU regulations (Council of the European Union, 2005, 2006):

AXIS 1: Improvement of the Competitiveness of the Agricultural and Forestry Sector

AXIS 2: Improvement of the Environment and the Countryside

AXIS 3: Quality of Life in Rural Areas and Diversification of the Rural Economy

AXIS 4: Implementation of the LEADER Approach

In the first axis the traditional measures for the modernization and restructuring of agriculture are included, specifically early retirement and subsidies for new farmers in order to improve the age structure of farmers, water management and infrastructures in general. In addition emphasis is given on the agri-food industry and the production of quality food. The first axis concentrates the greatest share of the budget (40.1% of total).

According to the Rural Development Program of Greece, environmental problems are significant only in some regions of intensive agriculture and they are related to the use of fertilizers and pesticides. On the other hand, in less favored areas the abandonment of agricultural land is considered a problem since it results to soil degradation and biodiversity reduction. In that respect, the second axis of the program provides measures for the sustainable use of natural resources, the protection of the biodiversity and landscape conservation. In addition, environment-friendly agricultural practices, such as organic farming, will be supported. The second axis concentrates 37.5% of the budget.

The third and fourth axes refer exclusively to rural development. The third axis aims at improving the quality of life of the rural population and encouraging diversification of the rural economy in the mountainous and less favored areas, in a way similar to the 7th priority axis of the previous programming period. In the “Rural Development Program of Greece 2007-13” mountainous areas and islands receive special attention, especially in terms of their accessibility problems and the necessary infrastructure which is important in order to induce rural development. It is estimated that 61.7% percent of the population which is employed in the primary sector lives in mountainous and less favored areas. In the mountainous areas the program will provide infrastructures which will reduce the distance from urban centers and will support viable agricultural production systems. The goal is to stabilize population in these areas and prevent the abandonment of land. In the islands tourism is very important but it does not concern many small islands. Therefore, employment in agriculture and fisheries is still important for rural development, while improvement of the transportation infrastructure is necessary for the provision of basic services to local population (Hellenic Republic, 2010).

The fourth axis is devoted to local development (Leader approach) in an integrated and multi-sectoral manner. It is a bottom-up approach which gives emphasis on local organizations for rural development. Improvement of local governance and promotion of innovative activities are basic objectives in this axis. The third and fourth axes concentrate together 20.5% of the budget (14.7% the third axis and 5.8% the Leader approach).

Finally the “Rural Development Program of Greece 2007-13” identifies three main types of rural areas:

- i. The dynamic
- ii. The mountainous and less favoured and
- iii. The island regions.

Dynamic agricultural areas are those in the lowlands, where the heart of agricultural production of Greece lies. The percent of irrigated land is 65% vs. 33% for the country as a whole. Intensive cultivation has caused environmental problems, while the CAP reform has more severe impact than in other rural areas. In these areas protection of the water resources and of the soils is necessary, while the competitiveness of the agricultural sector will be supported.

Mountainous and less favored rural areas produce a variety of agricultural products, without specialization. The conditions for agricultural production are limited and marketing is hampered because of the topography and the distance from the markets. In some of these areas tourism contributes significantly to rural development or organic farming is growing maintaining the rural communities, but in others the problem is the abandonment of land and settlements. Rural development policy in this type of areas, according to the program, aims at the production of local high quality products which will not suffer from competition.

The islands in general are isolated and the transportation costs are high. Some islands enjoy a well-developed tourist sector, but in most island regions, and especially in their interior, the living conditions in rural communities are poor. Agricultural production is limited, but often of high quality, while livestock production and fishery are quite developed. Integrated rural development for the islands is the goal of the Rural Development Program.

It seems that the concept of rural typologies has been incorporated in the current programming period as well as the need for local policies taking into account the special characteristics of different types of rural areas. However, as the analysis at the department level indicated, these three types of rural areas do not represent the complexity of rural patterns in Greece. The implementation of the program is still in early stages and the

specialization of general objectives to specific actions targeted to small rural areas is certainly a very demanding programming task.

As a conclusion, when examining the budget and the measures of the Rural Development Programs in Greece in the period after the latest CAP reform of 2003, it appears that although the perception of rural development has changed, the inertia of the sectoral approach is evident and intervention for rural development is rather limited. The name of the Operational program changed from “Agriculture” to “Rural Development – Restructuring of the Countryside 2000-2006” and then to “Rural Development Program of Greece 2007-13”. The content of the current program is in accordance to EU regulations for rural development and all the appropriate measures are included. In terms of financing however, most of the funds are directed to measures for agriculture, although the share for rural development has almost doubled in the new programming period.

CONCLUSIONS

The interest for rural areas in Europe relates to the fact that they occupy most of the European territory, while a significant share of population lives in rural areas. Rural areas were traditionally considered to depend on agriculture. In the last two decades it became evident that rural development cannot be solely induced by agricultural development. The importance of the tertiary sector was growing together with the need for protecting the environment. Since the late 1990's CAP has been reformed so that subsidies were reduced and rural development goals were included as the “second pillar” of the policy, while for the current programming period rural development programs have been introduced.

In order to study rural areas several typologies were proposed not only for Europe but for the OECD countries as well. Usually three types of rural areas are recognized: the dynamic agricultural areas where the potential for agricultural production is significant but environment is at risk; rural areas of intermediate development with some diversification of the economies; and declining or less favored areas in which basic social services are necessary so that population will continue agricultural activity and land will not be abandoned. The purpose of those typologies is to help propose appropriate rural development measures.

Greece has received important subsidies for agriculture in the 1980's and 1990's. However nowadays, agriculture in Greece faces pressures from the reduction of subsidies which were used to cover a significant share of farmers' income and improved their living

conditions for two decades. Greece is considered a rural country, however employment in the primary sector steadily declines, although it is still much higher than the European average. Concern for rural areas in Greece started in the late 1980's although at that time, the idea that rural development was not dependent on agriculture alone was not widely accepted. Studies for rural typologies used to indicate some major types of rural areas such as the dynamic agricultural areas in the lowlands and close to transportation networks and urban centers, intermediate areas or the periphery, declining areas mostly mountainous, and tourism-oriented areas mostly islands. Each type calls for different policy measures which have to be studied in a detailed geographical breakdown.

In the present analysis indicators concerning organic farming were included since this is a new opportunity for agriculture in accordance to the environmental goals of European rural development policy. The classifications of rural areas in Greece at the NUTS 3 level indicated that rural patterns are changing and become more complex. Organic farming tends to concentrate in rural regions with poor agricultural potential and in that respect it is a promising alternative for improving incomes and protecting the environment in less favoured rural areas.

Programs for "Agriculture" in Greece have gradually transformed to include non-agricultural activities for rural development goals, in accordance to EU regulations. In addition some rough rural typology was recently identified for rural development purposes. Traditional measures for agriculture are still prevailing at least in terms of financing and the program has a strong sectoral orientation. However organic farming is included in the actions financed by the program and it is expected that the strong increasing tendencies of organic farming in Greece will continue.

REFERENCES

1. Agricultural University of Athens, (1991). Changes in the agricultural sector and the settlement structure of rural areas, Research program, Final Report, Athens: General Secretariat of Research (in Greek).
2. Banks, J. & Marsden, T. (2001). The Nature of Rural Development: The Organic Potential. *Journal of Environmental Policy and Planning*, 3, 103-121.
3. Commission of the European Communities, (1988). The Future of the Rural Society, COM (88) 501. Luxembourg: Office for Official Publications of the European Communities.
4. Commission of the European Communities, (1992). Europe 2000. Outlook for the Development of the Community's Territory, COM (91) 452. Luxembourg: Office for Official Publications of the European Communities.
5. Council of the European Union, (1999). Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations. *Official Journal of the European Communities* L 160/80 26.6.1999.
6. Council of the European Union, (2005). Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). *Official Journal of the European Union*, L 277/1 of 21.10.2005.
7. Council of the European Union, (2006). Community strategic guidelines for rural development (2007-2013), Council Decision [2006/144/EC](#). *Official Journal of the European Union*, L 55/22 of 25.2.2006.
8. Darnhofer, I. (2005). Organic Farming and Rural Development: Some Evidence from Austria. *Sociologia Ruralis*, 45(4), 308-323.
9. Dima,, S.J. & Odero, A.N. (1997). Organic Farming for Sustainable Agricultural Production. *Environmental and Resource Economics*, 10, 177-188.
10. European Commission, (1994). Europe 2000+. Cooperation for European territorial development. Luxembourg: Office for Official Publications of the European Communities.
11. European Commission, (2007). Scenar 2020: Scenario study on agriculture and the rural world. Directorate-General Agriculture and Rural Development.

12. European Union, (2009). Rural development in the European Union. Statistical and economic information report 2009, Directorate-General for Agriculture and Rural Development.
13. European Union, (2010). Agriculture in the European Union: statistical and economic information 2009. Directorate-General for Agriculture and Rural Development.
14. Eurostat, (2010). Organic farming: Area under organic farming increased by 7,4% between 2007 and 2008 in the EU-27. Eurostat Press Office.
15. Grando, S. 2003. "Organic Farming: Effects on Endogenous Development, Local Resources and Network Creation — The Case of Basilicata", Paper presented at the European Society for Rural Sociology, 20th Biennial Conference, Sligo, Ireland, 19-22 August 2003.
16. Hellenic Ministry for the Environment, Physical Planning and Public Works (1998). Study-Research of Rural Space: Final Report. Athens: Hellenic Ministry for the Environment, Physical Planning and Public Works (in Greek).
17. Hellenic Republic, (2007). National Strategic Reference Framework 2007-13. Athens, Greece: Ministry of Economy and Finance.
18. Hellenic Republic, (2009). Rural Development Programme of Greece 2007-13 (6th edition). Athens, Greece: Hellenic Ministry of Rural Development and Food (in Greek).
19. Hellenic Statistical Authority (EL. STAT.) (2010). <http://www.statistics.gr>
20. Iliopoulou, P. (2001). Rural Space in Greece (1961-1991). In Burgel G. & Demathas Z. (Eds.), Greece in front of the third millennium: Space, Economy, Society (pp.187-203). Athens, Greece: Panteion University-University of Paris X (in Greek and French).
21. Iliopoulou, P. (2005). Rural development in Greece: spatial patterns and policy implications, 45th Congress of the European Regional Science Association, 23-27 August 2005, Vrije Universiteit Amsterdam.
22. Iliopoulou, P. ,Stratakis, P. & Tsatsaris, A. (2008). Transformation of rural patterns in Greece in a European Regional Development Perspective (The Case of Crete). In Coccossis H. & Psycharis Y. (Eds.), Regional Analysis and Policy, The Greek Experience, pp. 337-354, Heidelberg: Springer Physica-Verlag.
23. International Trade Centre, 2007. Organic Farming and Climate Change, Research Institute of Organic Agriculture, Doc. No. MDS-08-152.E

24. Johnston R. J. (1976). *Classification in Geography, Concepts and Techniques in Modern Geography* (CATMOG) 6, UK.
25. Mccan, E., Sullivan, S., Erickson, D. & De Young, R. 1997. Environmental Awareness, Economic Orientation, and Farming Practices: A Comparison of Organic and Conventional Farmers. *Environmental Management*, 21(5), 747-758.
26. OECD, (1993). *What Future for Our Countryside?*. Paris: OECD Publications.
27. OECD, (1994). *Creating Rural Indicators for shaping territorial policy*. Paris: OECD Publications.
28. OECD, (1995). *Creating Employment for Rural Development: New policy approaches*. Paris: OECD Publications.
29. OECD, (2003). *The Future of Rural Policy: From sectoral to place-based policies in rural areas*. Paris: OECD Publications.
30. OECD, (2005). *New approaches to rural policy: Lessons from around the world*. Paris: OECD Publications.
31. OECD, *Rural Policy Reviews* (2006). *The New Rural Paradigm, Policies and Governance*. Paris: OECD Publications.
32. Pugliese, P. 2001. Organic Farming and Sustainable Rural Development: A Multifaceted and Promising Convergence. *Sociologia Ruralis*, 41(1), 112-130.
33. Rigby, D. and Cáceres, D. 2001. Organic farming and the sustainability of agricultural systems. *Agricultural Systems*, 68, 21-40.