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## Spatial Structure of Tourist Supply and Relations Between Sub-Regions: A Case Study in a Coastal Region, Greece

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# SPATIAL STRUCTURE OF TOURIST SUPPLY AND RELATIONS BETWEEN SUB-REGIONS : A CASE STUDY IN A COASTAL REGION, GREECE

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## ABSTRACT

At the duration of previous decades has been realised important research with regard to the results and the repercussions of tourism in local level. Even if the tourism is often represented as industry of low impact, the researchers have begun to recognize the tourism as a factor of environmental change. The tourism is considered as the activity that eminently expresses spatial interaction. That means, that the characteristic elements two or more units of space affect each other. The effective spatial management of is an increasing competitive and complicated undertaking, that requires the help of economic, social and geographical elements for the process of planning and development. Taking into consideration the heterogeneous nature of the tourism phenomenon and organisational and functional structures of tourist destinations, especially the coastal areas, it is obvious that it is enough difficult to delimit with precision the tourism sector, as a single total of competences, that they are distinguished easily by the remainder policies of tourist destinations, and to record the spatial changes in the tourism. This work faces an important challenge in the field of tourism and the basic aim of this paper is to present the economic relations between sub-regions in a coastal area in Greece, and spatial concentration of economic activities and examination of communities in the sense of socio-economic characteristics, emphasising in the analysis of the correlation between employment in the tourism sector and other economic activities. Furthermore, the geographical distribution of tourist lodgings, constitutes a very widely used clue in the measurement of spatial fluctuations of tourist activity. This is owed because the tourist lodging constitutes one of the more important elements of tourist product with material substance, so that it can be also still measured, and data which concern in the geographical distribution of tourist lodgings, provide useful elements with regard to the importance of tourism and its spatial structure.

**Keywords** : tourism planning, sustainable tourism planning, socio-economic characteristics, indicators of tourist operation, Location Quotient, Coefficient of Location, Coefficient of Specialization, regional development

## 1. INTRODUCTION

The growth of coastal resorts faces henceforth problems because lack of sometimes suitable sustainable planning, because partly, in the complexity of questions of sustainability and the lack of comprehensive tool of decision-making. The spatial management , the character and the content of planning and development, and more generally the developmental processes and the processes of intervention that it requires their management, need a multidimensional and coordinated confrontation of socio-economic, environmental and functional problems of destination area development and planning (Papapavlou-Ioakeimidou, 2003).

The recent decades, the coastal tourism (sun and sand tourist destinations) has been increased considerably bringing enormous economic profits in the communities of reception, having however a lot of environmental and social effects in the coastal environment. Between 1950 and the early 1980s, a standard mass holiday product was

created, aimed at a very price-sensitive type of European consumer (Mowforth, Martin, Ian Munk, 1998). This model of consumption underwent crisis in the late 20th century. It was obvious that tourism development can be intensive on coastal fringes and has caused major damage to coastal ecosystems.

At the same time, beaches and biodiversity make the environment a basic resource upon which the tourism industry depends to thrive and grow, and threats to the environment threaten the sustainability of the tourism industry. These impacts are related to resource consumption, as well as to pollution and waste generated by tourism activities, including impacts from transport (Mathieson και Wall, 1982). Nevertheless tourism relationship with the environment is complex. The environment - tourism relationship has evolved through several phases over the last decades (Hudman 1991).

Over recent years the relationship has increasingly been viewed as one with considerable potential for either conflict or symbiosis. Thus the integrated view of the environment - tourism relationship advances that environmentally compatible tourism developments may be achieved by fostering sustainable development (Romeril 1989, Farrell and Runyan 1991) through environmentally appropriate tourism planning (Murphy 1985, Gunn 1988, Inskip 1991). There is a large and expanding literature on the consequences of tourism for destination areas. It originated with a primarily economic focus and has expanded to include environmental, social, cultural, political and other dimensions, but there is still debate concerning the abilities of tourism to stimulate or destroy economies, to the enhancement or degradation of environments, and to revive or undermine cultures (Wall, 1996).

The environmental - development link often includes tourism as a bridge. The base of this partnership is resource sustainability and tourism must be fully integrated with the resource management process. This will require the adoption of resource conservation values as well as the more traditional development goals. Central to the goals of environmental conservation and resource sustainability is the protection and maintenance of environmental quality. To achieve this primary goal requires planning which is grounded in environmental protection and enhancement yet fosters the realisation of tourism potential. Environment - tourism planning is grounded in the concepts of the sustainable use of natural resources as fostered by the World Conservation Strategy (IUCN 1980) and the sustainable development strategy of the World Commission on Environment and Development (WCED 1987).

The general significance of tourism planning appears too much abstract unless it is presented in the implementation levels. The tourism covers all the scales of development from national to local. Even if the objectives are the same, the approaches and the processes they are different for various geographic and political levels, and the applications of planning shows that three levels of processes of planning they are important: National, regional and local. Always more and more, the planning is considered as a *continuous* process. However, because of the many factors in the decision-making for the development of tourism, this approach is enough complicated.

Basic objective of planning policies is the evaluation of territorial repercussions and the co-ordination of various sectoral policies that is practised in national, regional or in local level. The search and promotion of a sustainable model of development constitute henceforth main developmental choice, in European and in world level. This model combines the quality of environment and the social justice with the competitiveness of productive system. These three conditions are very important for the total and for the parts of spatial planning approach.

Planning for tourism necessitates comprehensive assessment and analysis of related issues, the development of alternative courses of action and evaluation tools to further decision-making. The varied nature of tourism requires that planning draws from numerous disciplines and addresses myriad factors. This seems to imply that a tourism plan must be multidisciplinary at the least and interdisciplinary at optimum because the process is both collaborative and integrative. Thus, tourism planning is a way of achieving tourism goals; it is a proactive means to create community development through tourism.

What is required now is a new planning approach which is grounded in environmental principles and yet incorporates the essential elements of tourism development. The essential elements for such a plan would be for it to achieve

environment - tourism compatibility, be strategic and iterative, regionally based, and incorporate land use zoning. In this way it would be grounded in the sustainable development approach, that is: be based on environmental protection, community wellbeing, tourist satisfaction and economic integration.

## **2. METHODOLOGICAL APPROACH OF TOURISM PLANNING**

The challenge which has to face today the tourism planning with short-term – medium-term – long-term time horizons is precisely the diagnosis and the resolution of problems, the confrontation of dangers and threats as well as the exploitation of respectively advantages and opportunities.

Taking into consideration the heterogeneous nature of the tourism phenomenon and organisational and functional structures of tourist destinations, especially the coastal areas, it is obvious that it is enough difficult to delimit with precision the tourism sector, as a single total of competences, that they are distinguished easily by the remainder policies of tourist destinations, and to record the spatial changes in the tourism.

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Tourism planning is concerned not only with the elements of tourism, but also the interrelationships between those elements. These elements include travel to a destination, the stay at the destination, and the activities that occur there (Mathieson A. & G. Wall, 1982). Of importance is how those elements and interrelationships affect the community individually and cumulatively. The planning stage of tourism development is essential to avoid potential problems. Tourism development will have benefits and costs to the community; if these are understood from the outset then strengths and opportunities can be maximized while weaknesses and threats can be minimized. Tourism planning is described in a number of ways, yet the main theme is consistent: planning for tourism is a proactive exercise to achieve community goals, to control impacts and to avert haphazard development.

The environment does not only concern the flora, the fauna and the protection of individual regions or “Regions of Outstanding Beauty”, but the total of space, with the human activities that this receives. Thus, on the basis the sovereign dimension of resultant of development - environment, after a systematic analysis, the effects of tourism in a region can be analyzed from the opinion of three important axes: natural environment (natural and anthropogenic included the infrastructure), social (population and social structure and dynamics) and economic (included employment). These can provide also the base for the estimate of Indicator of Tourist Operation from the point of main, distinct, but also interrelated components, (UNEP/PAP/RAC, 1997). Furthermore, the tourism is considered as activity that expresses territorial interaction, something that means that the characteristic elements of the spatial units affect each other.

In order that the article to correspond in the aim and its objectives, it attempts to isolate certain parameters of conflict of man with the environment in the case study, through the evaluation of the spatial behavior of economic activities and operations that will be analyzed. The research can be divided in two fundamental objectives, with different analytic approach each one of them, but with common resultant : Are analyzed two levels of methodological approach and the process represents an integrated and two-scale approach to tourism planning in the region.

- The first approach tries to investigate, diachronically, the different and altered territorial relations and the existence of territorial changes and divergences, with their effects in the employment and in the concentration of other economic operations in the different systems of regions and sub-regions.

- The second is quantitative and qualitative approach and concerns the measurement of tourist operation.

## 2.1 Concepts and methodology: 1st analytical approach

The study of diverse and changing spatial relations and existence of spatial variations with their impacts on employment and on the concentration of other economic functions in different regions and sub-regions systems, is a complex task. The process of regional economic development under these conditions is consequently very complex, and attempts have been made by economists, geographers and planners to understand this process through the formulation of models of economic development, and other methods and techniques of regional analysis.

In a study of a given region the analysts should be able to present in considerable detail and over time its financial, commodity and service trading relationships with a larger or other region or regions. This detail would depict the economic conditions in the given region (s), and could then be related to the several systems portraying other basic interconnections within and among regions.

An adequate regional analysis has to meet three requirements.

- 1) It must clarify the reordering of spatial relations that occurs under conditions of growth.
- 2) It must be able to account for changes and spatial variations in regional subsystems.
- 3) It must explain the changing influence of spatial patterns on system-wide growth.

To help deal with such concerns and problems and many similar ones, the location analysts, have been used extensively, a number of coefficients, ratios and indices. Our study, concerning communities of the case study (as sub-systems units), depends its findings on these coefficients: The Location Quotient, the Coefficient of Location and the Coefficient of Specialization.

### The measurement of the Location Quotient, the Coefficient of Location and the Coefficient of Specialization.

The equations that have been used for determining the various regional indices are: The Location Quotient ( $Q_L$ ), the Coefficient of Location ( $C_L$ ), the Coefficient of Specialization ( $C_S$ ) (Broadbent, T.A., (1969 p.68), Florence 1943, 1953 and Lajugie et al. 1980,p.. 589).

$$Q_L = \frac{A_{ir}}{A_r} \cdot \frac{A_{in}}{A_n} \quad (1)$$

$$C_L = \frac{1}{2} \sum \left| \frac{A_{ir}}{A_{in}} - \frac{A_r}{A_n} \right| \quad (2)$$

$$C_S = \frac{1}{2} \sum_i \left| \frac{A_{ir}}{A_r} - \frac{A_{in}}{A_n} \right| \quad (3)$$

where:  $A_{ir}$  = the employment of the activity  $i$  in the community

$A_r$  = the total employment of the community

$A_{in}$  = the employment of the activity  $i$  in the peninsula

$A_n$  = the total employment of the peninsula

Each of these equations is straightforward. The Location Quotient (1) denotes the ratio of economic activities growth in communities in comparison with the total peninsula. When  $Q_L$  is equal to unity, the economic activity  $i$  has the same importance in the community and in the peninsula as well. When  $Q_L$  is larger than unity, the

economic activity  $i$  is more important in the community than in the peninsula. When  $Q_L$  is less than unity, the economic activity  $i$  is less concentrated in the community than in the peninsula.

As far as the Coefficient of Location (2) is concerned, denotes for each one economic activity the degree of its concentration. It does not denote the place of concentration and the limits to the value of the Coefficient are 0 and 1. If the value of the Coefficient will approach to 1, there is more concentration of the activity  $i$  in the specific community. If the value of the Coefficient is 0, the activity  $i$  is distributed exactly the same, as the rest economic activities in the community.

The Coefficient of Specialization (3), such as the Coefficient of Localization (2), range from 0 to 1, and informs about the degree of concentration of each community of the peninsula. It does not denote which activity is concentrated. When its value is 0, in the community  $r$  there is no specialization in comparison with the peninsula. When its value is 1, the community is quite specialized and specific activities are concentrated.

## 2.2 Concepts and methodology: 2nd analytical approach

The term "tourist space" is closely associated with the geography of tourism. According to Mansfeld (1990), there are three dominant ways of viewing tourist space in tourism studies, namely: *actual space*, *functional space*, and *perceived space*.

Actual tourist space refers to the actual geographical area which accommodates tourist activities. This type of tourist space has reasonably clear geographic boundaries. Intensity of actual utilization may vary and it is possible to assign intensity gradients to actual tourist space. An example of a study investigating actual tourist space is by Defert (1966).

Functional tourist space is defined on the basis of the function of the space, whether in terms of tourism activities or in terms of characteristics of the space. For example, MacDonald (1984) defined tourist space in functional-economic terms. Husbards (1983), refers to functional tourist space when discussing the "type of spatial organization (form and structure) which arises under the influence of tourism activity". Viewing tourist space from the core-periphery perspective, Husbards (1983), calls for the need of "a theory of tourist space (that is a theory concerning the structure, form, and function of space under the influence of tourism)".

Perceived tourist space defines and deals with tourist space on a behavioural basis. Each individual tourist has certain perceived images of a tourist destination before, during and after a visit, where the level and quality of perceived tourist space are determined by marketing, socio-economic variables, culture and nature of personal experience. Miossec (1976), Murphy and Rosenblood (1974) have published studies that focus on perceived tourist space.

Consequently, space is the main concern of geographers when viewing tourism. In a tourism system, space can be divided into the origin, the destination, and the path connecting the two ends (Pearce, 1989). Among the three, the destination has been given the most attention, especially when dealing with tourism development, as it is the place most affected by the development.

The geographic distribution of tourist lodgings constitutes a very widely used indication in the measurement of spatial fluctuations of tourist activity. This is owed in the make that the tourist lodging constitutes one from the more important elements of tourist product with material substance, so that it can be measured. At first sight, the measurement of tourist lodgings is considered easy and it is included in the frames of statistical registrations, that are held for tourist, commercial or even tax reasons. However, a complete recording of tourist lodgings is characterized considerably difficult.

The statistics that concern the main tourist lodgings correspond more actually, while they of auxiliary tourist lodgings (furnished apartments, villas, rented rooms etc) present important divergences. The statistical recording of tourist lodgings is useful, among others, firstly in the measurement of the spatial fluctuations because of the enlargements of the tourism phenomenon and the models of development and secondly in the discrimination of various regions with regard to the types of tourist activity.

Also, the geographic distribution of tourist lodgings constitutes an enough good indication concerning the qualitative variables of tourist demand. Additional information about the structure of tourist lodgings, at types and categories, allows a better approach of qualitative characteristics of tourist demand. The statistics that concern in the tourist lodgings, are expressed or in number of units per category of tourist lodging, or in number of rooms or beds. The types and the sizes of tourist lodgings (mainly hotels), can have different repercussions in a geographic distribution of units and beds. For this reason the capability of reception in a region, is often measured in beds.

The complement of tourist lodgings supplement these measurements, and portray all the spatial fluctuations of tourist activity from the one geographic area in the other. However, the complete inventory of beds does not correspond in a precise measurement of tourist flows in the interior of a country and consequently in the equitable depiction of their spatial structure. The number of realised overnight stays in the tourist lodgings is usually under - appreciated and it usually concerns with the approved tourist lodgings. On the contrary, is not recorded a big number of tourist overnight stays that is realised in lodgings as: residences of relatives and friends, free camping, trailers except camping, not-approved (illegally) tourist lodgings, villas, furnished apartments, rooms to let, lodgings of not commercial character, as lodgings social and charitable character and student centres.

Often and the householders of the hotels mainly, become guilty of insufficient statistical registrations (number of overnight stays, complements), for tax reasons or for reasons of competition. Although, the statistical data which concern with the geographic distribution of tourist lodgings provide useful indications with regard to the importance of tourism and his spatial structure, nevertheless are not in place to allow a real spatial approach of tourist activity. For this reason a set of indicators they aim and contribute in a better spatial approach of tourist activity.

#### **A. The measurement of spatial changes in the tourism: The Indicator of Tourist Operation (I.T.O.)**

This indicator was used for first time by R. Defert in 1966 and is characterized as the most acceptable. According to the R. Defert, "the indicator of tourist operation" of an area, measures the tourist density, as expressed by simultaneous coexistence of two different types of populations (tourists and population of reception) inside the same spatial unit.

The size and the types of interventions, with regard to the tourism, through an integrated planning, differ from one tourist destination to the other. This differentiation is result of degree of tourist orientation of each region, because of the general and specific characteristics and the identity of the destination area. Consequently, becomes clear that it is essential prerequisite, a classification of these regions according to their tourist orientation. Furthermore, this process helps the decision-making for the choice of the suitable location of destination area for sustainable tourism planning.

As a variable of tourist density, indicator  $T(f)$ , it can be a useful variable and being able to conceive thin discriminations. The indicator  $T(f)$  provides a useful supplement in traditional absolute numbers of capacity and it should be used more widely. Since the statistics of populations are regularly easily available, the additional calculation can create few problems. Simultaneously, the restrictions of capability of statistics should be taken into consideration, particularly if exists big divergence in the mix of types of lodgings and their rates of property.

The Indicator of Tourist Operation is given by the application of the relation:

$$Tf(t) = \frac{L \times 100}{p} \quad (1)$$

where  $Tf(t)$  : the indicator of tourist operation  
 L : the number of available tourist beds  
 P : the local population

The ratio of the tourist function  $T(f)$  has been found useful for tourism research.  $T(f)$  is the ratio between the capacity of a region for receiving visitors (measured by the number of tourist beds,  $L$ ) and the number of hosts (local population) to receive them (measured by the local population,  $P$ ). Notable examples of such methods are provided by Thompson, (1971), and has measured for Colorado, by Rajotte, (1977) about selected Pacific islands and by Pearce (1979) about New Zealand. The function is useful for comparing the relative importance of tourism among comparable regions.

R. Baretje (1978), expressed the above function in relation with the expanse of the spatial unit of destination area. In this case, the ratio is presented with the following form:

$$Tf(t) = \frac{L \times 100}{p} \times \frac{1}{S} \quad (2)$$

where  $S$  : the expanse η έκταση σε  $\text{Km}^2$

The theoretical restrictions of this indicator are as below:

- When  $Tf(t) = 0$ , the destination area does not allocate tourist lodgings that serve the tourist needs.
- When  $Tf(t) = \infty$  does not exist population of reception. This restriction was compared with the case of first tourists in the Moon.
- When  $Tf(t) = 100$ , the number of tourists amounts with that of residents (hosts) of destination area. In that particular case we accept as additional restriction that all the existing beds in the tourist lodgings of spatial unit are occupied from the tourists.

## B. The classification of regions as tourist destinations

M. Boyer (1982), according to the indications of "Indicator of Tourist Operation", distinguishes a classification of municipalities and communities in six big categories, that portrays their structure and it is useful for comparisons between them. The categories are mentioned in Table 1.

### Classification of tourist destinations according to the Indicator of Tourist Operation (I.T.O.)

I.T.O.	Tourism orientation: Category of destination
>500	Extremely tourist station (that was done recently)
100 - 500	Great tourist station
40 - 100	Region eminently tourist
10 - 40	Region with important tourist activity (no main)
4-10	Small-scale tourist activity
<4	Almost non-existent tourist activity

The studies that adopt the differentiations in the lodgings as means of deducing out of sources of regions or determination of regions specialization in particular types of tourism, are usually of two types. A type of studies focuses in a single sector of lodgings and it examines the variables, for example the quality or the comfort, while the other type of studies is only interested for various types of lodgings, and usually one variable for example the carrying capacity.



### **3. METHODOLOGICAL APPROACH OF TOURISM PLANNING: APPLICATION TO THE CASE STUDY**

The Chalkidiki peninsula, our case study area, is located in Central Macedonia in Northern Greece. It covers an area of 2.945 sq.km. In the area no-one great urban centre exists, and there is a flat allocation of rural and semi-urban population of 91.969 inhabitants in 40 rural communities (villages) and 5 semi-urban municipalities.

#### **3.1 Findings and discussion : 1st analytical approach**

The aggregate findings of the application of the Coefficient of Specialization  $C_s$ , the Coefficient of Location  $C_L$  and the Location Quotient  $Q_L$ , on the economic activities and the communities of the peninsula, are presented in Tables 1, 2 and 3, respectively. The Table 1, presents the more specialized communities of the peninsula (39 of the 45 examined), in the sense of a concentrated economic activity without defining specific economic activity. The specific economic activities of the 39 communities are determined putting the Table 1 in comparison and relation with the Table 3, which presents the growth of the several economic activities in the communities (Papapavlou-Ioakeimidou, St., 2003), (Papapavlou-Ioakeimidou et al, 1997).

The economic activities that have a high concentration are presenting in the Table 2, which indicates the degree of its one concentration without denoting the place of concentration. Consequently, according to the findings of the Table 2, industry, forestry, mines and fishing are the economic activities with the highest concentration in specific communities, with (0,79), (0,76), (0,75), (0,58), respectively. As far as the tourism is concerned, appears with a quite high degree of concentration (0,50) and commerce appears to have the lowest degree of concentration (0,24) that indicates, it is spread all over the peninsula.

As can be seen in Table 3, according to the findings, the communities with the greatest concentration of tourism facilities, such as, Kallithea (4,12), Kriopigi (3,17), Polichrono (4,20), Chanioti (4,20), Pefkochori (4,69), Metamorfosi (3,20), N.Marmaras (2,96), are mainly located along coastal zones, particularly in the small peninsulas of Kassandra and Sithonia, in western and southern Chalkidiki. For these communities, in contrary, the rest economic activities are downgraded.

For another group of communities i.e. Ag.Pavlos (2,90), N.Silata (2,59), N.Plagia (2,26), Flogita (2,58), Ag.Paraskevi (2,42), there is a great development of agriculture, where simultaneously, it is perceived a minor development of tourism (0,05), (0,00), (0,12), (0,05), (0,19), respectively.

Furthermore, the communities such as, N.Kallikratia (4,30), N.Skioni (4,82), Sarti (7,47) with side-activities in forestry (4,34) and livestock (4,02), Pyrgadikia (4,85), N.Roda (10,01), Ammoyliani (10,03), Ag.Nikolaos (2,18), have a great development of fishing. For another group of communities i.e. Gomati (17,99), Varvara (37,29), Olympiada (13,27), Stratoniki (9,91) with a side - activity in mines (8,42), Ouranoupoli (5,58), Kassandrino (6,94), the dominant economic activity is the forestry.

The communities that are dominated by the economic activity of mines are Polygyros (5,51), Stratoni (11,68), Stratoniki (8,42). As far as the communities N.Triglia (5,72), Flogita (3,26), Dionisiou (7,13), Portaria (5,44), Paliouri (8,16), Fourka (6,67), Kassandria (2,43), the industry is perceived as a major and dominant economic activity.

#### **3.2 Findings and discussion : 2nd analytical approach**

As can be seen in Table 4, according to the findings, the communities with the greatest concentration of tourism facilities, and consequently with the greatest Indicators of Tourist Operation are, Kallithea (106,30), Kriopigi (25,01), Polichrono (7,65), Chanioti (29,07), Pefkochori (5,37), Metamorfosi (4,66), N.Marmaras (10,96), Kalandra (6,34), are mainly located along coastal zones, particularly in the small peninsulas of Kassandra and Sithonia, in western and southern Chalkidiki. For these communities, in contrary,

the rest economic activities are downgraded. Only Ouranoupoli (6,70), that is the «Gate of entry» for Mount Athos, has a high Indicator of Touristic Operation. Their classification according to the Indicator of Tourist Operation is as “great tourist stations”.

For another group of communities i.e. Ag. Mammas (2,60), Afytos (3,28), Paliouri (2,72), Fourka (3,68), Nikiti (3,70), Sarti (2,45) there is a great development of tourism and their classification according to the Indicator of Tourist Operation is as “regions eminently tourist”.

#### **4. GENERAL CONCLUSIONS**

The impacts of coastal tourism on the physical environment in the coastal area of Chalkidiki peninsula, the social and the culture of coastal communities do not receive adequate attention in tourism development and planning. It appears that in the region economic considerations outweigh possible damage on the physical and social environment. Tourism in the Chalkidiki peninsula has exploded through the construction of large land-based resorts that can ultimately destroy local environments and cultures. Mass tourism, however, provides the Chalkidiki peninsula with badly needed joint ventures and foreign exchange earnings, aiding the area in their macro level development and sustaining their presence.

Furthermore, it should be noted that Chalkidiki peninsula, is a place for holidays and recreation for the majority of Thessaloniki city residents, despite the bulk of the foreigner tourists. Consequently, its development trends, the last decades, are dominated by the thriving of accommodation for tourists, second homes and other touristic facilities that are distributed, as mentioned above, mainly along the western and southern coastal areas. That fact resulted the declination of traditional economic activities such as fishing, forestry, agriculture, livestock and handicraft and the concentration of those activities mainly in the mountainous eastern and north - eastern Chalkidiki.

For the most part, Chalkidiki tourism exists in the coastal regions of the peninsula where the development of areas for tourism disrupt ecological relationships in the foreshore areas and also affect local and marine life. The preservation of foreshore areas predominately exists as a secondary priority to economic returns but does receive some attention in order to maintain an alluring environment. The resulting situation ironically threatens the maintenance of local culture and natural resources of the Chalkidiki for the promotion of tourism that in turn depends upon the conservation of local culture and natural resources to satisfy tourism desires.

Increases in mass tourism required large concrete hotels to appear close to the high water mark, and the construction of marinas for yachts. These transformations, superimposed on a fragile environment particularly vulnerable to change, represent a form of economic development for the short term. It only took a generation, however, before the Chalkidiki peninsula population witnessed the transformations of the land and seascape including the reduction in bays for local fishers, the loss of areas where villagers went bathing. Another example of the coastal complications that can arise from human manipulation of the delicately balanced factors involves traditional fishing practices and rights. There exist many ways in which coastal tourism development can upset traditional fishing rights through reduced harvests or by restrictions on access to harvest areas.

Many coastal tourism facilities impact on fishing rights by restricting access of fishing-rights holders to their resources. These restrictions may be direct such as a building, or a fence. There exist also the possibility of indirect psychological restrictions such as the presence of a tourist resort with foreign people may prove too intimidating for locals to continue daily activities in that area (Papapavlou-Ioakeimidou, St., 2003).

Today, the increased awareness of the developed world of the environmental impacts of tourism in developing societies, and the subsequent need to see the unknown before its destruction, increases in small scale tourism labels in the 1990s including new tourism, alternative tourism, appropriate tourism, soft tourism, responsible tourism, people to people tourism, and eco-tourism displays the industry's recent popularity.

So, as reported by Butler, (1993:29), achieving sustainable development while

promoting tourism can occur, but controlling the level and style of tourism over the long-term present's challenges requiring an appropriate planning and monitoring process. The challenge continues to lie in how to appropriately define and implement a tourism alternative acceptable to both host and guests of tourism. Most forms of sustainable tourism do not address or solve the equity issues which exists between host and guest and thus the elitist aspects of tourism continue.

The increasing international demand for new "tourist products" as these widely are available in Chalkidiki peninsula, it place it in the list of popular coastal destinations. However, as with anyone "product", the "tourist products" are not invulnerable in the unacceptable processes of production and consumption and the complicated approaches of market. This is particularly interesting specifically when the local Municipal Apartments that should bear this product are unprepared to do so. All this frame, requires more attention than that has been given by the relative Institution. Perhaps the profits that the tourism has brought, have still not left space for more comprehensive and essential discussions with regard to his negative sides. However, the coastal Municipal Apartments of Chalkidiki, have the legal right acquire access in all the means essential to be developed.

The protection of environmental resources requires a national prospect that is also connected with concrete decisions. The persons in charge for the development should to stand dynamically and the Central Authorities should create the effective institutions for the organisation, development and management of coastal area, in order to continue these tourist destination resorts experiencing their desirable environmental characteristics without revalorisation of environment or socio-economic structure of local Municipal Apartments.

The achievement of objective of sustainable tourism requires the use and growth of these scientific analytical tools, that will help in the acquisition of knowledge for the restriction of unsustainable development and the sustainable utilisation of resources, something that is also the challenge of sustainable tourism development, since we face our future and the future of our children's.

## 5. EPILOGUE

This research incorporates also quantitative and qualitative approaches, first in order to it searches the altered territorial relations of tourism and their effects in the employment and in the concentration of other economic operations and activities. Taking into consideration the socio-economic nature of research, the incorporation of these two approaches can be faced as "multiple research strategy" that is proposed by their Eyles and Smith (1988, p. 4) provided that it concerns the complexity of social world.

Such multiple research strategy would use the multiple forms of research with the adoption of any combination of research methods as for example the theoretical research and the methodological analysis. In the stage of the analysis of the elements was used the techniques of the Location Quotient, the Coefficient of Location and the Coefficient of Specialization that is the usual used methods of analysis of economic base. Still, was used the technique of indicator of tourist operation. Finally, the qualitative evaluation was used in the comparison of empirical results.

## REFERENCES

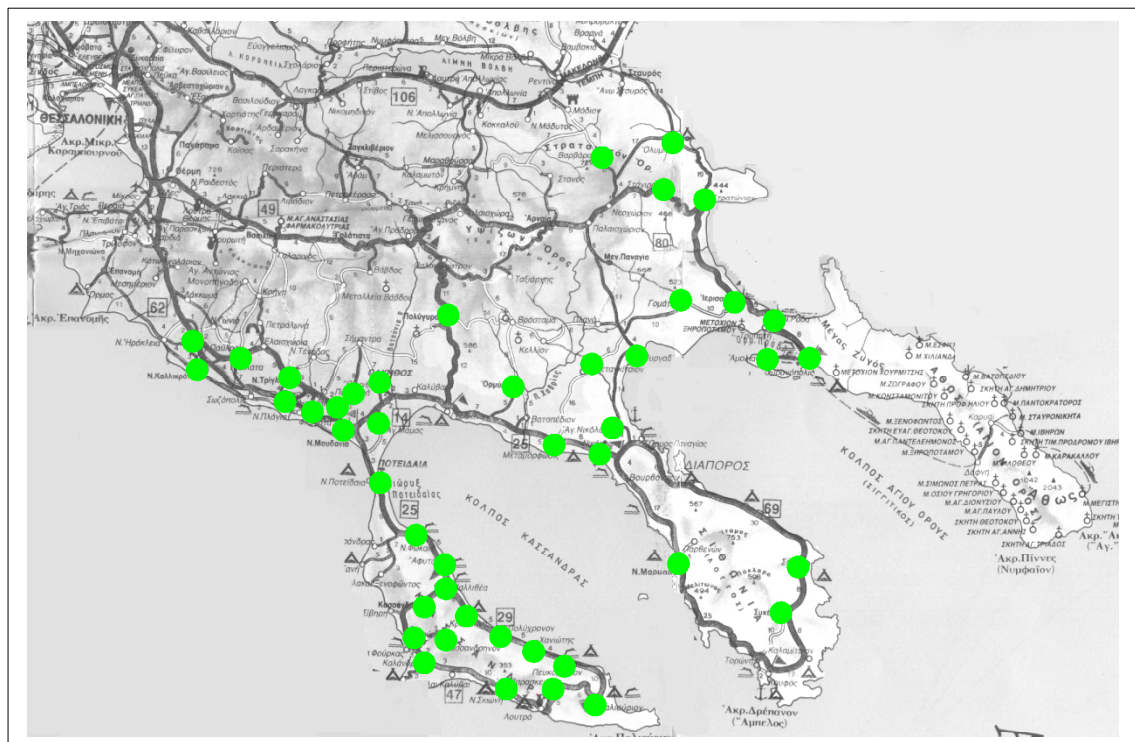
- Baretje, R., (1978), Le compte exterior du tourisme, C.H.E.T., Col. *Les Cahiers du Tourisme*, C No 46, Aix-en-Provence,
- Boyer, M., (1982), Le Tourisme, Ed.Seuil, «*Peuple et Culture*», Paris,
- Broadbent, T.A., (1969), **Some techniques for regional economic analysis**, Working Paper, Centre for Environmental Studies
- Butler, R.W., (1993), "Tourism - An Evolutionary Perspective", in Nelson, J.G., R. Butler, G. Wall, editors, *Tourism and Sustainable Development: Monitoring, Planning, Managing*. Heritage Resources Centre, University of Waterloo..

- Defert, P. (1966). "Le tourisme: facteur de valorisation regional," *Recherche Sociale*, **3**, 27-33.
- Eyles, I., Smith, D.M. (1988), (eds.), *Qualitative Methods in Human Geography*, Polity Press, Cambridge, U.K.
- Farrell, B.H. and Runyan, D. (1991) Ecology and tourism. *Annals of Tourism Research* 18 (1): 41-56.
- Gunn, C.A. (1988) *Tourism Planning*. 2nd edn, Taylor and Francis, New York.
- Hudman, L.E. (1978) Tourism's role and response to environmental issues and potential future effects. *Annals of Tourism Research* 5 (1): 112-125.
- Hudman, L.E. (1991) Tourist impacts: the need for regional planning. *The Tourist Review* 4/91: 17-21.
- Husbands W. C. (1983), "Tourist space and touristic attraction: An analysis of destination choices of European travelers," *Leisure Sciences*, 5(4): 289-307.
- Inskip, E. (1991) *Tourism Planning: an Integrated and Sustainable Development Approach*. Van Nostrand Reinhold, New York.
- Isserman, Andrew M., (1977), "The Location Quotient Approach for Estimating Regional Economic Impacts," *Journal of the American Institute of Planners*, 43, 33-41.
- IUCN (1980) *World Conservation Strategy: Living Resource Conservation for Sustainable Development*. International Union for the Conservation of Nature and Natural Resources, United Nations Environment Programme and the World Wildlife Fund, Gland, Switzerland.
- Lajugie, J., Delfaud, P., Lecour, C., (1979), **Espace regional et aménagement du Territoire**, Dalloz, Paris.
- Lajugie, J., Delfaud, P., Lecour, C., (1979), *Espace regional et aménagement du Territoire*, Dalloz, Paris
- MacDonald, R. (1984). *The breakaway guide to trouble-free travel*, London: The Automobile Association.
- Miossec, J.M., (1977), Un modèle de l' espace touristique, *L'Espace Géographique*, 6, (1), 41-48.
- Mowforth, Martin, Ian Munk, (1998), *Tourism and Sustainability: New Tourism in the Third World*. London: Routledge.
- Murphy, P.E., Resenblood, L., (1974), Tourism : an exercise in spatial search, *The Canadian Geographer*, 18, 201-210.
- Murphy, P.E., (1985), *Tourism: A Community Approach*, Routledge, New York.
- Mansfeld, Y. ,(1990), "Spatial Patterns of International Tourist Flows: Toward a Theoretical Model," *Progress in Human geography*, 14(3): 372-390.
- Mathieson A. & G. Wall, (1982 ), *Tourism: Economic. Physical and Social Impacts*, Longman Scientific & Technical, New York,
- Oppermann, M. (1994), "Regional Aspects of Tourism in New Zealand," *Regional Studies*, 28(2): 155-168.
- Papapavlou-Ioakimidou, St., Christidis, P. Kalfakakou, R., Rodolakis, N., (1997), *Development and differences : The changing face of spatial and sectorial concentration in socio-economic activities*, 4o Balkan Congress of Operational Research, Thessaloniki, Proceedings, Volume 2, 1042-1053.
- Papapavlou-Ioakeimidou, St., (2003), "*Methodological approach for the development of coastal resorts*", Ph.Dissertation, Aristotle University of Thessaloniki
- Pearce, D.G. (1979), "Towards a Geography of Tourism," *Annals of Tourism Research*, 6(3): 245-272.
- Pearce, D.G., (1989), *Tourist Development*. New York: Longman.
- Rajotte, F., (1977), Evaluating the cultural and environmental impact of Pacific tourism, *Pacific Perspective*, 6, 41-48.
- Romeril, M. (1989a) Tourism and the environment - accord or discord? *Tourism Management* 10 (3): 204-208.
- Thompson, P.T., (1971), *The Use of Mountain Recreational Resources : A Comparison of Recreation and Tourism in the Colorado Rockies and the Swiss Alps*, University of Colorado, Boulder, Colorado.
- UNEP/MAP/PAP (1997): *Guidelines for Carrying Capacity Assessment for Tourism in Mediterranean Coastal Areas*, Priority Action Programme, Regional Activity Centre, Split

Wall, G., (1996), Rethinking impacts of tourism, *Progress in Tourism and Hospitality Research*, 2(3/4), 207-215.

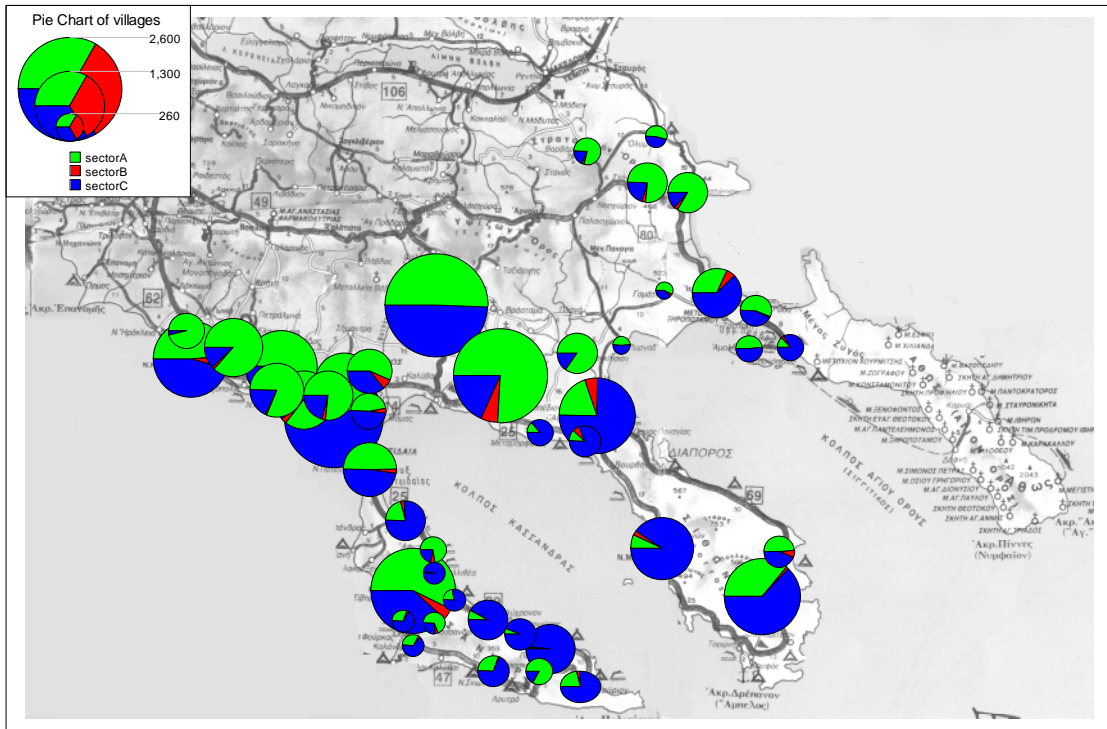
WCED (1987) *Our Common Future*. Report of the World Commission on Environment and Development (The Brundtland Commission). Oxford University Press, Oxford.

**MAP 1. Chalkidiki peninsula and his municipal apartments.**

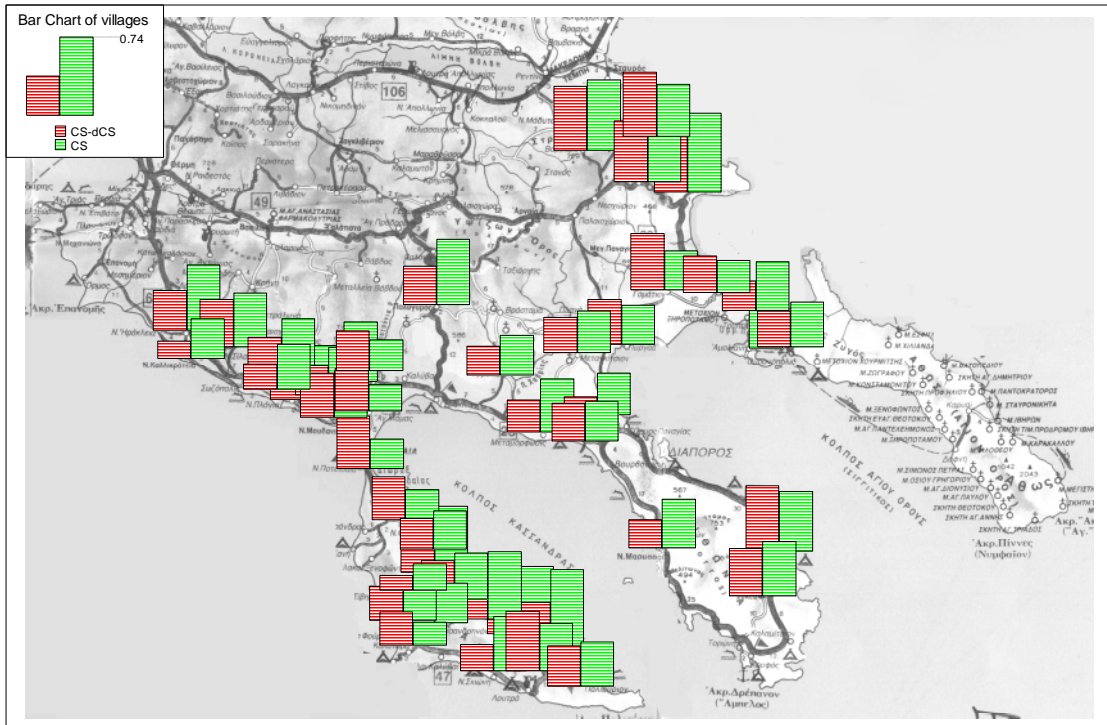


**MAP 2. Municipalities/Municipal Apartments of Chalkidiki peninsula (Case study)**





**MAP 3. Sectoral distribution per Municipality/Municipal Apartment Chalkidiki peninsula (sectors of economy)**



**MAP 4. Changes in the Specialisation (Cs) Municipalities / Municipal Apartments Chalkidiki peninsula (1992-2001)**

**Table 1. Coefficient of Specialization**

	Agriculture	Livestock-farming	Sylviculture	Fishery	Mines	Manufacture	Craftsmanship	Manufacture	Tourism	Transports	Trade	Services			
Ag. Pavlos	0,621	0,021	0,008	0,041	0,071	0,002	0,034	0,074	0,195	0,018	0,056	0,069	0,61	0,23	62%
N.Kallikrateia	0,062	0,006	0,008	0,155	0,071	0,002	0,023	0,122	0,189	0,002	0,089	0,02	0,37	0,20	115%
N.Sylata	0,521	0,01	0,008	0,047	0,071	0,002	0,018	0,016	0,206	0,013	0,034	0,065	0,51	0,06	14%
N.Triglia	0,37	0,016	0,008	0,045	0,071	0,009	5E-04	0,045	0,206	0,013	0,067	0,043	0,45	0,18	70%
N.Plagia	0,414	0,024	0,008	0,017	0,071	0,002	0,024	0,01	0,18	0,015	0,021	0,065	0,43	0,19	80%
Flogita	0,516	0,024	0,008	0,042	0,065	0,004	0,012	0,06	0,196	0,013	0,001	0,069	0,51	0,27	114%
Dionysiou	0,403	5E-05	0,008	0,047	0,061	0,011	0,021	0,051	0,18	0,011	0,033	0,072	0,45	0,17	62%
Portaria	0,567	0,016	0,008	0,047	0,071	0,008	0,029	0,04	0,196	0,017	0,053	0,067	0,56	0,34	155%
N.Moudania	0,263	0,024	0,008	0,009	0,071	0,002	0,095	0,115	0,055	0,068	0,057	0,108	0,44	0,02	5%
Ag. Mammias	0,114	0,004	0,008	0,047	0,058	0,002	0,01	0,035	0,073	0,002	0,006	0,143	0,25	-0,15	-37%
N.Poridea	0,145	0,02	0,008	0,027	0,071	0,002	0,01	0,044	0,148	0,01	0,008	0,063	0,28	-0,22	-44%
N.Fokea	0,177	0,015	0,004	0,004	0,071	0,002	4E-05	0,05	0,181	0,008	0,013	0,052	0,29	-0,12	-30%
Afytos	0,32	0,01	0,016	0,006	0,071	0,002	0,014	0,019	0,206	0,002	0,032	0,024	0,36	0,07	23%
Kallithea	0,303	0,026	0,008	0,047	0,071	0,002	0,034	0,055	0,643	0,012	0,048	0,005	0,63	0,39	164%
Kryopigi	0,11	0,021	0,008	0,047	0,071	0,002	0,034	0,079	0,446	0,013	0,009	0,039	0,44	0,08	22%
Polyhrono	0,263	0,017	0,006	0,043	0,071	0,002	0,032	0,058	0,658	0,016	0,062	0,058	0,64	0,37	133%
Hanioti	0,27	0,023	0,008	0,047	0,071	0,002	0,031	0,062	0,659	0,015	0,044	0,054	0,64	-0,01	-2%
Pefkohori	0,319	0,025	0,008	0,045	0,071	0,002	0,028	0,077	0,759	0,015	0,065	0,073	0,74	0,30	67%
Paliouri	0,178	0,004	0,002	0,015	0,071	0,013	0,016	0,04	0,41	0,007	0,013	0,072	0,42	0,03	7%
Ag.Paraskevi	0,466	0,002	0,008	0,043	0,071	0,002	0,026	0,044	0,166	0,014	0,001	0,058	0,45	-0,11	-20%
N.Skioni	0,276	0,004	0,005	0,179	0,071	0,002	0,021	0,057	0,278	0,047	0,024	0,061	0,51	0,26	100%
Kasandrino	0,294	0,014	0,048	0,047	0,071	0,002	0,015	0,017	0,131	0,012	0,033	0,065	0,37	0,02	6%
Kalandra	0,028	0,002	0,008	0,041	0,071	0,002	0,002	0,058	0,171	0,018	0,005	0,035	0,22	-0,09	-30%

Fourka	0,084	0,004	0,008	0,016	0,071	0,01	0,01	0,019	0,282	0,012	0,019	0,065	0,30	-0,02	-7%
Kassandria	0,229	0,021	0,002	0,041	0,071	0,003	0,003	0,032	0,067	0,007	0,017	0,011	0,25	0,10	61%
Polygyros	0,23	0,011	0,008	0,045	0,321	0,002	0,034	0,068	0,159	0,006	0,041	0,314	0,62	0,26	74%
Ormylia	0,299	0,016	0,008	0,042	0,046	0,002	0,022	0,005	0,206	0,009	0,007	0,071	0,37	0,10	37%
Metamorphosis	0,218	0,017	0,008	0,029	0,071	0,002	0,026	0,071	0,452	0,005	0,059	0,034	0,50	0,20	67%
Nikiti	0,315	0,026	0,003	0,047	0,06	0,002	0,019	0,049	0,137	0,013	0,021	0,041	0,37	0,02	4%
N.Marmaras	0,302	0,022	0,004	0,012	0,071	0,002	0,009	0,051	0,402	0,005	0,023	0,019	0,46	0,19	69%
Sykia	0,26	0,144	0,008	0,076	0,071	0,002	0,024	0,052	0,304	0,011	0,022	0,043	0,51	0,06	13%
Sarti	0,328	0,079	0,027	0,303	0,071	0,002	0,036	0,095	0,101	0,004	0,032	0,035	0,56	-0,06	-10%
Ag. Nikolaos	0,26	0,009	0,002	0,055	0,071	0,002	0,02	0,125	0,202	0,009	0,018	0,023	0,40	0,22	120%
Metaggitsi	0,318	0,081	0,008	0,036	0,015	0,002	0,034	0,015	0,173	0,016	0,03	0,069	0,40	0,07	21%
Pyrgadikia	0,176	0,088	0,008	0,18	0,071	0,002	0,034	0,072	0,059	0,003	0,02	0,055	0,38	-0,05	-12%
Gomati	0,219	0,046	0,137	0,047	0,183	0,002	0,005	0,007	0,054	0,011	0,022	0,012	0,37	-0,16	-30%
Ouranoupoli	0,298	0,004	0,037	0,009	0,071	0,002	0,004	0,033	0,356	0,003	0,021	0,025	0,43	0,09	28%
N.Roda	0,265	0,001	0,008	0,422	0,065	0,002	0,019	0,017	0,018	0,013	0,037	0,046	0,46	0,18	67%
Ierissos	0,272	0,014	0,032	0,046	0,021	0,002	0,025	0,026	0,008	0,005	0,099	0,055	0,30	-0,04	-12%
Stratoni	0,328	0,026	0,008	0,043	0,759	0,002	0,007	0,052	0,198	0,016	0,017	0,031	0,74	0,03	4%
Stratoniki	0,316	0,034	0,072	0,037	0,528	0,002	0,002	0,06	0,144	0,006	0,023	0,017	0,62	0,05	9%
Olympiada	0,312	0,054	0,099	0,004	0,223	0,002	0,018	0,079	0,008	0,009	0,115	0,061	0,49	-0,11	-19%
Varvara	0,328	0,231	0,292	0,047	0,156	0,002	0,004	0,028	0,206	0,014	0,005	0,026	0,67	0,07	12%
Olynthos	0,195	0,009	0,008	0,047	0,064	0,002	0,041	0,045	0,056	0,003	0,038	0,069	0,29	-0,08	-22%
Ammouliani	0,328	0,012	0,008	0,423	0,071	0,002	0,034	0,047	0,076	0,067	0,002	0,03	0,55		



Table 2. Chalkidiki peninsula - the Coefficient of Location

	CL	Agriculture	CL	Livestock-farming	CL	Sylviculture	CL	Fishery	CL	Mines	CL	Manufacture	CL	Craftsmanship	CL	Manufacture	CL	Tourism	CL	Transports	CL	Trade	CL	Services
Ag. Pavlos	0,021672	0,009062	0,011434	0,010111	0,011434	0,011434	0,011434	0,011434	0,010655	0,011434	0,010832	0,011434	0,008873	0,010233										
N.Kallikrateia	0,008809	0,010584	0,046171	0,152373	0,046171	0,046171	0,046171	0,046171	0,070788	0,030474	0,042406	0,005642	0,056305	0,012131										
N.Sylata	0,04645	0,011428	0,029221	0,029221	0,029221	0,029221	0,029221	0,029221	0,005829	0,015696	0,029221	0,020586	0,01385	0,024416										
N.Triglja	0,050153	0,026738	0,044436	0,043113	0,044436	0,209801	0,000649	0,044436	0,024943	0,000649	0,044436	0,032346	0,040961	0,024412										
N.Plagia	0,03063	0,02186	0,024232	0,008858	0,024232	0,024232	0,017019	0,003058	0,02122	0,017019	0,02122	0,020778	0,007153	0,020227										
Flogita	0,049197	0,028832	0,031204	0,027895	0,028589	0,07049	0,010465	0,023407	0,029698	0,010465	0,029698	0,022569	0,000462	0,028001										
Dionysiou	0,029203	4,27E-05	0,023767	0,023767	0,02028	0,145724	0,01475	0,015219	0,020755	0,01475	0,020755	0,015132	0,010958	0,022166										
Portaria	0,053957	0,019311	0,031173	0,031173	0,031173	0,138318	0,026665	0,015579	0,029667	0,026665	0,029667	0,029446	0,022634	0,027169										
N.Moudania	0,057548	0,065805	0,071736	0,0143	0,071736	0,071736	0,198778	0,103702	0,019025	0,198778	0,019025	0,273687	0,056359	0,10047										
Ag. Mamas	0,004881	0,002175	0,014037	0,014037	0,011422	0,014037	0,003997	0,00624	0,005001	0,003997	0,005001	0,001948	0,001228	0,026011										
N.Potidea	0,011589	0,020315	0,026246	0,014996	0,026246	0,026246	0,00731	0,014551	0,018934	0,00731	0,018934	0,014157	0,002762	0,021441										
N.Fokea	0,007788	0,008478	0,006717	0,001173	0,014409	0,014409	1,82E-05	0,008983	0,012699	0,008983	0,012699	0,006316	0,00267	0,00962										
Afyros	0,00748	0,002909	0,015423	0,001036	0,007654	0,007654	0,003167	0,001806	0,007654	0,003167	0,007654	0,000982	0,003384	0,002358										
Kallithea	0,004735	0,005113	0,005113	0,005113	0,005113	0,005113	0,005113	0,003553	0,015971	0,005113	0,015971	0,003386	0,003405	0,000307										
Kryopigi	0,001918	0,004515	0,005702	0,005702	0,005702	0,005702	0,005702	0,005702	0,005702	0,005702	0,012371	0,003975	0,000703	0,002898										
Polyhrono	0,01151	0,009602	0,010501	0,013024	0,014347	0,014347	0,013446	0,010449	0,045894	0,013446	0,045894	0,01262	0,012212	0,010743										
Hanioti	0,008861	0,009566	0,010753	0,010753	0,010753	0,010753	0,009851	0,008414	0,034428	0,009851	0,034428	0,009026	0,006483	0,007549										
Pefkohori	0,020318	0,019699	0,020886	0,020224	0,020886	0,020886	0,017279	0,020106	0,077006	0,017279	0,077006	0,017431	0,018751	0,019684										
Paliouri	0,009042	0,002374	0,005071	0,005359	0,016609	0,118984	0,007592	0,008422	0,033089	0,007592	0,033089	0,006247	0,003032	0,015408										
Ag. Paraskevi	0,011109	0,000691	0,007809	0,007147	0,007809	0,007809	0,006005	0,0043	0,006303	0,006005	0,006303	0,006082	0,000123	0,005806										
N.Skioni	0,008093	0,001302	0,00576	0,036721	0,009606	0,009606	0,005999	0,006877	0,012984	0,005999	0,012984	0,024936	0,003203	0,007604										
Kassandrino	0,00447	0,002617	0,029626	0,004989	0,004989	0,004989	0,002225	0,00109	0,003182	0,002225	0,003182	0,003262	0,00227	0,004188										
Kalandra	0,000445	0,00043	0,005175	0,004513	0,005175	0,005175	0,000235	0,003792	0,004313	0,000235	0,004313	0,005175	0,000376	0,002372										

Fourka	0,001298	0,000849	0,005082	0,001773	0,005082	0,028816	0,001475	0,001183	0,006966	0,003355	0,001323	0,004281
Kassandria	0,038874	0,043853	0,017254	0,049098	0,055716	0,079878	0,007404	0,022257	0,018065	0,021173	0,013017	0,007658
Polygyros	0,055464	0,032848	0,079111	0,076464	0,356809	0,079111	0,079111	0,067415	0,061039	0,027298	0,044952	0,321369
Ormilta	0,060304	0,039875	0,065973	0,059354	0,043007	0,065973	0,042233	0,004203	0,065973	0,0342	0,006195	0,060366
Metamorfofi	0,0047	0,004693	0,007065	0,004418	0,007065	0,007065	0,005262	0,006285	0,015525	0,001884	0,005744	0,00306
Nikiti	0,038955	0,040563	0,017486	0,040563	0,034024	0,040563	0,022528	0,024968	0,027009	0,028473	0,011955	0,02174
N.Marmaras	0,032829	0,029735	0,016436	0,009194	0,035667	0,035667	0,009517	0,022813	0,069755	0,00976	0,011302	0,008834
Sykia	0,036093	0,251008	0,045552	0,073575	0,045552	0,045552	0,032026	0,029957	0,0674	0,028281	0,013528	0,025528
Sarti	0,008862	0,026725	0,029599	0,057319	0,008862	0,008862	0,009172	0,010631	0,004344	0,001954	0,003947	0,004057
Ag. Nikolaos	0,036093	0,015896	0,012141	0,05372	0,045552	0,045552	0,026585	0,071407	0,04481	0,023533	0,011393	0,013513
Metagitsi	0,013968	0,044903	0,014409	0,0111	0,003028	0,014409	0,014409	0,002713	0,01215	0,012682	0,00587	0,012807
Pyrgadikia	0,002199	0,013703	0,00409	0,015764	0,00409	0,00409	0,00409	0,003707	0,001181	0,000636	0,001101	0,002889
Gomati	0,002857	0,007586	0,072647	0,004276	0,010981	0,004276	0,000669	0,000378	0,001114	0,002549	0,001275	0,000672
Uranoupoli	0,007517	0,001156	0,03788	0,001656	0,008274	0,008274	0,00106	0,003422	0,014317	0,001365	0,002401	0,002667
N.Roda	0,008024	0,000426	0,009916	0,089356	0,009044	0,009916	0,005407	0,002119	0,00088	0,007355	0,005028	0,005911
Ierissos	0,019485	0,01213	0,091927	0,022869	0,007057	0,023458	0,01712	0,007731	0,000867	0,006186	0,032051	0,01659
Stratoni	0,016795	0,016795	0,016795	0,015472	0,179369	0,016795	0,00327	0,010947	0,016193	0,015068	0,003986	0,006783
Stratoniki	0,014957	0,020062	0,138321	0,012216	0,115251	0,015525	0,000706	0,011626	0,010856	0,005162	0,00485	0,00351
Olympiada	0,005511	0,011999	0,071128	0,0005	0,018181	0,005795	0,00309	0,005795	0,000229	0,002841	0,00915	0,004593
Varvara	0,00722	0,063954	0,262011	0,00722	0,015884	0,00722	0,000908	0,002542	0,00722	0,005493	0,000466	0,002414
Olynthos	0,01059	0,005938	0,017787	0,017787	0,016043	0,017787	0,020987	0,00999	0,004803	0,002939	0,009247	0,015784
Ammouliani	0,0066	0,003042	0,0066	0,059581	0,0066	0,0066	0,0066	0,003871	0,002436	0,024488	0,000196	0,002596
Mean	0,44	0,49	0,76	0,58	0,75	0,79	0,36	0,35	0,50	0,41	0,24	0,48
CL92 – CL00	0,19	-0,04	0,09	0,07	0,16	0,03	0,06	0,09	-0,03	0,05	-0,01	0,09
ΔCL%(92-00)	77%	-8%	13%	13%	27%	4%	21%	34%	-6%	14%	-2%	23%

**Table 3. Chalkidiki peninsula - Location Quotient**

QL 2001		QL 2001											
	Agriculture	Livestock-farming	Sylviculture	Fishery	Mines	Manufacture	Craftsmanship	Manufacture	Ag. Pavlos	Tourism	Transports	Trade	Services
Ag. Pavlos	2,90	0,21	0,00	0,12	0,00	0,00	0,00	0,07	Ag. Pavlos	0,05	0,00	0,22	0,11
N.Kallikrateia	0,81	0,77	0,00	4,30	0,00	0,00	1,66	2,53	N.Kallikrateia	0,08	1,12	2,22	0,74
N.Sylata	2,59	0,61	0,00	0,00	0,00	0,00	0,46	0,80	N.Sylata	0,00	0,30	0,53	0,16
N.Triglia	2,13	1,60	0,00	0,03	0,00	5,72	1,01	0,44	N.Triglia	0,00	0,27	1,92	0,45
N.Plagia	2,26	0,10	0,00	1,37	0,00	0,00	0,30	1,13	N.Plagia	0,12	0,14	0,70	0,17
Flogita	2,58	0,08	0,00	0,11	0,08	3,26	0,66	0,25	Flogita	0,05	0,28	0,99	0,10
Dionysiou	2,23	1,00	0,00	0,00	0,15	7,13	0,38	1,64	Dionysiou	0,13	0,36	0,54	0,07
Portaria	2,73	0,38	0,00	0,00	0,00	5,44	0,14	0,50	Portaria	0,05	0,06	0,27	0,13
N.Moudania	0,20	0,08	0,00	1,20	0,00	0,00	3,77	2,45	N.Moudania	0,73	4,82	1,79	2,40
Ag. Mammias	1,35	0,85	0,00	0,00	0,19	0,00	1,28	0,56	Ag. Mammias	0,64	0,86	0,91	2,85
N.Potidea	1,44	0,23	0,00	0,43	0,00	0,00	0,72	0,45	N.Potidea	1,72	0,46	0,89	0,18
N.Fokaia	0,46	0,41	0,53	0,92	0,00	0,00	1,00	1,62	N.Fokaia	1,88	1,44	1,19	1,67
Afytos	1,98	0,62	3,02	0,86	0,00	0,00	1,41	0,76	Afytos	0,00	1,13	0,56	1,31
Kallithea	0,07	0,00	0,00	0,00	0,00	0,00	0,00	0,31	Kallithea	4,12	0,34	0,33	0,94
Kryopigi	0,66	0,21	0,00	0,00	0,00	0,00	0,00	0,00	Kryopigi	3,17	0,30	1,12	0,49
Polythrono	0,20	0,33	0,27	0,09	0,00	0,00	0,06	0,27	Polythrono	4,20	0,12	0,15	0,25
Hanioti	0,18	0,11	0,00	0,00	0,00	0,00	0,08	0,22	Hanioti	4,20	0,16	0,40	0,30
Pefkohori	0,03	0,06	0,00	0,03	0,00	0,00	0,17	0,04	Pefkohori	4,69	0,17	0,10	0,06
Paliouri	0,46	0,86	0,69	0,68	0,00	8,16	0,54	0,49	Paliouri	2,99	0,62	1,18	0,07
Ag.Paraskevi	2,42	0,91	0,00	0,08	0,00	0,00	0,23	0,45	Ag.Paraskevi	0,19	0,22	0,98	0,26
N.Skioni	0,16	0,86	0,40	4,82	0,00	0,00	0,38	0,28	N.Skioni	2,35	3,60	1,33	0,21
Kasandrino	1,90	0,48	6,94	0,00	0,00	0,00	1,45	0,78	Kasandrino	0,36	0,35	1,45	0,16
Kalandra	0,91	0,92	0,00	0,13	0,00	0,00	1,05	1,73	Kalandra	1,83	0,00	1,07	0,54
Fourka	0,74	1,17	0,00	0,65	0,00	6,67	0,71	0,77	Fourka	2,37	0,34	1,26	0,16

Kassandra	1,70	0,21	0,69	0,12	0,00	2,43	1,13	1,40	Kassandra	0,68	0,62	0,77	0,86
Polygyros	0,30	0,58	0,00	0,03	5,51	0,00	0,00	0,15	Polygyros	0,23	0,65	0,43	5,06
Ormilía	1,91	0,40	0,00	0,10	1,65	0,00	1,64	1,06	Ormilía	0,00	1,52	0,91	0,08
Metamorfosi	0,33	0,34	0,00	0,37	0,00	0,00	0,26	0,11	Metamorfosi	3,20	0,73	1,81	0,57
Nikiti	0,04	0,00	0,57	0,00	0,16	0,00	0,44	0,38	Nikiti	0,33	0,30	0,71	0,46
N.Marmaras	0,08	0,17	0,54	0,74	0,00	0,00	0,73	1,64	N.Marmaras	2,96	0,73	1,32	0,75
Sykia	0,21	6,51	0,00	2,62	0,00	0,00	0,30	0,34	Sykia	2,48	0,38	0,70	0,44
Sarti	0,00	4,02	4,34	7,47	0,00	0,00	2,03	2,20	Sarti	0,51	0,78	1,45	0,54
Ag. Nikolaos	0,21	0,65	1,27	2,18	0,00	0,00	1,58	2,57	Ag. Nikolaos	1,98	1,52	0,75	0,70
Metagitsi	1,97	4,12	0,00	0,23	1,21	0,00	0,00	0,81	Metagitsi	0,16	0,12	0,59	0,11
Pyrgadikia	0,46	4,35	0,00	4,85	0,00	0,00	0,00	1,91	Pyrgadikia	1,29	0,84	0,73	0,29
Gomati	0,33	2,77	17,99	0,00	3,57	0,00	0,84	0,91	Gomati	0,74	0,40	1,30	0,84
Ouranoupoli	0,09	0,86	5,58	0,80	0,00	0,00	0,87	1,41	Ouranoupoli	2,73	0,83	1,29	0,68
N.Roda	0,19	0,96	0,00	10,01	0,09	0,00	0,45	0,79	N.Roda	0,91	1,74	1,51	0,40
Ierissos	0,17	1,52	4,92	1,97	1,30	0,00	1,73	1,33	Ierissos	0,96	0,74	2,37	1,71
Stratoni	0,00	0,00	0,00	0,08	11,68	0,00	0,81	0,35	Stratoni	0,04	0,10	0,76	0,60
Stratoniki	0,04	2,29	9,91	0,21	8,42	0,00	1,05	0,25	Stratoniki	0,30	0,67	0,69	0,77
Olympiada	0,05	3,07	13,27	0,91	4,14	0,00	0,47	0,00	Olympiada	1,04	1,49	2,58	0,21
Varvara	0,00	9,86	37,29	0,00	3,20	0,00	0,87	0,65	Varvara	0,00	0,24	1,06	0,67
Olynthos	1,60	1,33	0,00	0,00	0,10	0,00	2,18	0,44	Olynthos	1,27	1,17	0,48	0,11
Ammouliani	0,00	0,54	0,00	10,03	0,00	0,00	0,00	0,41	Ammouliani	1,37	4,71	0,97	0,61
<b>Mean</b>	0,91	1,27	2,40	1,30	0,92	0,86	0,78	0,84	<b>Mean</b>	1,31	0,84	1,01	0,67
<b>Max</b>	2,90	9,86	37,29	10,03	11,68	8,16	3,77	2,57	<b>Max</b>	4,69	4,82	2,58	5,06
<b>Stard.</b>									<b>Stard.</b>				
<b>Divergence</b>	0,96	1,90	6,51	2,47	2,36	2,17	0,75	0,72	<b>Divergence</b>	1,38	1,07	0,58	0,90

