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Aims of the Journal: Journal of Regional Socio-Economic Issues (JRSEI) is an international multidisciplinary refereed journal the purpose of which is to present papers manuscripts linked to all aspects of regional socio-economic and business and related issues. The views expressed in this journal are the personal views of the authors and do not necessarily reflect the views of JRSEI journal. The journal invites contributions from both academic and industry scholars. Electronic submissions are highly encouraged (mail to: **gkorres@geo.aegean.gr**).

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This special issue is dedicated to the memory of the late Prof. Dr. Dr. Emmanuel V. Marmaras (1947-2017), in recognition of his valuable contribution and his influential scientific work to Architecture and Urban Planning Studies.

Professor Emmanuel Dr. Dr. Emmanuel V. Marmaras was born in Athens in 1947. He studied Architecture in the National Technical University of Athens (1972). In 1986 he was awarded his first PhD degree in "Urban and Land planning" from the National Technical University of Athens and in 1993 he was awarded his second PhD degree in the "History of City" from the University of Leicester. His academic career included professorship in the Department of Geography, University of the Aegean (1996-2006), as the Head of the Department (2002-2004) and in the Department of Architecture, University of Crete (2006-2012), as the Head of the Department (2010-2012), as well as professor in the Hellenic Open University (2004-2011) and the Athens University of Economics and Business (2006-2012). In 2004, he established the Summer School of Paros/Naxos, creating an elaborating academic forum for regional planning and development within Greek academia.

Emmanuel also collaborated as research fellow with a great number of Universities across Europe, such as King's College, London and University of Newcastle, United Kingdom, acquainting international experience.

Emanuel's scientific interests ranged within a wide spectrum of topics, such as town planning, urban development, urban history, urban geography, preservation of historic urban environment, interwar planning and architecture, Cycladic settlements, residential tourism, History of Cities and Urban planning, Geography, Anthropogeography, Statistical Methods

in the Real estate market, Geography of Residence, Geography and Planning in Europe and Mediterranean, Geography of Housing and Urban Planning, to name just a few.

Apart from his academic career, Emmanuel engaged, as a senior executive member, in a great number of the most prominent architectural projects in Greece, contributing in the modern state-of-the-art of architecture in Greece. Moreover, Emmanuel was an executive member in a great number of research and scientific bodies, such as Technical Chamber of Greece, Architecture Society of Greece, Urban Planners Society of Greece, Hellenic Geographical Society, Society of Cycladic Studies, International Planning History Society, MoVe Research Center, Centre of Russian – Hellenic Studies, General Council of Preservations providing an influential science-policy orientation.

His scientific and academic work has been rather inspirational and influential, as well as a valuable scientific addition, with his main books being core in Architecture studies, providing a novel approach in Architecture studies, elaborating also political, socio-economic and technical determining factors. Emmanuel's scientific contribution lied mainly with the formation of the post-Second World War reconstruction and planning in Europe, the re-planning efforts undertaken in post-war, and in particular the redevelopment program of London regarding its central area in the form of the comprehensive development projects, in Architecture. It also contributed to the understanding of succeeding developments in terms of planning theory and practice, the administrative and statutory developments in town planning, as well as proposed projects for special regions.

Overall, he had a profound influence on national science policy, with his research focusing on urban planning and applications in urban and regional development, as h**is** research used a unique combination of architecture, social, economic and planning variables, in order to study the relationship between architecture, urban planning and society. Apart from an active academician, Emmanuel was also a traveler, having travelled all over the world, and being the author of many travel literature books, focusing on the places less travelled.

This special issue includes the following six-socio-economic topics.

- Paper 1: The role of mobility in the emergence of polycentric urban areas (by Spyros Anagnostou and Efstratios Papanis)
- Paper 2: The educational level as index of economic and social development: the case of the borderline islands of the Aegean Archipelago (by Vasilis S. Gavalas)
- Paper 3: Estimating Productivity Efficiency: Alternative Methodological Approaches (by Aikaterini Kokkinou, Charalambos Louca, George M. Korres and Efstratios Papanis)
- Paper 4: "The Frame of Education and effects of Growth in E.U through DEA method" (by Aliki Demosthenous)
- Paper 5: Citizen's Participation and the Crisis of Representation in Europe. Models of Citizen Participation and the Quest for Local Democracy (by Georgios Tsobanoglou and Hans Harms)
- Paper 6: Photography and Sociology: Some Active Learning Approaches (by Evangelos Manolas)
- Paper 7: The impact of tourism on the development of the city of Edessa: The views of the citizens (by Stilianos Tampakis, Evangelos Manolas, Paraskevi Karanikola and Dimitrios Koronos)
- Paper 8: The spiritual life. A study through Saint's Cassian theological thought (by Andreou Sokratis)

The role of mobility in the emergence of polycentric urban areas

Abstract:
New forms of urbanization and peri-urbanization in the twenty-first century are characterized by a greater degree of intra-urban polycentricity, with the emergence of more than one urban nuclei that are functionally, or even morphologically, integrated into the areas of the "urban archipelagos". The rise of urban mobility, under all its forms, is the most important factor in the emergence of these new urban forms and the two-way connection between the two evolutions has a determinant role in the modern urbanization process. The constant increase in the average speed of commute remains the primary factor that leads to an increased range of commuting, which continually pushes the limits of urban areas, favoring the integration of new cores. But at the same time, a whole set of economic, social and cultural/lifestyle factors contribute to the constant rise of residential mobility, which in turn determines the transition of the urban areas to a more polycentric model.

Keywords: polycentric urban areas, daily mobility, residential mobility

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1. Introduction

In the classic urbanization process, the dominant pattern has been that of a major nucleus, that of the "central city", around which developed a "peri-urban" zone presenting intermediate -or transitional- features. However, in the new forms of urbanization and peri-urbanization, an increasingly common pattern is characterized by the presence of more than one urban nuclei, that are functionally integrated (and sometimes, to a lesser extent, morphologically integrated) into a polycentric structure of a wider urban area. Intra-urban polycentricity, as well as regional polycentricity, is today dominant in the developed countries, though it is interesting to note that urban polycentricity is a concept that has never been clearly defined (Davoudi, 2007).

In the research literature, these polycentric urban areas are often referred to as "urban archipelago", or "urban cluster". What is interesting to note is that, the urban cores forming the "islands" of the "archipelago" stand out from the rest of the "urban nebula" not necessarily by a higher population density, but mainly by a higher concentration of jobs, a concentration that often approximates -or even exceeds- that recorded in the central city. This implies that there is a continuous process of relocation of jobs and activities and, at the same time there is a constant evolution of the main factor behind the emergence of polycentric urban areas: that of the rise of urban mobility, under all its forms and times.

2. The formation of polycentric urban areas and their typologies

The formation of the polycentric urban areas arises through three different evolutionary models - as described by Tony Champion (2001) – and, before him, by Clark & Kuijpers-Linde (1994) - so the typology in their process of formation is, as well, relatively simple.

The three different processes leading to the creation of multi-nuclear urban areas could be described as follows:

- In the first pattern, the "centrifugal process", the extrovert development and of a dynamic urban center favors the creation of new peripheral poles.

The growth of a monocentric city leads to the transfer of activities to alternative poles, inside the wider urban area, which in some cases can reach the importance of the original central core.

Regional Science has described the specific process of polycentric urbanization since the 1980s, linking the emergence of new peripheral sub-centers with the population growth, as well as with the increasing of the cost of the commuting to the center - which obliges companies to pay higher wages in order to cover this cost increase (Fujita & Ogawa, 1982).

Some writers have also empirically demonstrated the way in which the new polycentric urban areas combine the advantages of large urban areas with those of the smaller ones, as they offer companies that are based there many of the scale advantages that characterize large urban areas, while at the same time significantly reducing the money and time cost of commuting (McMillen & Smith, 2003). On the other hand, it is true that the influence of job location on residential mobility has declined in comparison to the industrial era, with the emergence of new economic and social factors, such as the deregulation of labor markets and the dempographic transition (Duarte, 2017).

A particularly distinctive category of new peripheral cores that are linked to job location, are the urban formations that Joel Garreau (1991), called "edge cities". With this famous neologism, Garreau designated the cores in the periphery of major metropolitan areas, accumulating business, commercial and recreational activities, usually developed into areas that until recently were either residential suburbs or semi-rural communities. (Cores that grow around large international airports - known in the international literature as "aerovilles" - belong to a special category of "edge cities").

In Europe, however, where the characteristics of urbanization vary widely from one country to another, the use of the term of "edge city" has been challenged by several writers, with British writers, such as Phelps & Parsons (2003), preferring the term of "edge urban areas" (to which a wider content is attributed – including a larger variety of forms).

- (b) In the second pattern (integration process), the multi-nuclear pattern is simply the result of the gradual integration of neighboring urban nuclei, through the expansion of the largest and more dynamic one.

The sprawl of a vast metropolitan area results to the successive incorporation of smaller surrounding urban areas, which can, in some cases, absorb a significant portion of the functions of the main core.

These polynuclear forms of larger urban areas are most common in countries -or regions- characterized by high population densities and by urban systems with significant spatial concentration characteristics, such as Great Britain, Germany, the Netherlands and so on. This "integration process" is also the only one of the three patterns that is very common in the Least Developed Countries.

- (c) In the third pattern (integration process), the concurrent growth of neighboring urban cores of roughly the same scale, together with the development of their transport connections, leads to their merging into a single - though polycentric - urban area, either in the form of a "ring", as has happened in Randstad, in the Netherlands and in Ruhr, Germany (Van der Laan, 1998) or in a "linear" pattern, as in the case of the Swiss cities of Geneva-Lausanne and Zurich-Berne.

The polycentric form of urban areas - and especially the second and third types described above - appears to be significantly less frequent in countries -or regions- where the urban network presents a weak spatial concentration. This is true both in the cases where the statistical concentration of the urban system is high (e.g., Greece) as for those where it is relatively low (Bulgaria, Romania, etc.).

3. The role of daily mobility in the formation and evolution of polycentric urban areas

In the polycentric model of urban areas, strong two-way interconnections and flows develop between the various spatial sub-units that compose the larger urban area – which, in some cases has fuzzy limits and is often described as an "urban/rural compound".

Although interconnections no longer relate solely to physical flows but, to an ever greater extent, integrate electronic flows, the most important role among the various types of flows continues to be the mobility of people – and, in particular, the daily mobility.

The role of daily mobility is so important, that one might say - as François Ascher (1995) has pointed out, referring in particular to the modern "Metapolises" – that, "mobility is a principle at the heart of the process of the formation of urban areas, not just a result of these."

Daily mobility creates interconnections between the various districts of the urban area, which are no longer only expressed in the classic residence/work pattern, but are increasingly being extended to areas such as school attendance, commercial activities, recreational and sports activities - and the entire range of economic and social life.

According to Ascher (1995), all these activities constitute an aggregate that could be called a "meta-politan third time". This development is largely due to the fact that during the last half century, working time has fallen sharply across the world - and especially in Europe, where this decline is estimated at 45% (Potier, 2007).

In particular, increased leisure time acts as a "space organizer", through the increase of random mobility, which it strongly favors. And according to Jean Viard (2002), the old dialectic relationship between home and work has been replaced by the triptych, "family life -

leisure activities - work", thus creating a new dynamic that deconstructs the old spatial-social cohesion.

At the same time, however, it is very important that, in fact, "an increased osmosis has taken place between leisure time and working time or, between the private sphere and the professional sphere, between the everyday and the non-everyday". Thus, the times and the spheres of mobility now constitute entities that are impossible to analyze separately.

The constant increase in the average speed of commute is also a particularly important development in urban mobility, since its role is decisive, as has been shown in the increased range of commuting that continually pushes the limits of urban areas.

The most fundamental work on the correlation between commute speeds and the growth of urban areas, has been that of the World Bank Economist Yakov Zahavi, who proposed -in the late 1970s- the relevant model that governs this relationship (Zahavi, 1979), which he called the "Unified Mechanism of Transport" (UMOT).

At the basis of the UMOT model is “Zahavi's Law”, which in turn is based on the assumption that people's Travel Time Budget (TTB) is a constant (in space and time).

With the assumption of the stability of the Travel-Time Budget, travel-time savings are systematically reinvested, resulting, among other things, in increasing commute distances. In fact, by choosing to reinvest all the saved travel-time into additional movement, the resident of the urban area chooses to extend the space-time scope of his activities. This expansion consists either to performing the same activities more often, or to more remote locations, or to adding new activities to the program. In all these cases, the person moves daily at a greater distance.

Of course, according to Zahavi, the re-investment of travel-time economies only partly explains the mobility choices, since the full understanding of these ones requires that the large number of parameters interacting with the function of an urban area be taken into account. However, as Yves Crozet and Iragael Joly (2006) observe in the conclusions of their work on the importance of Zahavi's Law in understanding what they call the "dilation of the time-space of the city", "everything happens as if all the developments of the other parameters were only an adjustment in order to confirm Zahavi's assumption."

4. Different patterns of Commuting and their role in Urban Polycentricity

The Daily Urban System, a concept first introduced by Brian Berry (1973), reffers to the pattern resulting from the map of daily commuting flows within an urban area. Different patterns of commuting flows define different types of Daily Urban Systems.

There are three basic types of Daily Urban Systems:

- (a). the centralized Daily Urban System, which essentially corresponds to the classic model that was dominant in the twentieth century, and is associated to the monocentric model,
- (b). the decentralized Daily Urban System, which is in fact the reversal of the classical (centralized) model, and in which the peripheral cores are characterized by a surplus of jobs, while the central urban core presents a deficit,
- (c). the alternating Daily Urban System, in which strong daytime work movements occur in both directions.

The second and the third type correspond to the polycentric urban areas, (while the first one is in constant decline).

The most characteristic development of daily mobility in the polycentric urban model, over the last two decades, is the intensification of cross-commuting flows, or what we already described as the "alternating" Daily Urban System pattern. (On the contrary, in the classic monocentric model, traffic congestion is observed in the flows converging to the central core,

during the morning peak hours and in the opposite direction during the afternoon peak hours). In the alternated Daily Urban System, cross-movements are recorded in the public transport flows, but they are even more markedly observed in the car traffic of the radial road network around the basic core, where traffic congestion is observed, at peak times, in both directions (Klark and Kuijpers-Linde, 1994).

5. The role of residential mobility

Residential mobility is another important factor shaping the development of modern urban areas towards a polycentric pattern. Residential mobility is, moreover, directly connected to daily mobility, since, many developments in the two types of mobility are interdependent (Bonvalet & Brun, 2002).

This phenomenon too is more pronounced in developed countries - and has the character of both a steady increase in the frequency of residential mobility and an increase in the number of secondary homes inside the wider urban areas. The latter have either the character of a "country house" (in the countryside of the peri-urban area - or its coastal zone) or the character of a "professional secondary residence" (close to the workplace).

Six major sets of parameters can be considered to be combined in the development of the evolutions in residential mobility (Bonvalet & Brun, 2002, and Dureau et al., 2000):

- The residence status:This may be property, private rental, public rental (social or student housing) or free accommodation. A large proportion of mobility is affected by, or is directly linked to, changes in this status.
- The Socio-professional groups: Internationally, surveys show that the socio-occupational category is an extremely determinant factor for both day-to-day and residential mobility. It is characteristic that higher mobility characterizes business executives, a socio-professional group that has been steadily increasing over the last few decades (following the continuous rise of tertiary economy).
- The type of residence: The type of residence refers to the various qualities of the dwelling (with a major distinction being made between a block of flats and a single-family house). The transition from collective home to detached house is to a great extent linked to the peri-urbanization process.
- The location - or home environment: This parameter is mainly related to the quality of the local environment (and this concerns different topics such as safety, levels of pollutants, neighborhood quietness, landscape quality, etc.). It also has a significant impact on accessibility to emergency services and, more generally, to urban services and infrastructure.
- The life cycle: The so-called "family events" that change the composition of households have become much more complex in the modern times and have a significant impact on developments in residential mobility (Mulder, 2013).
- The Socio-cultural relations: The basic parameters of this category are, on the one hand, the networks of social relations and, on the other hand, the emotional ties with the place, namely the spatial identity. Social relationships and spatial identities are particularly important elements for mobility, but there are particular difficulties in recording and interpreting them.

The phenomenon of residential mobility is primarily about the economic behavior of individuals and its amplification is largely related to the increase in professional mobility and the greater degree of flexibility of employment that characterizes the post-industrial economies.

At the same time, the constant changes in the "map" of accessibility brought about by the important developments and the wider diffusion of modern transport and traffic infrastructure - in large metropolitan areas in particular - also act as a powerful factor in

increasing mobility, as they constantly reorient household choices for their domicile. However, many authors have highlighted the fact that, mobility is not only determined to a very significant degree by the economic behavior of individuals, but also by their social behavior (Klinenberg, 2012). Particularly important in this matter are factors that have to do with the increase of divorces in North American and European countries (Lersch & Vidal, 2014) - and with the more frequent change of partners or housemates, in general (Stone et al., 2011).

Also, among the factors that increase the residential mobility, a very important one is the "white flight" phenomenon, that first appeared in the metropolises of North America, but is also observed -since the last two or three decades- in the cities of Western Europe – though with some differentiated characteristics.

6. Conclusion

All the new developments described here have also generated new questions regarding the evolution of the existing connection between residental mobility and daily mobility. In fact, many authors agree that developments in the connection between the two forms of urban mobility are difficult to examine because the recent changes in social behaviors and lifestyles have rendered inappropriate many of the classical basic concepts that are always used to analyze the two phenomena, such as the concept of "household", or that of "main domicile" (Pinson & Thomann, 2002, and Bonvalet & Lelièvre, 2016).

The same authors have proposed the introduction of new concepts, such as the concept of "residential space", or that of "residential system" (Bonnin & Villanova, 1999). In particular, the notion of a "residential space" is more appropriate and more compatible (than the classic concept of "main domicile") for the analysis of the new features of residential mobility - in order to highlight the connection between the latter with the daily mobility as well as with the evolutions of urban sprawl.

This is because the concept of "residential system" allows to approach specific groups of “bi-residentiality”, or “multi-residentiality”, that have become extremely widespread at this stage. (As examples of such groups, we could mention: that of young people residing in many domiciles (parents’ home, place of study, partner's domicile), that of couples who, for personal or professional reasons, live as "semi-housemates", that of children with divorced parents who live in two households, etc.)

Consequently, the factor of the increased urban mobility, at both levels - or more accurately, at both times - is determinant. The strong connection between the developments in daily and in residential mobility is also evident and decisive for the way in which urban areas, particularly those in the more developed countries, are currently being transformed and reshaped.

At the same time, the incapacity of economic models to describe both the mechanisms of daily mobility (that are, as we have seen, increasingly detached from classical dialectical work/dwelling) as well as the modern "residential systems", becomes obvious. Conversely, the phenomenon appears to have a profound social and cultural dimension -and thus seems to confirm Catherine Bonvalet's (2004) general finding, that urban mobility (at both levels) is not, for modern society, simply a necessity, or a trend, but, above all, a value.

7. References

Ascher F., (1995), *Métapolis ou l’avenir des villes*, Editions Odile Jacob, Paris
Berroir S., Mathian H., Saint-Julien Th., Sanders L., (2004), *Mobilités et*

polarisations: vers des métropoles polycentriques. Le cas des métropoles francilienne et méditerranéenne, Etude réalisée dans le cadre du programme de recherche "Mobilités et territoires urbains"

Berry, B.J.L., (1973): *Growth centers in the American urban system,* Cambridge, Mass.

Bonvalet C., Lelièvre E., (Eds.), (2016), *Family Beyond Household and Kin,* Springer

Bonvalet C., (2004), "De la résidence principale à la multi-résidence", Atelier Mobilité et Résidence, 16 & 17 novembre 2004, CEPED, Nogent-sur-Marne

Bonvalet C., Brun J., (2002), "Etat des lieux des recherches sur la mobilité résidentielle en France", in *L'accès a la ville: les mobilités spatiales en question*, L'Harmattan, Paris

Bonnin Ph., De Villanova R., (Dir.), (1999), *D'une maison l'autre. Parcours mobilités résidentielles*, Éditions Créaphis, Paris

Champion T., (2001), "A Changing Demographic Regime and Evolving Polycentric Urban Regions: Consequences for the Size, Composition and Distribution of City Populations", *Urban Studies* Vol. 38 No 4 (pp. 657-677)

Champion T., (2004), "Are 'urban' and 'rural' outmoded terms?", Panel contribution to the Population Environment Research Network (PERN) Cyberseminar on Urban Spatial Expansion, 29 Nov – 15 Dec 2004

Clark W.A.V., Kuijpers-Linde M., (1994), "Commuting in restructuring urban regions", *Urban Studies* 31, (pp.465-483)

Crozet Y., Joly I., (2006), *La "loi de Zahavi". Quelle pertinence pour comprendre la construction et la dilatation des espaces-temps de la ville?*, PUCA, Paris

Davoudi S., (2007), "Polycentricity : Panacea or Pipedream?" In : Cattan, N. (ed.): Cities and Networks in Europe. A Critical Approach of Polycentrism**,** (pp. 65-740, John Libbey Eurotext, Paris

Duarte C.M., (2017), "The influence of urban structure on commuting: an analysis for the main metropolitan systems in Spain", *Procedia Engineering* 198, (pp. 52-68)

Dureau F. et al., (dir.), (2000), *Metropoles en mouvement. Une comparaison internationale*, Anthropos, Paris

Fol S., Miot Y., Vignal C. (dir.), (2014), Mobilités résidentielles, territoires et politiques publiques, Presses universitaires du Septentrion, Villeneuve-d'Ascq

Fujita M., Ogawa H., (1982), "Multiple equilibria and structural transition of nonmonocentric urban configurations", *Regional Science and Urban Economics* 12, (pp.161-196)

Garreau J., (1991), *Edge city life on the new frontier,* Doubleday, New York

Klinenberg E., (2012) *Going Solo: The Extraordinary Rise and Surprising Appeal of Living Alone*. Duckworth Overlook, London

Lersch PM, Vidal S., (2014) "Falling out of love and down the housing ladder: A longitudinal analysis of marital separation and home ownership", *European Sociological Review*, 30(4), (pp.512-524)

Mulder Ch., (2013) "Family dynamics and housing: Conceptual issues and empirical findings", *Demographic Research* 29: 355–378.

Phelps N.A., Parsons N., (2003), "Edge urban geographies: notes from the margins of Europe's capital cities", in *Urban Studies,* Vol.40 No 9 (pp.1725-1949)

Pinson D. & Thomann S., (2002), *La maison en ses territoires, de la villa à la ville diffuse*, L'Harmattan, Paris

Potier F., (2007), *Le périurbain – Quelle connaissance? Quelles approches?*Les rapports d'étude. Certu, Avril 2007

Stone J, Berrington A, Falkingham J., (2011), "The changing determinants of young adults' living arrangements". Demographic Research 25, (pp. 629–666)

Van Der Laan L., **(**1998**),** "Changing urban systems, an empirical analysis at two spatial levels", *Regional Studies* 32, (pp. 235-247)

Viard J., (dir), (2002), *La France des temps libres et des vacances*, Editions del' Aube/DATAR, La tour d'Aygues

Zahavi Y., (1979), *The 'UMOT' Project*, Report prepared for the U.S. Department of Transportation and the Ministry of Transport of Federal Republic of Germany

Socio-economic development and educational level: parallel roots or not always? the case of the borderline islands of the Aegean Archipelago

Abstract:
The paper explores the relationship between socio-economic development and education in the Greek islands of North-East and South-East Aegean. The human geography of these islands is quite heterogeneous. Islands in the South-Aegean have experienced a remarkable population and economic growth during the last forty years grace to a booming tourist industry. On the other hand, islands in the region of the North-Aegean have witnessed a demographic stagnation and are significantly less prosperous than their counterparts in the South Aegean. Nevertheless, economic prosperity does not seem to be related with a high educational level, since the population in the South-Aegean islands has, on average, lower educational level than the population of the North-Aegean. It is plausible that in areas that have been developed grace to tourism, skills and aptitudes that are acquired through vocational training are more important to the average inhabitant than university level education.

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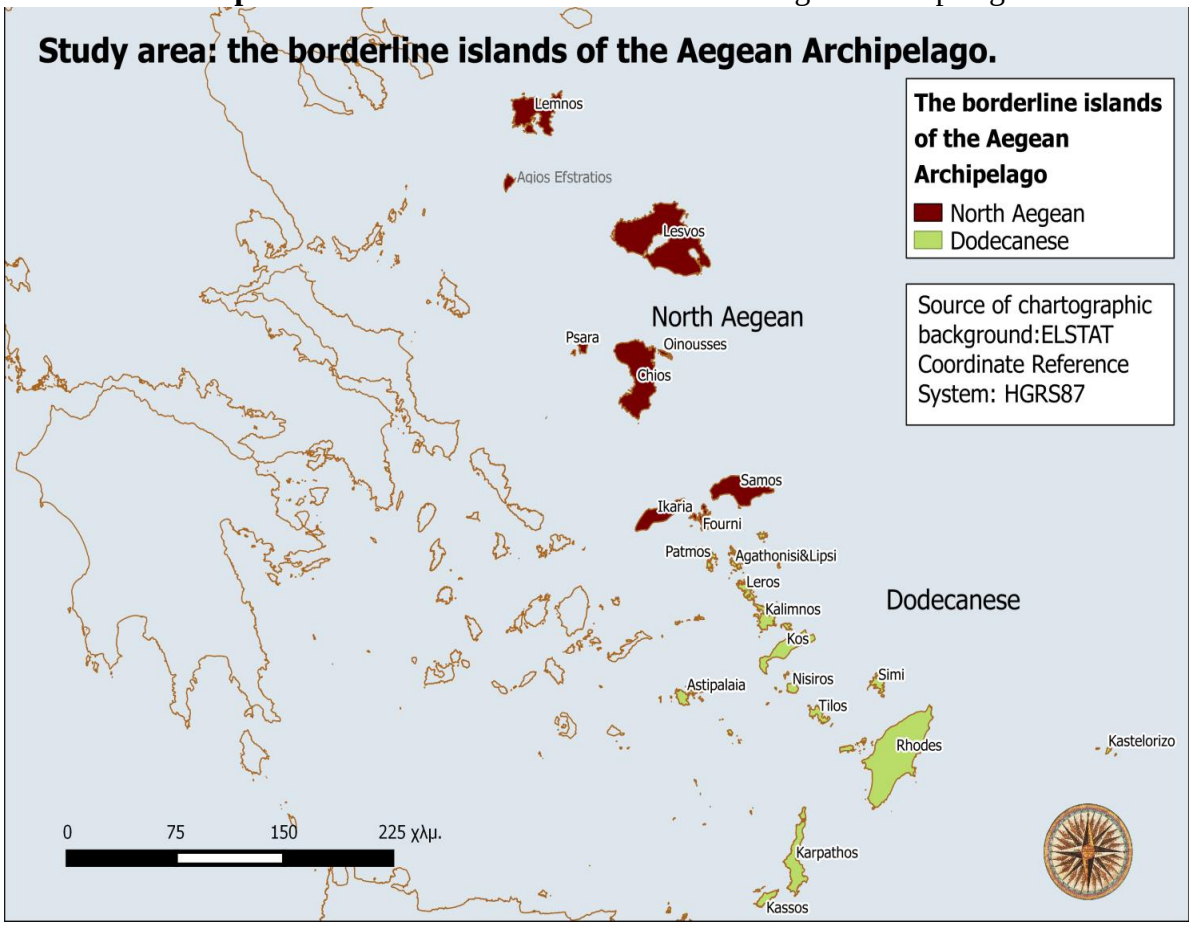
1. Introduction

The study area consists of the Greek borderline islands of the Aegean Archipelago that were found to be inhabited in the 2011 population census. Therefore, the study area consists of about 30 islands with a resident population of at least 50 inhabitants in each one of them. All these islands are shown in map 1.

Map 1: The Greek borderline islands of the Aegean Archipelago.

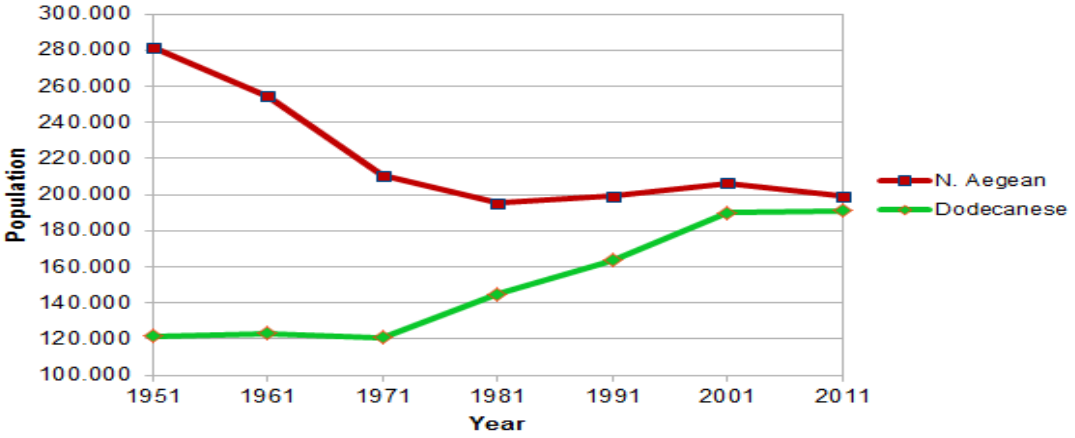


These islands were incorporated in the Greek state in different periods. The islands of the North Aegean were annexed by Greece in 1912 during the first Balkan war and were officially recognized as part of the Greek state in 1923 with the Treaty of Lausanne. The Dodecanese were annexed in 1947 and this annexation was formalized in 1948. In the post-war period the two groups of islands (North Aegean and Dodecanese) have followed different trajectories as far as their demography and economic development is concerned. The Dodecanese experienced a spectacular economic growth grace to the booming tourist industry. Economic growth was followed by demographic and social changes in the islands. On the other hand, islands in the region of the North-Aegean have witnessed a demographic stagnation and are significantly less prosperous than their counterparts in the South Aegean. This paper investigates the relationship between educational level and economic and social development in these two groups of islands. The research questions that this paper tries to answer are: Is higher education related with economic prosperity? Do different type of economic activities, and especially tourism, relate to different types of education (vocational training versus higher education)? Is there a sex-specific differentiation in educational level that relates to tourist development?

2. Population change between 1951 and 2011.

The different demographic trajectories of the two groups of islands are obvious in figure 1. In 1951 the North Aegean had a population in excess of 280,000 (281,327), while the population of the Dodecanese was just above 120,000. Sixty years later, that is in 2011, the two groups of islands had almost the same population, ranging between 190,000 and 200,000 residents in each group of islands. The islands of the North Aegean loose population in an almost linear way from 1951 onwards (they lost more than 29% of their population between 1951 and 2011), while the Dodecanese increase their population in every decade of the study period (they increased their population by 57.2% during the sixty-year period 1951-2011).

Figure 1: Population evolution of the North Aegean and the Dodecanese, 1951-2011.



Source: Greek censuses.

Most probably these population changes are related to economic development or lack of it, which pulls or pushes people to and from the islands. Even the islands of the North Aegean are not a homogeneous group as far as population trends are concerned. If one looks at the last 40 years of the study period (1971-2011), the Districts of Lesvos and Chios lost population (-9.7% the District of Lesvos and -2.3% that of Chios), while the District of Samos increased its population by 2.8 % from 1971 to 2011 (table 1). The tourist development, as will be documented further on, is the major reason behind population trends in these islands.

Table 1: Population of the borderline islands by District 1971-2011.

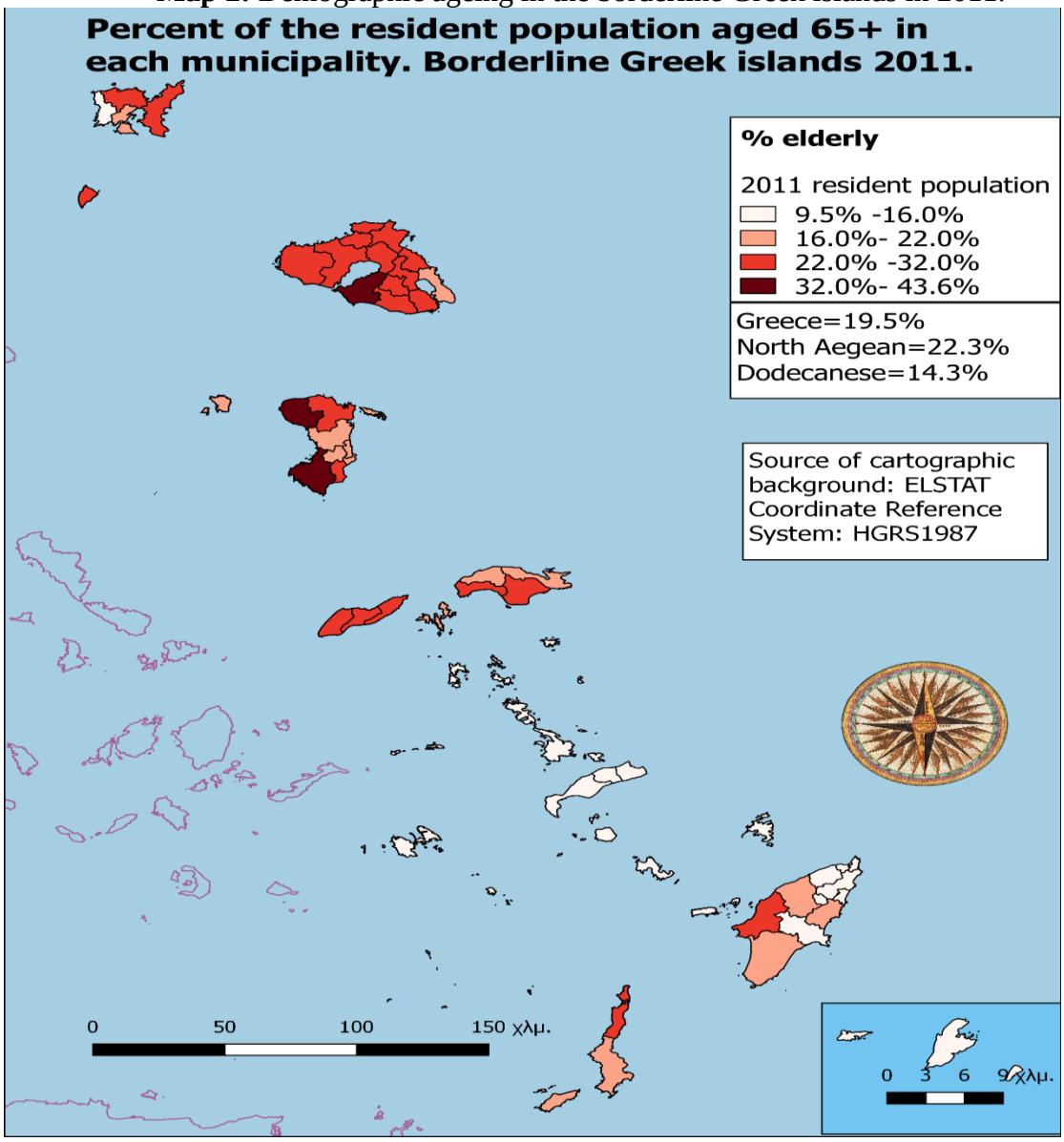
	District				
Year	Dodecanese	Lesvos	Samos	Chios	Total
1971	120,996	114,804	41,704	53,936	417,780
1981	144,728	104,636	40,448	49,964	428,234
1991	163,476	105,082	41,965	52,184	456,712
2001	190,071	108,288	43,595	53,408	507,977
2011	190,988	104,129	43,151	53,416	535,017
Change(%) 1971-2011	57.8%	-9,3%	2.8%	-2.3%	28.1%

Source: Elaboration of census returns.

3. Demographic ageing.

The age structure of the population is of particular interest as far as economic development is concerned. A relatively young population means that more people are seeking for a paid employment or they are willing to do so. It also means greater mobility of the population as young people are more willing to migrate in order to find better living conditions. On the other hand, an aged population is associated with relatively low participation in the labour force and higher burden for the welfare system since the elderly make much more use of the hospitals, the Oldfield houses and the health services in general.

Map 2: Demographic ageing in the borderline Greek islands in 2011.



In the island level, the greatest percentages of elderly were recorded in Ikaria, Kassos and Psara. In all three islands more than a quarter of their population ages 65 and over. The islands of the North Aegean follow closely with more than 20% of their population being elderly. The Dodecanese have a younger age structure than the North Aegean islands. The biggest of them, that is Rhodes and Kos, exhibit relatively young populations with less than 15% of their population being 65 and over. In general, the borderline islands of the Aegean have less aged population than the national average (18.4% elderly in the islands versus 19.5% in Greece in 2011), but with great differences between the North Aegean, where the elderly make up more than 22% of the population, and the Dodecanese, where the elderly constitute only 14.3% of the population.

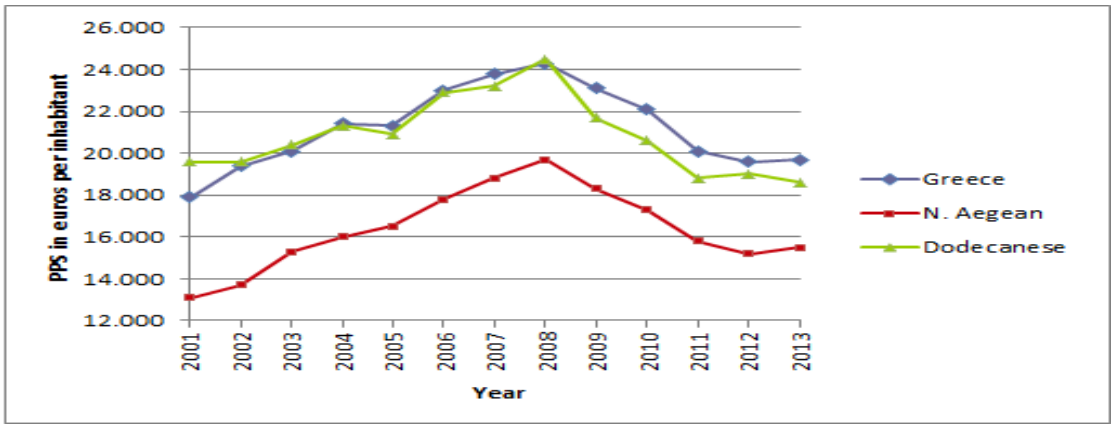
At the level of municipality, two municipalities in Chios and one in Lesvos stand out for their extremely aged population. These are the municipalities of Amani (Δ.Ε. Αμανής) and Mastichohoria (Δ.Ε. Μαστιχοχωρίων) in Chios with 43,6% and 32,2% respectively of their population being over 65 years old, and the municipality of Polyhnitos in Lesvos with 34.3% of its population being over 65 years old (map 2). These rural municipalities have been depopulated from young people, and as a result demographic ageing is extremely notable.

Especially in the municipality of Amani the children (0-14 years old) make up less than 8% of the population.

4. Social and economic development of the Greek borderline islands.

There are several ways for one to measure the social and economic development of an area. The most widespread in use is the per capita income expressed as purchasing power in certain monetary units (usually dollars or euros), thus called Purchasing Power Standard (PPS). Figure 2 shows that the average inhabitant of the North Aegean was 33% poorer than the average inhabitant of the Dodecanese in 2001. This income difference between the North Aegean and the Dodecanese has been decreased over time and it reached to 17% in 2013. The shrinkage of the income gap became obvious after 2008, because the economic crisis that strikes the country since then has affected the tourist areas more than the rest of Greece. Some of the Dodecanese islands base their economy almost exclusively on tourism and therefore their income has been reduced more than that of the North Aegean.

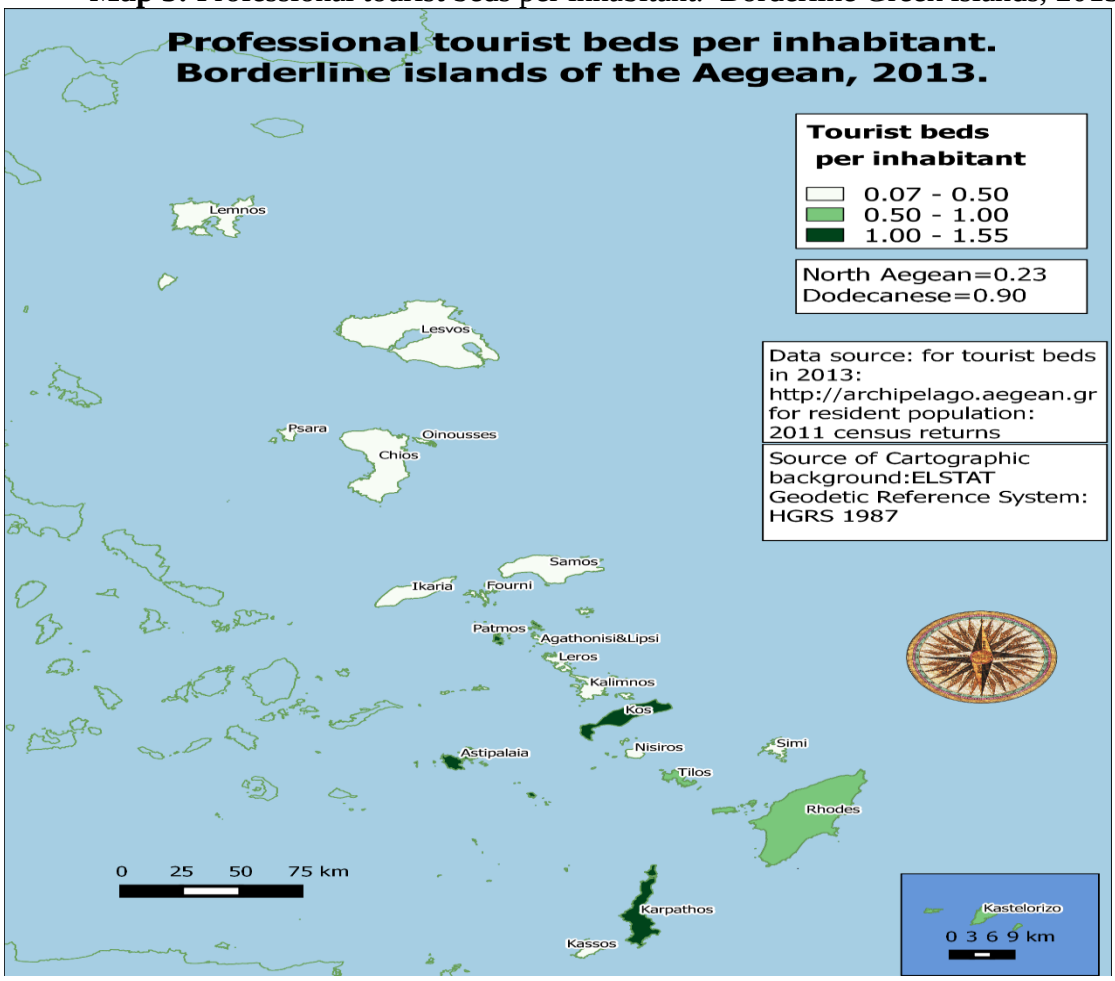
Figure 2: Purchasing Power Standards per capita in Euros. 2001-2013.



Source: Eurostat, 2016.

Tourism, however, in spite of being susceptible to economic crisis due to the "elastic" character of tourist services, continues to constitute the economic base of the Dodecanese islands. According to the 2011 census-returns 23.9% of the working population of the South Aegean (the Region which the Dodecanese belong to) is engaged in providing accommodation and food services, while the relevant percentage in Greece is only 7.8% (ELSTAT, 2011). An obvious index of tourist development is the number of professional tourist beds per inhabitant. Professional tourist beds are beds in hotels, rooms to let, and camping. Beds in empty houses that are built as holiday houses for their owners and do not bear any profit to them are not included in the professional tourist beds. In general, the Dodecanese are the one of most tourist-oriented groups of islands in Greece. In 2013 there were 0.9 professional tourist beds per inhabitant in the Dodecanese, while in the same year in North Aegean there were 0.23, in Crete 0.35 and in Corfu 0.62 professional tourist beds per inhabitant. Only in the Cyclades, a group of islands located also in the South Aegean, this ratio was higher (1.24). However, tourist development is not homogeneous neither among the Dodecanese nor among the North Aegean islands. Map 3 shows the variation in the tourist development of the islands.

Map 3: Professional tourist beds per inhabitant. Borderline Greek islands, 2013.



The most tourist-oriented island is Kos with 1.55 professional tourist beds per inhabitant. Karpathos, Astipalaia and Patmos follow closely with more than one tourist bed per inhabitant (map 3). The island of Rhodes is, paradoxically, a class lower in the classification of tourist development, given that our sole criterion is the ratio of professional tourist beds per inhabitant. In Rhodes in 2013 this ratio was 0.85, although the island is famous worldwide as a tourist destination. Obviously, the huge number of professional tourist beds in Rhodes (98,612) is outperformed by the big population size of the island (115,490 inhabitants). On the other end of the scale of tourist development, the North Aegean islands are located. None of them has more than 0.5 professional tourist beds per inhabitant. The highest ratio was recorded in Ikaria and was 0.25 in 2013. Whether this kind of tourist development is related with the occupational status of the population is examined further on. In any case tourist development, even with only criterion the ratio of professional tourist beds per inhabitant, constitutes a substantial economic and developmental feature of the Aegean islands.

4.1 Tourist development and Occupational status

More than 46% of the population in the Dodecanese was economically active in 2011 while the relevant percentage in the North Aegean was clearly lower (38.5%). The percentage of economically active is an index of the participation of the population in the labour force, i.e. in the official labour market. It is also an index of the dynamism of the population, as higher percentages of economic activity mean that a greater part of the population is working in a paid job or is willing to do so. The higher participation of the population in the labour force in the Dodecanese is mainly due to the tourist development of these islands.

Table 2: Tourist development and labour market indexes per island.

	Island	% economically active 2011	% unemployed 2011	tourist beds per inhabitant 2013
1	Chios	38.4	13.1	0.07
2	Oinousses	29.4	9.9	0.09
3	Fourni	29.3	22.4	0.12
4	Kalimnos	36.3	19.2	0.15
5	Lesvos	37.9	14.7	0.15
6	Limnos & Ag. Efstratios	39.6	12.4	0.18
7	Kassos	30.8	20.1	0.20
8	Psara	34.7	18.2	0.23
9	Ikaria	38.9	16.5	0.25
10	Leros & Farmakonisi	39.3	15.5	0.25
11	Simi	41.4	12.3	0.36
12	Samos	40.1	13.5	0.43
13	Nisiros & Yali	43.8	25.9	0.46
14	Lipsi & Agathonisi	41.8	11.8	0.51
15	Kastelorizo	43.3	6.6	0.58
16	Rhodes	47.3	14.0	0.85
17	Tilos & Halki	42.7	12.8	1.03
18	Patmos & Arki	43.9	10.2	1.06
19	Astipalaia	38.7	15.1	1.18
20	Karpathos	44.1	16.0	1.18
21	Kos	51.8	11.2	1.55
	North Aegean	38.5	14.0	0.23
	Dodecanesse	46.4	13.9	0.90
	Greece	42.4	18.7	-

Source: census returns and online database http://archipelago.aegean.gr/

At least, this is inferred by examining the correlation coefficient (Pearson's r) between tourist development (tourist beds per inhabitant) and the percentage economically active, as seen in table 3. A value 0.74 of pearson's r means that as the number of professional tourist beds per inhabitant is increasing, the percentage of those who are either working or seeking for a job is also increasing and this correlation is very strong and statistically significant (p-value<0.001). However, another factor responsible for the lower percentages of economically active population in the North Aegean islands may well be their aged population. As seen in map 2 more than 22% of the population in the North Aegean ages 65+ while the relevant percentage in the Dodecanese is just 14.3%. Usually the elderly neither work nor seek for a job, thus reducing the percentage of economically active in the population.

Table 3: Correlations between tourist development and labour market indexes. Borderline Greek islands 2011-2013.

Tourist beds per inhabitant	**% economically active**	**% unemployment**
Pearson's r:	0.738	-0.288
p-value:	0.000	0.206

Source: correlations are based on data from table 2.

On the other hand, the relationship between tourist development and unemployment, despite the fact that it is negative (r=-0.29), is not statistically significant (p-value=0.21) and therefore it cannot be inferred that tourist development reduces unemployment. Islands with low or medium tourist development[2] may have low unemployment rates. This was the case with Oinousses and Kastelorizo in 2011, which, although they were not a popular tourist destination (especially Oinousses), they recorded the lowest unemployment among the examined islands. On the other hand, islands where the tourist beds were more than the permanent inhabitants like the islands of Karpathos and Astypalaia in Dodecanese, had greater unemployment than the average unemployment rate of this group of islands (table 2). The highest unemployment rates were recorded in Nisiros, Fourni and Kassos. These islands, according to our criterion (professional tourist beds per inhabitant), are not tourist-oriented, since the ratio of professional tourist beds per inhabitant is less than 0.5. In general, tourist-oriented islands tend to exhibit lower unemployment rates than non-tourist ones, but this relationship could not be established firmly with the data presented in table 2.

The reason that the above described correlation between tourist development and unemployment is not statistically significant has to do with the seasonality of employment in the tourist-oriented islands. Unemployment rates in the Aegean islands, and especially in the Dodecanese, are highly seasonal, because of the short duration of the tourist period. One should keep in mind that the population census of 2011 (from where the unemployment data have been taken) took place in May, in a month that tourist businesses are just waking from the hibernation of the winter months and are under-staffed. It is very likely that unemployment figures would have been lower, had the census taken place in August.

4.2 Educational level and tourist development

Education is considered a valuable asset and one of the milestones of civilization and progress in societal as well as in personal level. In the framework of this article, however, the topic of our research is the contribution of education in local development. Educational systems are expensive both for the authorities and for the individuals who decide to attend the higher education. It is of utmost importance, therefore, to investigate the relationship between education and economic development in the borderline Greek islands so as to understand the priorities of the local inhabitants as far as educational matters are concerned.

[2] According to the classification of map 2, islands with low tourist development are considered those that have less than 0.5 professional tourist beds per inhabitant, islands with medium tourist development are considered those that have 0.5-1.0 professional tourist beds per inhabitant and islands with high tourist development those where the tourist beds are more than the permanent inhabitants

Table 5: educational level and tourist development in the islands of North Aegean and the Dodecanese 2011-2013.

Island	tourist beds per inhabitant 2013 (1)	university graduates (2)	Vocational training (3)	Lyceum (4)	mandatory education or vocational training without lyceum (5)	Primary school (6)
Fourni	0.12	7.4	3.8	10.3	11.0	48.3
Leros & Farmakonisi	0.25	9.0	3.9	17.2	14.7	32.8
Astypalaia	1.18	9.4	3.7	16.6	22.7	26.5
Patmos & Arkoi	1.06	9.9	4.3	17.5	17.7	31.2
Nisiros & Yali	0.46	10.2	3.7	22.2	16.9	32.7
Kassos	0.20	10.2	4.8	20.8	20.1	25.1
Karpathos	1.18	11.0	6.8	19.7	16.6	27.5
Kalimnos	0.15	11.1	3.6	16.6	14.0	30.1
Ikaria	0.25	11.1	5.2	21.7	21.4	26.9
Kos	1.55	11.5	6.4	22.7	15.9	24.4
Lipsi & Agathonisi	0.51	11.9	3.5	11.8	16.3	35.1
Simi	0.36	12.6	4.6	19.9	13.4	27.8
Lesvos	0.15	12.9	3.2	19.4	13.4	30.1
Limnos & Ag. Efstratios	0.18	13.2	5.7	20.4	13.0	30.3
Samos	0.43	13.3	4.6	23.9	13.2	29.0
Rhodes	0.85	13.4	4.9	24.0	16.0	23.5
Kastelorizo	0.58	16.0	5.0	22.1	15.5	25.9
Tilos & Halki	1.03	16.0	5.0	22.1	15.5	25.9
Chios	0.07	16.0	4.0	24.7	13.2	26.4
Oinousses	0.09	18.4	1.9	28.3	12.6	28.1
Psara	0.23	18.4	1.9	28.3	12.6	28.1

Source: census returns and online database http://archipelago.aegean.gr/

In general, people in the islands stop their formal education earlier than in Greece (table 4). There are proportionally more people who stopped their education in the primary school and in the Gymnasium (mandatory education up to the age of 15) in the islands than in Greece. On the other hand, there are proportionally less islanders who attended high school (lyceum in Greek) and even fewer who are university graduates (compared to Greece's population). In the Dodecanese the percentage of university graduates is a bit smaller than that in the North Aegean. On the other hand, the percentage of those who follow vocational training after high school (lyceum) is higher in the Dodecanese than both in Greece and in the North Aegean. Whether the higher percentages of students in vocational training, i.e. job-specific technical training for work in the trades, are related to the tourist development is investigated further on, using data and indices presented in tables 5 and 6.

Table 4: Highest educational level attained by percentages of the population. Greece and Borderline Greek islands 2011.

Educational level	Greece	North Aegean	Dodecanese
University Graduates (plus post–graduates, PhD etc)	16.7%	13.7%	12.5%
Vocational training after finishing high school	4.6%	3.9%	5.0%
High school	23.4%	21.7%	22.4%
Mandatory education and vocational training without having attended high school	13.2%	13.6%	15.8%
Primary education	23.3%	29%	25.0%
Other	18.8%	18.1%	19.3%
Total	100.0%	100.0%	100.0%

Source: elaboration of census returns.

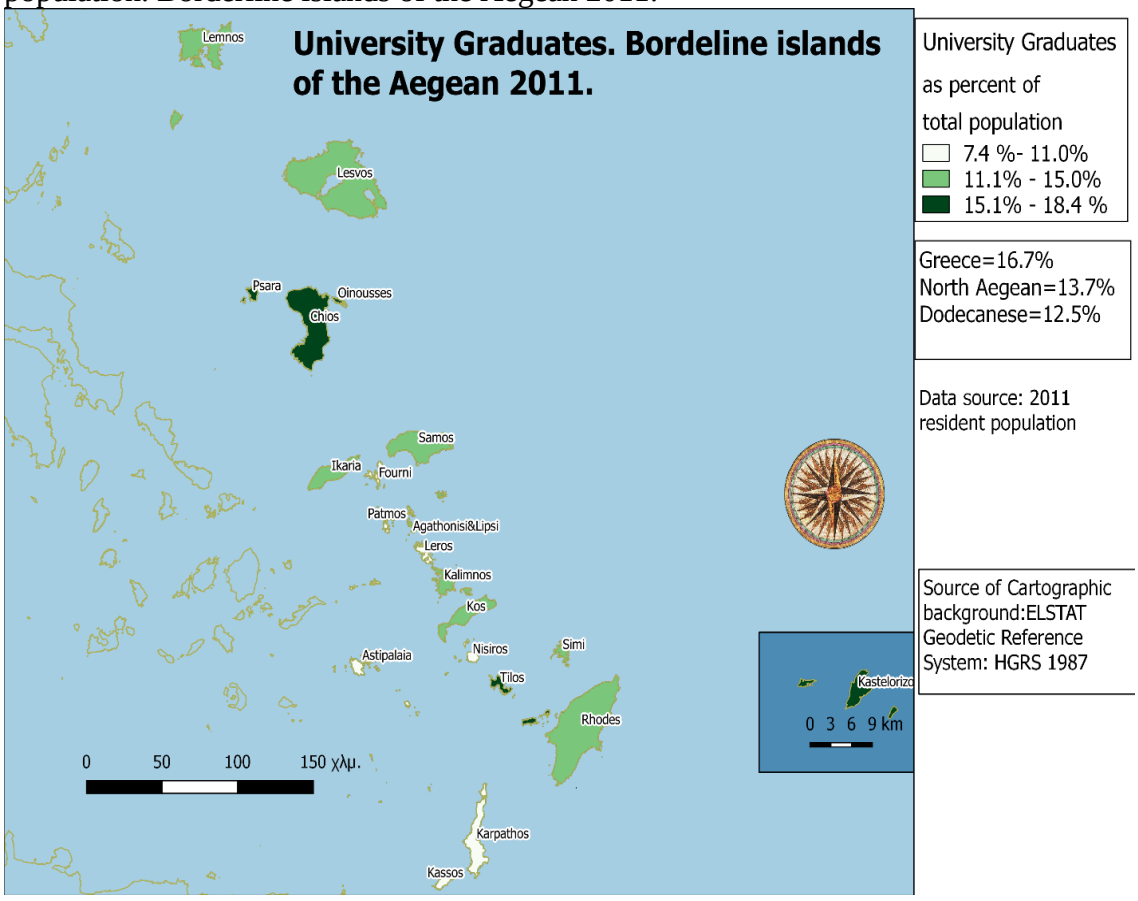
Note: Mandatory education is up to 15 years of age in the Greek Territory.

Table 6: Relationship between educational level and tourist development.

	(1)*(2)	(1)*(3)	(1)*(4)	(1)*(5)	(1)*(6)
Pearson's r	-0.18	0.55	-0.04	0.45	-0.35
P-value	0.45	0.01	0.85	0.04	0.12

Source: correlations are based on data in table 5.

Map 4: Tertiary education graduates (A.E.I. and T.E.I.) as percentage of total population. Borderline islands of the Aegean 2011.



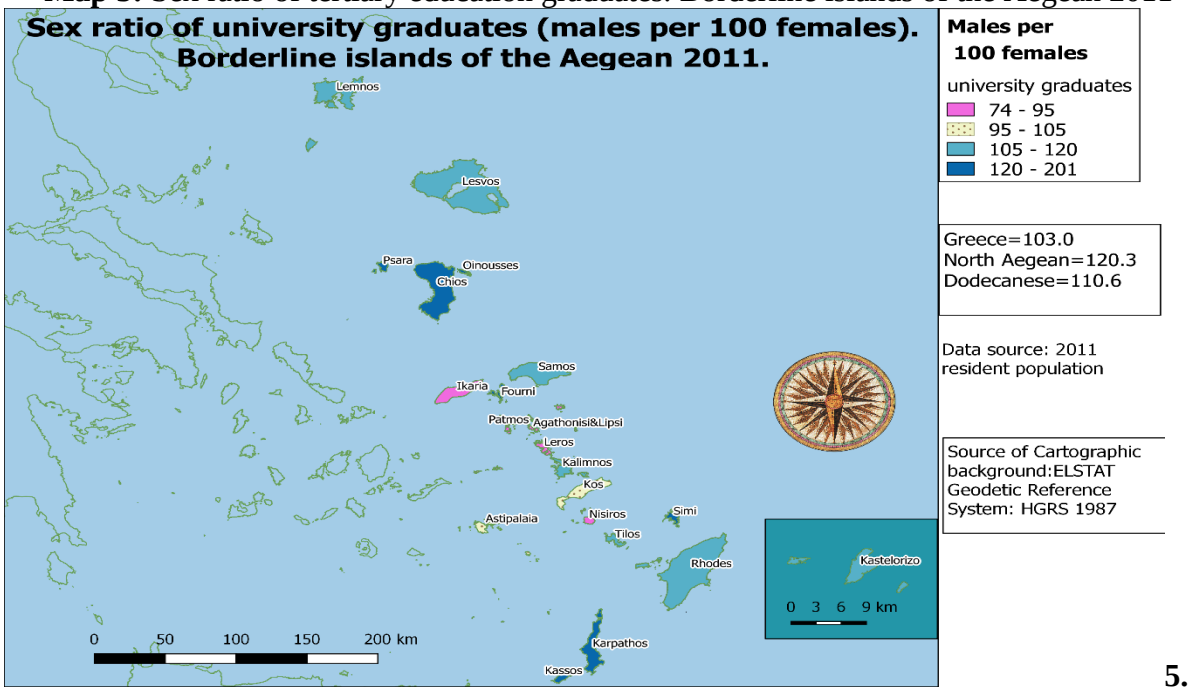
Out of all correlations between educational level and tourist development presented in table 6, only those referring to vocational training ((1)*(3) and (1)*(5)) are statistically significant at the 0.05 level of significance. Tourist development is related positively with vocational training, since the islands that are more tourist-oriented present higher percentages of students that attend vocational training. It seems that young people in these islands prefer a career in the tourist industry (either this business has to do with the provision of accommodation through hotel, rooms to let etc, or with recreation activities and food services) to a university level degree which will not give them any practical aptitudes that are necessary for their job. The relationship between tertiary education and tourist development, though not statistically significant, is a negative one (r= -0.18)

As far as the tertiary education is concerned, the islands with the lowest percentage of graduates (7.4%) are Fournoi (in the "borders" between North Aegean and the Dodecanese), but generally the smallest islands in the Dodecanese are those with the proportionally fewest graduates: Leros and Farmakonisi (9%), Astypalaia (9.4%), Patmos and Arkoi (9.9%). The highest percentages of graduates are observed in two small islands of the North Aegean: Oinousses and Psara (18.4%).

4.2.1 Educational level by sex.

In traditional societies, the men spend more years of their lives in education than women do. This is still the case in the Greek borderline islands of the Aegean, both in the North Aegean and in the Dodecanese (map 5). In the North Aegean this phenomenon is more intense: 15.9% of the male population are university graduates, while the respective figure for females is 13.3%. In the Dodecanese the relevant figures are 14% for males and 12.9% for females. Nevertheless, there were three islands in the Dodecanese in 2011 where female university graduates were more numerous than the male ones: Ikaria, Leros and Nisiros. These islands are not particularly tourist-oriented (there are fewer than 0.5 tourist beds per inhabitant in Nisiros and fewer than 0.25 in Ikaria and Leros) and their landscape is mountainous with few arable lands.

Map 5: Sex ratio of tertiary education graduates. Borderline islands of the Aegean 2011



5.

5. Conclusions

The borderline islands of the "Greek Polynesia", as the Archipelagos of the Aegean is referred to, experienced a spectacular demographic and economic growth in the last 40 years or so. They increased their population by 30% between 1971 and 2011; their population density was inevitably increased from 52 inhabitants per km^2 in 1971 to 67 in 2011, and the urban areas in the biggest of these islands are the most densely populated areas in Greece. Proportionally more inhabitants are engaged in tourist activities in these islands than in Greece.

This population growth, however, has not taken place in every island, and economic development is very heterogeneous from one island to the other. The positive demographic and economic indices characterize only the Dodecanese. The North Aegean, on the other hand, during the forty-year period 1971-2011, lost 9% of its population and became more sparsely populated (population density was reduced from 57 inhabitants per km^2 to 52 per km^2). At the same time the North Aegean was the Region with the second most aged population in Greece in 2011, with more than 22% of its population being at the age of 65+ (the most aged Region of Greece was Epeirus with 23.4% of its population being 65+) (ELSTAT, 2011). In terms of economic development, the average inhabitant of the North Aegean is 21% poorer than the average Greek, when income is measured as purchasing power. Most islands of the North Aegean have not achieved tourist development. The island of Samos seems to have achieved the greatest tourist development in the North Aegean, since it has the largest proportion of professional tourist beds per inhabitant (0.43) and it is the only big island in the North Aegean that increased its population not only in the period 1971-2011, but also in the decade 2001-2011. Yet, Samos is an exception in the North Aegean Region, since the employed population that is engaged in tourist activities in the North Aegean is proportionately smaller than that of the Dodecanese according to the 2011 census (9.1% versus 23,9%) (ELSTAT, 2011).

Dodecanese on the other hand, have achieved remarkable progress in terms of demographic and economic development. They doubled their population in the forty-year period 1971-2011 and they have a relatively young population (less than 14% of their population was elderly in 2011). The inhabitants of the Dodecanese are richer than the average Greek and approximately ¼ of the employed population is engaged in providing tourist services. Moreover, the third trimester of any given year (at least for the years 2011-2016), when the tourist season is in its peak, the South Aegean has lower unemployment than the North Aegean (Greek Labour Force Survey, 2011-2016).

Nevertheless, despite the remarkable progress in the economic and demographic sector, the educational level of the population of the Dodecanese does not differ markedly from that of the North Aegean. In fact, university graduates are proportionally fewer in the Dodecanese than in the North Aegean. The marked difference is in those who have attained vocational training. In the Dodecanese young people have a greater tendency to follow vocational training, i.e. job-specific technical training for work in the trades, either immediately after gymnasium (at 15 years of age) or after lyceum[3] (at 18 years of age). Another feature of the education in these islands is that there are fewer women than men that have obtained a university degree. This is the case for both the North Aegean and the Dodecanese, with the sex ratio of university graduates being more masculine in the North Aegean (120.3 male graduates per 100 female ones in the North Aegean versus 110.6 in the Dodecanese). On the other hand, the females that attain vocational training after finishing high school are more numerous than men are, in both groups of islands. The findings of this paper imply that in the case of the Aegean islands the educational level does not relate to economic development. At

[3] The term "Gymnasium" corresponds to "Middle or Junior High School", which is attended by students 12-15 years of age. The term Lyceum corresponds to "High School" for students 15-18 years of age.

least as far as the economic development that stems out of tourism is concerned, vocational training, which is attained either immediately after mandatory education or after finishing high school, is more important to the local population than a university degree, because university-level education may be irrelevant with the aptitudes required by tourist-oriented employment.

6. References

Documentation system for islands <archipelago.aegean.gr> accessed 20/6/2016

ELSTAT *Digital library* URL: http://dlib.statistics.gr/portal/page/portal/ESYE [Digital library of ELSTAT containing census returns from 1861-2001] accessed 8/5/2014.

ELSTAT *Population and Housing census of 2011*. URL: http://www.statistics.gr/el/statistics/-/publication/SAM03/2011 [accessed 9/11/2017]

Eurostat (2016) Gross domestic product (GDP) at current market prices by NUTS 3 regions < http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do> accessed 14/8/2016.

Greek Labour Force Survey 2011-2016 URL: http://www.statistics.gr/el/statistics/-/publication/SJO01 accessed 10/11/2017.

National Statistical Service of Greece (1962-1967) *Results of the population and housing census of 19 March 1961* [in Greek]. Athens: NSSG, 3 vols.

National Statistical Service of Greece (1973) *Results of the population and housing census of 14 March 1971* [in Greek] Athens: NSSG, 3 vols.

National Statistical Service of Greece (1984) *Results of the population and housing census of 5 April 1981* [in Greek]. Athens: NSSG.

National Statistical Service of Greece (1998) *Results of the population and housing census of 17 March 1991* [in Greek]. Athens: NSSG, 6 vols.

Statistique Nationale de la Grèce (1955-1961) Population de la Grèce au recensement du 7 Avril 1951. Athènes : Imprimerie nationale, 3 vols.

Estimating Productivity Efficiency: Alternative Methodological Approaches

Abstract:
It has been widely referenced that performance at firm or industry level is measured either by productivity or efficiency. Although the importance of efficient use of productive resources has long been recognized, neoclassical economics assume that producers in an economy always operate efficiently. In reality, however, producers are not always efficient. Two otherwise identical firms never produce the same output, and costs and profit are not the same. This difference in output, cost, either profit can be explained in terms of efficiency and some unforeseen exogenous shocks and may be defined as relative productivity over time and / or space. This paper aims to review the main topics related to productive efficiency through the major alternative theoretical methods, so as to provide a background for future study and model implementation.

Keywords: Productive Efficiency**,** Stochastic Frontier Analysis, Efficiency Function, Productivity

JEL: C23, C54

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1. Introduction

Productivity growth constitutes an important element for modelling productive capacity. Lovell (1993) stated that productivity of a firm depends on differences in production technology and efficiency, as well as on differences in the environment where production occurs. Even though the concept of productive efficiency is central to measuring firm performance, its measurement has proved difficult and complex, and the literature provides a range of methodologies using many different approaches (Lovell, 1993). In a general frame, the original method of frontier estimation (Farrell, 1957) has been further extended towards different approaches and methods. To be more precise, Grosskopf (1993) divided productivity measurement approaches into two primary different categories: non-frontier and frontier. In turn, each category was subdivided into a) parametric methods, which involve econometric methods, and b) non-parametric methods, which employ mathematical programming:

1. Non - parametric models (regarding Data Envelopment Analysis), initially developed by Farrell (1957) and Charnes et al. (1978) which are robust with respect to the particular functional form and to the distribution assumptions. This method does not posit any explicit functional form for the frontier and constructs it from the observed input-output ratios using linear programming techniques.
2. Parametric models (regarding Deterministic Frontier Analysis and Stochastic Frontier Analysis), initially developed by Aigner et al. (1977) and Meeusen and van den Broeck (1977), which are analytical functions with an a priori fixed number of parameters. In this case, the frontier is represented through a functional form (e.g. a Cobb- Douglas or a Translog function), derived with econometric techniques (Greene, 1993).

Within the parametric methods, it is possible to distinguish between the deterministic (Aigner and Chu, 1968) and stochastic (Aigne et al., 1977) approaches to frontier estimation, according to how one interprets the deviation of a group of units from the best performing unit in the sample:

1. In a deterministic production frontier model, output is assumed to be bounded from above by a deterministic (non-stochastic) production function. By estimating the best-practice production function (an unobservable function) this approach calculates technical efficiency as the distance between the frontier and the observed output. However, the possible influence of measurement errors and other statistical noise upon the shape and positioning of the estimated frontier is not accounted for. More specifically, deterministic models assume that any deviation from the frontier is solely due to inefficiency, since they do not accommodate for stochastic shocks to production.
2. In stochastic frontier models, output is assumed to be bounded from above by a stochastic production function. Therefore, the error term in stochastic frontier models has two parts: the first representing randomness or statistical noise, and the second representing technical inefficiency. In this case, each producer faces a production frontier which is randomly due to stochastic shocks outside the producer's control. Moreover, this method enables to distinguish between shifts in technology from movements towards the best-practice frontier.

Moreover, Table 1 presents a distinction between deterministic methodologies, whose output is a calculated measure of Total Factor Productivity (TFP), and econometric methodologies, providing estimated productivity levels and/or growth rates. Within these, there is discrimination between Frontier and non-Frontier Approach. However, the first distinction one should keep in mind is between methodologies used in macro studies, that is methods concerned with aggregate (countries/regions/industry) productivity and methodologies used in micro studies, aimed at measuring individual (firm/plant) productivity.

Thus, in Table |(1) it is also indicated if a specific technique has been applied to macro or micro data sets, or to both.

Table 1: Productivity measurement methodologies

	Deterministic Methodologies (Non Parametric)	**Econometric Methodologies (Parametric)**
Frontier	• Data Envelopment Analysis (Micro – Macro)	• Parametric Stochastic Frontier Analysis (Micro – Macro)

Non Frontier	• Growth Accounting (Macro)
	• Index Numbers (Micro – Macro):
	  ○ Tornqvist Index
	  ○ Fischer Index
	  ○ Hulten Index
		• Production Function
		• Revenue Function
		• Cost Function
		• Growth Regressions (Macro)

Source: Harris et al. (2006)

While the selection of any particular approach is likely to be subject to both theoretical and empirical considerations, it may be useful to summarize the strengths and weaknesses of the most widely used techniques. The emphasis here is not on selecting a superior theoretical approach, as it should be emphasized that the mathematical programming and econometric approaches address different questions, serve different purposes, and have different informational requirements.

2. Frontier and Non-Frontier Approach

The non-frontier literature on developing accounting and growth regressions focuses on explaining the wide differences in economic performance across countries and produces estimates of TFP levels instead of growth rates. The non-frontier approach uses the standard growth accounting framework that separates the growth of real output into an input component and a productivity component. It is given as:

1. *Output Growth = Input Growth + TFP Growth*
2. *TFP Growth = Output Growth Input Growth*

where input growth consists of the sum of the increases in the use of all factors purchased for production. Output is thus seen to increase with the increased use of inputs and/or increases in productivity.

This framework is able to provide the contribution to output growth of each of the inputs used. Since real data on output and input are available, TFP growth is estimated as a residual measuring 'everything and anything' of output growth that is not accounted for by input growth. Because the determinants of TFP growth have yet to be proved, this measure is often called a 'measure of ignorance' (Abramovitz, 1956) since it is nothing more than a measure of what we do not know. This idea has often advanced the hypothesis that careful measurement of the relevant input variables should cause this residual to disappear.

Non-Frontier methodologies shared the common assumption and interpretation that production is always fully efficient, namely that the observed output, either produced by firms or by regions or countries equates the potential level of production at each moment in time. The formulation was originally introduced by Solow (1957), who provided the original

analysis of the growth accounting approach, assuming that TFP growth between time *t* and *t+1* is evaluated starting from the following equation (index *i* dropped):

$$\frac{TFPt+1}{TFPt} = \frac{At+1}{At} \quad (1)$$

In such derivation observed output is assumed to be equal to the frontier output and the implied measure of TFP growth solely captures shifts in *A*, i.e. technological change (Grosskopf, 1993). However, such an estimate will be biased in the presence of inefficiency.

Regarding non – frontier approach, an alternative frontier approach has been introduced to the measurement of TFP. According to frontier approach, observed output and potential output might differ due to the presence of technical inefficiency in productive processes of observed units. This implies the adoption of a new perspective with respect to non-frontier methodologies, since estimated TFP will now explicitly result from a decomposition of productivity growth in technological change and efficiency change. Technological progress is assumed to push the frontier of potential production upward, while efficiency change will change the capability of productive units to improve production with a set of given inputs and available technology. Assuming the presence of technical inefficiency in productive processes leads to a discrepancy between observed output and maximum feasible output as:

$$Y_t < A_t F(x_t) \quad (2)$$

and

$$Y_{t+1} < A_{t+1} F(x_{t+1}) \quad (3)$$

The main disadvantage is that all deviations in the observed ratio of inputs / outputs of an agent from the production frontier are exclusively due to inefficiency assuming that all the errors in the measurement of the variables or random fluctuates in the luck of agents are captured as part of the inefficiency term. This assumption can produce upward biased estimations of the inefficiency.

Unlike the non-frontier approach, the frontier approach is able to decompose output growth not just into input growth and TFP growth; it goes a step further to decompose TFP growth into various efficiency components such as technical progress and gains in technical efficiency. That is, under the frontier approach:

1. *Output Growth = Input Growth +TFP Growth*
   = Input Growth +Technical Progress +Technical Efficiency Gains

The main weakness of the first class of techniques is due to the fact that they are solely based on input and output data and to their deterministic nature, which implies that any discrepancy between actual and potential output is attributed to inefficiency. Any other feasible sources of technical inefficiency, i.e., omitted variables; unobserved measurement errors and stochastic noise are neglected, resulting in a possible upward bias of inefficiency scores. Furthermore, large datasets are required, since the best practice frontier obtained with small samples may be too rough an approximation of the real production frontier. A non-frontier model yields efficiency measures for groups of firms, whereas a frontier model can provide firm specific efficiency measures to the researcher. Another advantage of the frontier methodology is that the word 'frontier' is consistent with the theoretical definition of a production, cost, and profit function, i.e., a solution to a maximum and minimum problem. This alone makes the frontier methodology popular in applied economic research (Forsund et al., 1980).

3. Stochastic and Deterministic Frontier Models Approach

Central to frontier productivity analysis is the determination of the efficient production technology, identification of those efficient decision-making firms on the technological

frontier and of those inefficient firm not on the frontier—and, for the latter, determination of the degree and sources of their inefficiency. Towards this direction, technical efficiency and productivity have been measured using different approaches and methods. However, the major distinction is between the stochastic and parametric econometric method and the non-stochastic and non-parametric mathematical programming method.

The first approach examined is deterministic statistical frontier. Using statistical techniques, a deterministic frontier is derived such that all deviations from this frontier are assumed to be the result of inefficiency. That is, no allowance is made for noise or measurement error. In the primal (production) form the ability to incorporate multiple outputs is difficult, while using the dual cost frontier such extensions are possible. However, if the cost frontier approach is employed, it is not possible to decompose inefficiency into allocative or technical components, and therefore all deviations are attributed to overall cost inefficiency.

In terms of computational procedure, the deterministic frontier approach necessitates a large sample size for statistical reasons. In addition, it is generally regarded as a disadvantage that the distribution of the technical inefficiency has to be specified (i.e., half-normal, normal, exponential, log-normal, etc.). Ideally, this would be based on knowledge of the economic forces that generate such inefficiency, although in practice this may not be feasible.

In deterministic frontiers analysis, it is assumed that each of *N* producers faces the same production technology represented by the conversion of a vector *X* of inputs into a single output *y*. For simplicity, and following Aigner and Chu (1968), assume that efficient production can be represented by a Cobb–Douglas production function with two inputs:

$$y = Ax_1^{\beta_1} x_2^{\beta_2} \tag{4}$$

This production function, showing the maximum output from given input usage, will serve as the basis for efficiency measurement. Allowing inefficiency, production function becomes:

$$y = Ax_1^{\beta_1} x_2^{\beta_2} u \tag{5}$$

where $u \leq 1$represents inefficiency. Models that seek to estimate u are considered deterministic because measurement error and other statistical noise are assumed away.

The second approach discussed, namely the stochastic frontier, removes some of the limitations of the deterministic frontier. Its biggest advantage lies in the fact that it introduces a disturbance term representing noise, measurement error, and exogenous shocks beyond the control of the production unit. This in turn permits the decomposition of deviations from the efficient frontier into two components, inefficiency and noise. However, in common with the deterministic approach, an assumption regarding the distribution (usually normal) of this noise must be made along with those required for the inefficiency term and the production technology. In addition, stochastic frontier estimation uses information on prices and costs, in addition to quantities, which may introduce additional measurement errors.

4. Parametric and Non-Parametric Approach

Parametric approaches, assume a functional approximation to the underlying technology. By this assumption, they derive parameters for the model. On the other hand, nonparametric approaches do not impose parametric restrictions on the underlying technology. The level of optimal firm performance is determined by constructing an efficiency frontier, which consists of the best performing firms. Then, the distance of individual firms relative to that frontier is analyzed. Therefore, random fluctuation in production, for example due to climatic conditions, may lead one to underestimate the technical efficiency and productivity of a firm.

The nonparametric approach revolves around mathematical programming techniques which are generically referred to as Data Envelopment Analysis (DEA). The parametric

approach, on the other hand, employs econometric techniques where efficiency is measured relative to a frontier production function which is statistically estimated.

In the parametric approach, there is a parameterisation of the relation between the level of input *x* and the technically efficient level of output *Y**. Aigner and Chu (1968), Afriat (1972) and Richmond (1974), begin by assuming a function giving maximum possible output as a function of certain inputs, in deterministic terms:

$$Y*t = f(xi, \beta), i = 1,2,...n \quad (6)$$

where Y_t is output, x_i is a vector of inputs, and β is a parameter vector to be estimated. The number of observations is denoted by *N*.

This method is called parametric because a specific form for the function *(f)* has to be specified, in order to estimate the unknown parameters β. However, the *Y** are not observable. To circumvent this problem, an error in variables approach is considered, assuming the following relation between the observed *Y* and the unobservable *Y**:

$$yt = y*t + vt - ut \quad (7)$$

where: $v_t \sim N(0, \sigma_v^2)$ and $u = |U|$, $U \sim (0, \sigma_u^2)$

The distance between the observed value and the value on the frontier depends on two terms: one is a stochastic disturbance designed to capture the elements of noise in the data, the other is a non – normal asymmetric disturbance term, meant to capture efficiency. The two components of the disturbance are assumed to be independent. Alternative distributions are assumed for the *u*, which can be normal, exponential, truncated normal or gamma (Greene, 1990, 1993).

5. Macro and micro TFP Approach

In modern economic research, attention is increasingly growing away from the study of TFP at the aggregate and industry level, towards the firm/plant level. This recent shift in focus may be explained by several different factors. First of all, data availability and computing power have been improved. Furthermore, from the theoretical point of view there has been a shift from competitive to non-competitive models of analysis. In growth theory, models of endogenous growth focus on increasing returns to scale, non-competitive markets, externalities, creative destruction processes together with the idea that innovation and productivity is assumed to be an endogenous part of the economic development.

Nevertheless, despite their growing importance, micro studies results may be sometimes difficult to generalise. Because of data availability, these studies usually investigate productivity patterns for a single economy or across groups of certain economies, while they do not investigate TFP dynamics at global level. Therefore, one should be very cautious in extending the results obtained from a sample of one or few economies, considering that datasets are often not comprehensive and lack information for important sectors of the economy as most studies focus on comparisons of the production functions of manufacturing industries. This may be misleading in cross-section comparisons since data show large within sector TFP differences across countries and this helps to explain the observed large GDP differences in these economies. Macro and micro approaches can thus be considered as complementary as they ask different questions and produce different pieces of information. In principle, the relationship between aggregate, industry and firm level estimated productivity should include a mutually consistent measure of productivity at each level of analysis.

To sum up, the objective of econometric modelling of producer behaviour is to determine the nature of substitution among inputs, the differences in technology and the role of economies of scale. It requires forms to represent the patterns of production in terms of unknown parameters that specify the responses of demand and supply to changes in prices,

technology and scale. The answer may be given by the econometric approaches, especially with the Stochastic Frontier Model Approach.

6. Modeling Efficiency Measurement: Stochastic Frontier Model

A production frontier refers to the maximum output attainable by given sets of inputs and existing production technologies. Efficient units are those operating on the cost or production frontier, while inefficient ones operate either below the frontier (in the case of the production frontier) or above the frontier (in the case of the cost frontier). Stochastic frontier (SF) methodology was developed by Aigner et al. (1977) and Meeusen and van den Broeck (1977).

The model considered in this section is restricted to a single-output production frontier for cross-sectional data. For the *i-th* observational unit, the production frontier model is:

$$y_i = f(x_i, \beta)TE_i, i = 1,2,...N \quad (8)$$

where the observed response *yi* is a scalar output, *xi* is a vector of *m* inputs, β is a vector of *p* unknown technology parameters, $f(xi, \beta)$ is the deterministic production frontier and *TEi* is the output-oriented technical efficiency. For a first-order model $p = m + 1$.

Technical efficiency of the *i-th* observational unit is the ratio of observed output to maximum feasible output:

$$TEi = \frac{yi}{f(xi, \beta)} \quad (9)$$

If the observed output *yi* reaches its maximum obtainable value $f(xi, \beta)$ then $TEi = 1$. That is, the producer is operating at the frontier of production and is 100% efficient. Values of $TEi < 1$ measure the shortfall of observed output from maximum feasible output. Note that model (4.1) is *deterministic* (contains no statistical noise). Therefore, from equation (4.2), any shortfall in output *yi* from maximum feasible output $f(xi, \beta i)$ is solely attributable to the inefficiency of the producer. Letting:

$$TEi = \exp(-ui), ui \geq 0 \quad (10)$$

will ensure that $0 \leq TEi \leq 1$ and that observed output *yi* for the *i*-th producer will lie below the frontier $f(xi, \beta)$ that is $yi \leq f(xi, \beta)$. Equation $y_i = f(x_i, \beta)TE_i, i = 1,2,...N$ can then be rewritten as:

$$yi = f(xi, \beta)\exp(-ui), ui \geq 0 \quad (11)$$

where *ui* represents the shortfall of output from the frontier for each observational unit.

Productive efficiency should be measured by the ratio $\frac{yi}{f(x_i;\beta)\exp(v_i)}$ rather than the ratio $\frac{yi}{f(x_i;\beta)}$. This simply distinguishes productive inefficiency form other sources of disturbance that are beyond the firm's control.

In simple terms, the stochastic frontier approach amounts to specifying the relationship between output and input levels and using two error terms. One error term is the traditional normal error term in which the mean is zero and the variance is constant. The other error term represents technical inefficiency and may be expressed as a half-normal, truncated normal, exponential, or two-parameter gamma distribution. Technical efficiency is subsequently estimated via maximum likelihood of the production function subject to the two error terms.

Letting *U* be the technical inefficiency error term, technical efficiency is estimated as the ratio of the expected value of the predicted frontier output conditional on the value of *U* to the expected value of the predicted frontier output conditional on the value of *U* being 0.0:

$$EFF_i = \frac{E(Y^* \mid U_i, X_i)}{E(Y^* \mid U_i = 0, X_i)} \quad (12)$$

where E is the expectations operator, *Y** is the predicted frontier output, *U* is the error term for technical inefficiency, and *X* is the vector of inputs used to produce *Y*. Capacity output is subsequently estimated to equal the frontier output for which *U* equals 0

A primal-based measure of capacity utilization may then be determined by calculating the ratio of observed output to the frontier output; this can be done for the individual firm or for the industry. The industry capacity output simple equals the sum of the frontier outputs; the industry capacity utilization equals the sum of observed outputs divided by the industry capacity output (Greene, 1993). The major development upon which most current SF estimation is based is the work by Aigner *et al.* (1977) and Meeusen and van den Broeck (1977), which advanced the composed error term:

$$e_k = u_k + v_k \quad (13)$$

for observation *k* where *vk* is the conventional symmetric random error term that is independently and identically distributed with zero mean; that is, *N*(0,σ*v*2), and *uk*, representing inefficiency, which has a one-sided distribution (commonly halfnormal or exponential). The *u* and *v* values are unrelated. The frontier cost function (see Schmidt and Lovell, 1979), is of the form:

$$c_k = c(y_k, w_k; B)\exp(u_k + v_k) \quad (14)$$

where *ck* is cost, *yk* is output, **w***k* is the set of input prices facing firm *k*, and ***B*** is the set of parameters to be estimated. The actual to least cost ratio is $C(.)e^u/C(.) = e^u$ when $v = 0$. When $u > 0$, then $e^u > 0$ and indicates the extent that costs on average exceed those of efficient units. Of greater interest are the estimates of u_i, the inefficiency levels of the individual firms, that Jondrow *et al.* (1982) provide a means of estimating. Although the aforementioned cost function is written in terms of a single output, multiple outputs can be accommodated.

The most commonly used estimation method in stochastic frontier functions is maximum likelihood estimation. The cost model is selected because it accommodates multiple outputs. Also, the cost model seems to suit reasonably well the university decision-making environment. That is, with input prices exogenous and university output (or the output expectations of public universities) given, the university is motivated to find input combinations minimizing cost, which is the basis of the cost model.

In the usual stochastic frontier model it is acknowledged that the estimation of production or cost functions must respect the fact that actual production cannot exceed maximum possible production given input quantities, (Aigner, Lovell and Schmidt 1977, and Meeusen and van den Broeck 1977). Kumbhakar, Ghosh and McGuckin (1991) and Battese and Coelli (1995) were the first to suggest that determining the factors responsible for inefficiency is an essential component of efficiency analysis.

The stochastic frontier typically permits assessment of maximal output subject to input levels; as such, it appears to be an output-oriented measure. The stochastic frontier is, in fact, a base or non - orienting measure. That is, the assessment of efficiency is not conditional on holding all inputs or all outputs constant. Utilizing the one-stage routine of Battese and Coelli (1993), however, facilitates an assessment of maximal output from an input-based perspective. With this approach, the inefficiency error term, and subsequently the maximal output, is specified as a function of inputs. Thus, it is possible to consider the input reduction coinciding with a fixed maximum or frontier output.

7. Conclusions

This paper defined the two main approaches on which this analysis is based, namely efficiency and productivity. More specifically, this paper reviews the main methods of efficiency measurement, distinguishing between parametric and non-parametric approaches, as well as between frontier and non-frontier approaches. The selection of any particular approach is likely to be subject to both theoretical and empirical considerations. The emphasis here is not on selecting a superior theoretical approach, since different approaches provide different mathematical programming and econometric approaches, which address different questions, serve different purposes, and have different informational requirements.

Since firms or industries are not homogeneous producing units and, therefore, not all of them are operating at the same level of efficiency, empirical analysis showed that productivity of two different industries may considerably differ. This difference may have numerous reasons such as managerial restrictions, slow adoption to changes of the market environment and/or to technological developments, influences of the respective location, asymmetric information in the labor market, etc. For this reason, identifying the factors that explain differences in efficiency is essential for improving productive efficiency levels, although, economic theory does not fully supply a theoretical model of the determinants of efficiency. Finally, it becomes apparent that estimation of productive efficiency finds a wide range of applications through the stochastic frontier approach, providing not only accurate but also detailed analysis.

8. References

Abramovitz, M. (1986) 'Catching-up, foreign ahead and falling behind', *Journal of Economic History*, vol. 46.

Afriat, S. N. (1972), `Efficiency estimation of production functions', *International Economic .Review*, 13(3), 568 - 598.

Aigner, D. J. & Chu, S. F. (1968), `On estimating the industry production function', *American Economic Review*, 58(4), 826 - 839.

Aigner D.J., Lovell C.A.K., Schmidt P. (1977) Formulation and estimation of stochastic frontier production functions. *Journal of Econometrics* 6:21--37

Bagi, F.S. and C.J. Huang (1983) Estimating Production Technical Efficiency for Individual Farms in Tennessee, Canadian Journal of Agricultural Economics, 31, 249-256.

Banker, R.D. and Thrall R.M. (1992) Estimation of Returns to Scale Using Data Envelopment Analysis, *European Journal of Operational Research*, 62, pp. 74-84.

Barrow, M. H. (1991) Measuring local education authority performance: a frontier approach, *Economics of Education Review*, 10, pp. 19 - 27.

Bates, J. M. (1997) Measuring predetermined socioeconomic `inputs' when assessing the efficiency of educational outputs, *Applied Economics*, 29, pp. 85 - 93.

Battese, G.E. and G.S. Corra (1977) Estimation of a Production Frontier Model with Application to the Pastoral Zone of Eastern Australia. *Australian Journal of Agricultural Economics*, 21: 169-179.

Caves, D.W., Christensen L.R. and Diewert W.E. (1982a) The Economic Theory of Index Numbers and the Measurement of Input, Output and Productivity, *Econometrica*, 50, pp. 1393–1414.

Caves, D.W., Christensen L.R. and Diewert W.E. (1982b): 'Multilateral Comparisons of Output, Input, and Productivity Using Superlative Index Numbers', *The Economic Journal*, 92, pp.73-86.

Charnes, A., Cooper, W. W. & Rhodes, E. (1978) Measuring the efficiency of decision making units, *European Journal of Operational Research*, 2, pp. 429 - 444.

Coelli, T., Rao, D. S. P. & Battese, G. (1998) *An Introduction to Efficiency and Productivity Analysis* (Boston, MA, Kluwer).

Coelli, T.J., Rao, D.S.P., O'Donnell, C.J., Battese, G.E. (2005) *An Introduction to Efficiency and Productivity Analysis*, 2nd Edition, Springer

Cornwell, C., P. Schmidt and Sickles, R. C. (1990) Production frontiers with cross-sectional and time-series variation in efficiency levels. *Journal of Econometrics,* 46, 185 - 200.

Cubbin, J. & Zamani, H. (1996) A comparison of performance indicators for training and enterprise councils in the UK, *Annals of Public and Cooperative Economics*, 67, pp. 603 - 632.

Debreu, G. (1951) The coefficient of resource utilization, *Econometrica* 19(3), 273 - 292.

Deller, S. C. & Rudnicki, E. R. (1993) Production efficiency in elementary education: the case of Maine public schools, *Economics of Education Review*, 12, pp. 45 - 57.

Fare, R., Grosskopf, S. and Lovell, C. A. K. (1985) *The Measurement of Efficiency of Production*. Boston: Kluwer-Nijhoff.

Fare, R., Grosskopf, S. Norris, M. and Zhang, Z. (1994) Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries. *The American Economic Review*. 84 (1) 66-83.

Farrell, M. (1957). The Measurement of Productive Efficiency, *Journal of the Royal Statistical Society Series A (General)*, 120 (3), 253-281.

Forsund F.R., Lovell C.A.K., Schmidt P (1980) A survey of frontier production functions and their relationship to efficiency measurement. *Journal of Econometrics* 13:5-25

Fraser, I. and Hone P. (2001): 'Firm-Level Efficiency and Productivity Measurement Using Panel Data: Wool Production in South-West Victoria', *Australian Journal of Agricultural and Resource Economics*, 45(2), pp. 215-232.

Fried, H.; Lovell, C. and Schmidt, S. (eds.) (1993) *The Measurement of Productive Efficiency: Techniques and Applications*. New York: Oxford Univ. Press.

Galanopoulos, K., Aggelopoulos S., Kamenidou I. and Mattas K. (2005): 'Assessing the effects of managerial and production practices on the efficiency of commercial pig firming', *Agricultural Systems,* (accepted for publication).

Giannakas, K., Tran, K.C. and Tzouvelekas, V. (2003) 'Predicting technical effciency in stochastic production frontier models in the presence of misspecification: a Monte-Carlo analysis', *Applied Economics*, 35, 2: 153 – 161

Gong, B. H. and Sickles, R. C. (1992) Finite sample evidence on the performance of stochastic frontiers and data envelopment analysis using panel data. *Journal of*

Econometrics, 51, 84 - 258.

Greene W.H. (1993) The econometric approach to efficiency analysis. in: Fried HO, Lovell CAK, Schmidt SS (Eds) *The measurement of productive efficiency: Techniques and applications*. Oxford University Press New York 68-119

Greene, W. H. (1990) A GAMMA-Distributed Stochastic Frontier Model. *Journal of Econometrics.* 46 141-163.

Grosskopf, S. (1993): 'Efficiency and Productivity', In H.O. Fried, C.A.K. Lovell, and S.S. Schmidt (eds.), '*The Measurement of Productive Efficiency: Techniques and Applications'*, New York: Oxford University Press, pp. 160-194.

Hall, R. E. and Jones, C. I. (1999) Why do some countries produce so much more output per worker than others? *The Quarterly Journal of Economics*, 114: 1: 83-116.

Harris, R., O'Mahony, M., and Robinson, C. (2006) *Research on Scottish Productivity,* Scottish Executive Economic Research

Kalirajan, K. P. and Shand, R. T. (1992) Causality between technical and allocative efficiencies: an empirical testing. *Journal of Economic Studies*, 19, 3 - 17.

Krugman, P. (1991) Increasing Returns and Economic Geography. *Journal of Political Economy*. 99 (3) 483-99.

Kumbhakar, Subal C. (1991) Estimation of technical inefficiency in panel data models with firm- and time-specific effects. *Economics Letters.* 36 (1) 43-48.

Kumbhakar, S. C. and Lovell K. C.A. (2000) *Stochastic Frontier Analysis,* Cambridge University Press, Cambridge

Levitt, M.S. and Joyce, M.A.S. (1987) T*he Growth and Efficiency of Public Spending,* The National Institute of Economic and Social Research, Occasional Papers XLI, Cambridge University Press, Cambridge.

Knox Lovell, C.A. (1993) Production Frontiers and Productive Efficiency, in *The measurement of productive efficiency : Techniques and applications,* ed. Fried, H.O., Knox Lovell, C.A., Schmidt, S. S., Oxford University Press, 1993

McMillan, M. L. and Datta, A. (1998) The relative efficiencies of Canadian universities: a DEA perspective, *Canadian Public Policy,* 24(4), pp. 485–511.

Meeusen, W. and van Den Broeck,. J. (1977) Efficiency estimation from Cobb – Douglas Production Functions with Composed Error. *International Economic Review,* 18, 2: 435 – 444

Piesse, J. and Townsend, R. (1995) The measurement of productive efficiency in UK building societies. *Applied Financial Economics*, 5, 397-407

Pitt, M.M. and Lee, L.E. (1981) Measurement and Sources of Technical Inefficiency in the Indonesian Weaving Industry. *Journal of Development Economics.* 9 43-64.

Richmond, J. (1974) Estimating the efficiency of production, *International Economic Review* 15(2), 515 - 521.

Solow, R. (1957) Technical change and the aggregate production function, *Review of Economics and Statistics* 39: 312–320.

Waldman, D.M. (1984) Properties of technical efficiency estimators in the stochastic frontier model, *Journal of Econometrics*, 25, 353-364.

Worthington, A.C. (2001) An Empirical Survey of Frontier Efficiency Measurement Techniques in Education**,** *Education Economics, Vol. 9, No. 3.*

Zofio, J.L. and Lovell C.A.K. (2001) Graph Efficiency and Productivity Measures: An Application to US Agriculture, *Applied Economics,* 33, pp. 1433-1442.

The Frame of Education and effects of Growth in E.U through DEA method

Abstract:
The European Union invests considerably in education contributing to the growth of human resources. Education, training and lifelong training constitute one of the most important "levers" for the growth of competitiveness in a modern society. The Specialized and experienced workers can contribute immediately to the aid of competitiveness and to the more general economic and social growth.

The considerable role of educational process at all levels is not only just a simple truth that is continuously verified. It is a certainty in which Europe is progressively and continuously supported. It is a collective investment that a priority is connected unbreakably with various macroeconomic and micro-economic sizes of economy, the harmonious social growth of member states of the European Community and mainly the intellectual culture of people.

The EU has already began invest in the education and the continuing professional training, from the treaty of Maastricht and with starting line two "White Bibles". The first White Bible, in 1994, concerned growth, competitiveness and employment. The second Bible, in 1995, gave particular accent to education and training. In 1997, the European Union with the treaty of Amsterdam developed a coordinated strategy for employment and contributes to the creation of specialized human resources via the possibility of access in continuing education. With the beginning of a new millennium in Lisbon in March of 2000, said that education is one of the most important things in the European Union and became the most developed society of knowledge at world level. At the European Council in March 2003 it was there decided that should be investment specifically in human capital. Thus existence competitiveness, so as to achieve high rhythms of growth and employment for the establishment of an economy that would be based on knowledge (European Commission,2003).

Through the Council of Barcelona in March 2002 the "Agreement in detail Program of Work for 2010" was decided, that would include the timetable for the future objectives of systems in education and training.

Studying various sessions of the European Union we observe that the gravity and the qualitative accent that is observed for education, training and via life learning, are immediately interwoven with the individual parameters and repercussions that offer to the wider economy, social and cultural growth of member states in their aggregate.

This article aims to analyze the frame of education and training in the European Union and also it investigates and analyzes the repercussions from the growth and training of human recourses in the economic enlargement, competitiveness and social growth.

Keywords: Education; European Union; efficiency; Data Envelopment Analysis.

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1. Defining the Education

Every individual has the right of Education. Education enhances social relations by increasing knowledge and skills. The word "Education" determines every way of teaching that takes place in school organizations, even if the Education is been provided from the state or the private Entities. According to Kapsali and Papastamati (2000) every event that creates or transfer knowledge from the teacher to the student and develops the techniques and professional skills to humans, characterizes education

Education is a fundamental right of everybody. It enhances social and cultural growth contributing to the acquisition of knowledge and dexterities. Education covers all scientific areas and is an enacted form of teaching that is carried out in educational institutions both public and private.

The United Nations, report that education should aim at the complete growth of human personality and to aid the respect of human rights and fundamental freedoms. It should promote friendship between nations and should encourage the growth of activities of the United Nations in order to maintain peace (United Nations, 1948).

With regard to the definition that the World Bank gives for education, it reports that education is for all, elderly and youngsters, in order to acquire knowledge and be able to read and write. Their three pylons of strategy are: invest fast, invest intelligently and invest for all. This strategy that they applied correctly reflects the best idea for what it can work in education, emanating from their world consultations with governments, schoolteachers, students, parents and citizens in 100 European cities.

Education constitutes an activity which is biased toward future consumption and current investment. It has a future output that enhances and improves knowledge, creates opportunities for the individuals to offer their services in the private or public sector and generates economic benefits as well as utilities.

European Union is trying to support education by organizing different events because he understood how important education is to her nations. Furthermore, through his new event "Education and setting up 2020", European Union provides common goals to all her nations in order to create a Europe based on knowledge (European newspaper 2009).

Education is a basic product that distinguishes in some forms that characterizes a way of institutional implemented. These Forms are:

- Formal or official education. It is about the basic education that concerns private and public educational units from kindergarten all the way to the university. In order to be accepted in the university you have to succeed in the entrance exams.
- Informal education is the one that does not follow the rules that the Department of Education places when it comes to curricula, during the time of attendance and other different factors. This category includes school that are not included in the formal education, like educational centers.

It is also important to report that Mincer (1994) divides education in general and specific. General education is the education that people learn from school, on the other hand specific education is the one that you learn when you have job.

2. Social, Political and Economic part of education

All parts of education (social, economic, cultural and development) are important because they help the human to gain a correct personality. When it comes to the social part of education, it seeks the promotion of the human as a human being and as a part of society that consists with the recognition of the limitsof the rightsof the sameandthe rights of others. In the cultural part, education tries to teach, criticize and improve the culture of the past, while the economic statue prepares the human to join in the production

process (Diagram 1) (Psacharopoulos, 1999). In order for human kind to succeed and achieve in the development part, he has to specialize in the area that he is interested by ensuring basic knowledge. Through local development, the overall development will occur by contributing to the economy of the place.

We can characterize the education as a mediation effort where the man, by understanding his relation with the social reality, he becomes able to react by factoring or changing it. The educational mechanism isthe coupling of knowledge and practice in a given period.

3. Education and economic growth in the European Union

Education constitutes an integral and particularly important factor, which contributes to the economic growth of a country. Between education and the economy there exists a process of continuous adaptation and intense interdependence: changes in the operation of economy, as for example the industrial revolution, place in movement forces that radically alter the character of education and vice versa. New technologies that emanate from the education system and its development fundamentally affect economic relations.

In the report of Team of Work of European Committee, which was constituted on the subject "the application of education and training 2010", it was reported that the essential annual increase of investments in human resources, through education and training, is the key to the intensification of the place of Europe in the sector of economy and the aid of social cohesion in the 21st century. More concretely, it is marked that education, training and life learning play a vital role in the growth of economies and societies.

Investments in education have a long-term output, which are difficult to calculate. In most countries these investments are made by the public sector. However, public funds are limited and a particular accent is given to the increase of investments in education from the private sector. Moreover, private level, profits exist at an individual level with the significance of the quality of life, the rise in the standard of living and active social role (Papageorgiou and Xatzidima, 2003).

For evaluation purposes, the use of economic resources is given particular accent in terms of efficiency and ethics which are very important for the efficient management of the public budget and for the improvement of the quality and effectiveness of educational systems in the European Union (European Commission, 2004 v). Of first significance concern in education is the relation "surges – flows". Of second significance concern is the fact that currently, the schools in the educational system include students with individual characteristics that follow the same educational frame, capable to ensure equality and success for all. Of course, not taking into consideration the negative impact of external factors such as the family' s economic situation and the place of residence of students (Commission of the European Communities, 2005). A characteristic example, are the research results in schools of Secondary Education, where it is found that the school escape is smaller, when the available financial expenditures in education and training are bigger (Ruseas & Vretakou, 2006).

4. The education of human resources priority of European Union

The European Union with the finance that it provides in the educational and social policy shows that it recognizes to a very big degree the importance of education, training and continuing education for the individual, the society and the economy. This becomes practically perceptible, from the conditions, the programs and the policies of growth of human potential that applies in the European Union. The growth of programs of concrete action, that objective aims at the confrontation of problems of strategic importance, as the unemployment of young people and the achievement as the competitiveness of enterprises and the training of citizens for technological developments, certifying the shift of interest for the growth of the

personality of European citizens to objectives that are influenced more immediately by the economy.

From 1951, in its founding practice, it was already realized by the institutional frame practiced educational policy of European Union for the continuing education, the importance of professional training and reeducation. The high levels of unemployment, the appearance of new technologies and the globalized economy, that began to characterize the countries of the European Union from the decade of the 1980s, led to the necessity of continuing education. It started giving emphasis to in the improved forms of training and considered the continuing education condition for the social cohesion, the reduction of inequalities, the promotion of economic growth and the improvement of competitiveness, through the better exploitation of human potential and the manning of enterprises with a better trained personnel. Later, in the decade 1990s, accent was given to the upgrading of systems of education and training and the access of all citizens to them.

The European Union began therefore, to invest in education and continuing professional training, something that appears with the treaty of Maastricht based on the two white books that the European Committee has published. First White Bible, in 1994, concerned the growth, the competitiveness and the employment, and second, in 1995, education and training. Its European Year Via life of education and training, in 1996, stressed the importance of continuous education and the active attendance of all in this, for the improvement of competitiveness, the fight against of unemployment, and the attendance of citizens in the social life and the growth of innovation. The European Union with the treaty Amsterdam in 1997, strengthened and developed a coordinated strategy for employment that contribute to the creation of specialized human potential, with the offer in all of the possibility of access to continuing education. Later and with the beginning of new millennium in Lisbon in March 2000, it elected the continuing but also basic education, in order for the European Union to become the most developed society of knowledge in the world. Even if the main policy gave exclusive competence to the states-member to practice their own policies, at the same time it strengthened the coordinative role of the Union, while it also placed also the future objectives of systems of education and training up to 2010.

Entrepreneurship is a key competence in the European Framework, and an action in both the recent Rethinking Education Commission Communication. The role of entrepreneurship as an instrument to improve employability levels is also stressed in the Annual Growth Survey 2013. Young people should be encouraged to develop entrepreneurial skills through informal and non-formal education like volunteering. Such experiences should also be validated and recognized, in accordance with the proposed commission recommendation in this area.

Whether or not they go on to found businesses or social enterprises, young people who benefit from entrepreneurial learning, develop business knowledge and essential skills and attitudes including creativity, initiative, tenacity, teamwork, understanding of risk and a sense of responsibility. This is the entrepreneurial mind-set that helps entrepreneurs transform ideas into action and alsosignificantly increases employability.

Recently in the agenda of modernisation the European Union places certain objectives. Its first objective is that 40% of individuals of ages 30-34 should have a degree. At an individual level, the prospects of the employment of individuals will be improved. Europe needs a wider spectrum of most Institution of Higher Education in order for it to correspond with the needs of a bigger and more differentiated team of students and ensure that enough individuals with high qualifications exist and innovative ideas in each sector of economy and in society as a whole.

The countries of European Union collaborate more closely so that they ensure:

- the possibility at more students continuing and completing their studies in the maximum education
- that universities and other educational institutions should offer qualitative study that will be more attractive for the students and will correspond more with social and enterprising needs
- that by 2020, young citizens of Europe will have the occasion to do part of their study or their studies abroad

Finally education is a process which is always topical and diachronic and which is immediately related to the social, cultural and economic life of individuals. It is essential nowadays because it helps the social and human growth contribute thus in the acquisition of knowledge and skills. The European Union has an important role to carry out the promotion of education through a life-long training of individuals through various means and conditions.

The economic help that the European Union provides through its conditions, that concern education, gives an impulse to her countries members to invest more seriously in the education.

5. Higher Education Performance Evaluation using DEA: An overview

The growing public concern with performance and efficiency in the higher education sector is partly justified, on the one hand, by the massive expansion of a growing and an increasingly diverse population of students in higher education, and on the other hand, by the gradual process for greater independence from the Government budget – which has been hastened by the current economic challenges and the associated financial constraints, leading to additional pressures for a greater autonomy of High Education Institutions (HEIs).

Although for the majority of studies (using DEA), the data analyzed is cross-sectional, with each decision making unit (DMU) – in this case the country – being observed only once. Nevertheless, data on DMU's are often available over multiple time periods. In such cases, it is possible to perform DEA over time, where each DMU in each time period is treated as if it is an average data for the 1999-2007 period in order to evaluate long – term efficiency measures as education process is characterized by time lags in up to 37 EU (plus Croatia) and OECD countries. The program used for calculating the technical efficiencies is the DEA frontier software. The data are provided by Eurostat, OECD UNESCO and the World Bank's World Development Indicators database.

The specification of the outputs and inputs is a crucial first step in DEA, since the larger the number of outputs and inputs included in any DEA, the higher will be the expected proportion of efficient DMU's, and the greater will be the expected overall average efficiency (Chalos, 1997). Common measures of tracking output in education used in previous studies are based on graduation and/or completion rates (Johnes, 1996; Jafarov & Gunnarsson, 2008), PISA scores (Afonso & Aubyn, 2005; Jafarov & Gunnarsson, 2008) pupil-teacher ratio and enrolment rate (Jafarov & Gunnarsson, 2008).

Hence, similar to the former empirical literature, in this analysis the data set to evaluate education sector efficiency (at different levels) includes input data, i.e. (public) expenditure per student, tertiary (% of GDP per capita) or total expenditure on education (in % of GDP) and output/ outcome data, i.e. school enrolment, tertiary (% gross) teacher/pubic ratio, primary completion rate, total (% of relevant age group), unemployment with tertiary education (% of total unemployment), labor force with tertiary education (% of total) and PISA 2006 average score. There are up to thirty-seven countries included in the analysis (selected EU-plus Croatia and OECD countries). Different inputs and outputs/outcomes has been tested in four models (Table 1).

Table 1: Input and Output/outcome set for the DEA – Education Sector (at different levels)

Input and Output Plan with DEA

Model	Inputs	Outputs/Outcomes
1 (Primary)	Expenditure per student, primary (% of GDP per capita) [2]	• School enrolment, primary (% gross) • Pupil-teacher ratio in primary education [2] • Primary completion rate, total (% of relevant age group) [2]
2 (Secondary)	Public expenditure per pupil as a % of GDP per capita. Secondary. [1]	• PISA 2006 Average [3] • School enrolment, secondary (% gross) [2] • Pupil-teacher ratio. Secondary. [1]
3 (Tertiary)	Expenditure per student, tertiary (% of GDP per capita) [2]	• Unemployment with tertiary education (% of total unemployment) [2] • Labor force with tertiary education (% of total) [2] • School enrolment, tertiary (% gross) [2]
4 (Total)	Total expenditure on education, (in % of GDP) [2]	• PISA 2006 Average

Sources: 1 Unesco; 2 World-Bank; 3 OECD

6. Conclusion

The education is a process always topical and diachronic which is related immediately with social, cultural and economic life of persons. It is essential in the days because it helps in the social and human growth contributing thus in the acquisition of knowledge and dexterities. Important role in this it is called to carry out also the European Union promoting the education and the via life training of individuals through her various conditions.

The economic help that provides the European Union through her conditions, that concern the education, gives a impulse in her countries members they invest considerably in the education.

The Streen sees the process of growth through the progress and dimensions of production and incomes, conditions of production, level of life (diet, accommodation, health, and education), behavior and attitude as for the work, the institutions and the tactics that are followed. Thus we lead to the conclusion that the growth is a multidimensional process with total of aims, where the dimensions are social, political and cultural. Certain the growth as process we cannot say that it is synonymous with the economic growth as the last one appears to profit the persons with way unequal.

This paper contributes to the literature by suggesting DEA as a method by which efficiency in education can be measured and thus making it possible to compare efficiency achievements in education with quality standards. This practice will tend to stimulate the educational process, contributing to increasing the national standard of living and achieving high rates of social growth.

7. References

Afonso, A., Schuknecht, L., & Tanzi, V. (2008). Income distribution determinants and public spending efficiency. Working Paper Series 861, European Central Bank: Frankfurt

Banker, R., A. Charnes and W.W. Cooper (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis, Management science 30, 1078-1092.

Berg, S. (2010). *Water Utility Benchmarking: Measurement, Methodology, and Performance Incentives*. International Water Association.

Coelli, T.J. (1998). A multi-stage Methodology for the Solution of Orientated DEA Models. In: The Taipei International Conference of Efficiency and Productivity Growth, June 20-21,Taipei

Commission of the European Communities (2005). Progress towards the Lisbon Objectives in Education and Training: Making Best use of Resources. Progress Report

Cook, W.D., Tone, K., and Zhu, J. (2014). Data envelopment analysis: Prior to choosing a model, *OMEGA*,Vol. 44, p.p 1-4.

European Commission, Implementation of Education and Training 2010. Work Programme: Working Group E " Making the best use of resources": (2004) Progress Report

European Commission (2003). The success of the Lisbon Strategy Hinges on Urgent Reforms. Paper adopted jointly by the Council and the Commission.

Jafarov, E., & Gunnarsson, V. (2008). Government Spending on Health Care and Education in Croatia: Efficiency and Reform Options; Intemational Monetary Fund; IMF Working Paper; WP/08/136

Johnes, J. (1996). Performance assessment in Higher education in Britain. Eur. J. Oper. Res., 89 p.p 18-33

Ruseas P. and Vretaku B., (2006). The school Escape in the Secondary Education. Athens: Eptalofos

Sherman, D. and Zhu, J., (2006). Service Productivity Management. Athens: Springer

OECD (2010). Available from http://stats.oecd.org/

Unesco (2010). Available from http://www.uis.unesco.org/Education/Pages/default.aspx

United Nations (1948). Universal Declaration of Human Rights. It was published 12 November 2012. Available from http://visit.un.org/wcm/content/

World Bank (2010). Available fromhttp://data.worldbank.org/indicator/SE.XPD.PRIM.PC.ZS

Citizen's Participation and the Crisis of Representation in Europe. Models of Citizen Participation and the Quest for Local Democracy

Abstract:
Civil society encompasses social institutions such as churches, social movements, associations, public interest groups such as consumer associations which are considered as social partners. Civil society organisations include churches, NGOs, legal and political advocacy groups, social movements. One important dimension of civil society organisations is their political role. This is connected with direct participation of individual citizens and associations, participatory democracy and active citizenship. Additionally Social Movement organizations have become institutionalised and are increasingly connected to other parts of organized civil society. Civil society engages in several roles. The main ones are service delivery, advocacy, and activities in the public sphere. Here we will mainly focus on advocacy expressed by various systems of representation currently in place in many countries. Involvement is seen as linked to institutional performance and effective democracy, new forms of participation and the 'crisis of politics'. Civil society systems of participatory communication can help to address distrust in social and political institutions by: Improving the information base, Enhancing deliberation in a public sphere, Increasing political legitimacy through monitoring of political actors and events. In this paper we present various systems of representation in practice in the world such as: *Referendum/legal popular initiatives; Enquiries/opinion polls/surveys; E-democracy; cyber-democracy; interactive policy making; Roundtable/local dialogue/community planning/ Perspektivenwerkstatt/ Zukunfts-konferenz/planning for real, future search, hearings etc.; Consensus Conference/Planning Cell's/Citizens Juries/The Worlds' Café/Charette; The Citizen Panels/Planungszelle/Núcleos de Intervención Participativa.* The presented methods of local democracy present us with a real challenge, the challenge of application in the Greek topos.

Key words: Civil Society Representaion Methods, Local Participation Systems, Citizen's Juries

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1. Crisis of Representative Democracy – the Need of Citizen Participation

1.1Civil Society

Civil society is constituted by the set of individuals and linking institutions which connect the public sphere and the state. It encompasses social institutions such as churches, social movements such as environmental movements and public interest groups such as consumer associations. Civil society organisations include churches, NGOs, think-tanks, legal and political advocacy groups, social movements. One important dimension of civil society organisations is their political role. This is connected with direct participation of individual citizens and associations, participatory democracy and active citizenship. Additionally Social Movement organizations have become institutionalised and are increasingly connected to other parts of organized civil society.

Civil society engages in several roles. The main ones are service delivery, advocacy, and activities in the public sphere. Here we will mainly focus on advocacy expressed by various systems of representation currently in place in many countries.

Involvement is seen as linked to institutional performance and effective democracy, new forms of participation and the 'crisis of politics'. The potential importance of civil society expressed at different territorial levels is important here. The growth of associationism and institutionalization expressed by the phenomenon of socio-political movements are an accepted part of organized civil society.

Issues of democratic governance' advocate for a system of political, multicentric and changeable steering of all the partners.

Social and political institutions communicate with civil society in order to address :

- aggregate interests
- formulate efficient and accepted policies
- to monitor outcomes
- help with implementation
- to enrich decision making with new policy ideas and promote policy learning
- to stimulate forms of active citizenship
- as an alternative channel of representation
- for legitimacy reasons

As the field becomes increasingly organised and institutionalised the political system increasingly steers its modes of operation. In a democracy, conflict is an essential feature of effective decision-making, but it needs to be expressed and elaborated in a variety of fora, not just the agonistic fora of representative institutions and processes. Associations contribute to periodically redefine the political space in terms of the ideological conflicts that it processes.

Civil society systems of participatory communication can help to address distrust in social and political institutions by: Improving the information base, Enhancing deliberation in a public sphere, Increasing political legitimacy through monitoring of political actors and events.

Civil society is embedded in a welfare state which provides such goods as: Basic Income maintenance and welfare guarantees linked to job security as well as unemployment insurance and health coverage on a family basis. In providing these goods the state becomes an active part in a process of social regulation. Different types of state interventions enable and penalise different social groups – contribute to creating and redefining social stratification.To the extent that there is a crisis of the welfare state and increasing reliance on New Public Management (NPM) ideologies and organisational structures, civil society replaces the state in affecting social stratification. The state can establish different models of relations with civil society.

Currently representative democracy is in an acute crisis. The recent electoral events in France, the UK, Austria and Greece (the European as well as the general elections)

demonstrated an increasing tendency towards abstention and the strong appearance of radical right-wing parties as well as anti-system groups. The confidence in the political representatives and the political parties seems to be declining. In this situation it is getting more and more difficult to carry out reforms or to take political decisions with a certain social impact. The interests of powerful lobbies, but also the defence of acquired rights of certain groups of citizens, hinder the necessary changes. The policy no longer dares to handle certain subjects and, if it does, it becomes ineffective. This blockade of sometimes urgent and necessary decisions has as affect the transfer of the social impacts to the coming generations. But it is obvious that this condition has its consequences. The currently dramatic situation among youth in Greece (over 60% at present in 2014) is a case in point whereby the majority of the new generation is being excluded from work participation.

The great majority of us are considering democracy as the best formula of government but, on the other hand, there seems to be mistrust to our political representatives and their parties. While in all social, professional and cultural fields the changes in the last years have been drastic, in the present modern democracies seem to have remained behind the times. This current asymmetry between the technical environment and the political relations of governance creates serious discrepancies in our societies.

Bernard Manin states in "The principles of Representative Government" that what we today call 'representative democracy' has its origins in a system of institutions (established after the English, North-American and French revolutions) which – initially – was not considered as democratic or a government of citizens.... while at the end of the XVIIIth century a government organized following representative guiding principles was considered radically different to democracy, today we accept it as one of its performances[3]. The argument used against a more "democratic" system in the 18th and 19th century was that the normal citizens didn't have the time and the intellectual capacity to deliberate about complex political problems, which was at those times and taking in to account that more than 60% of the population were illiterates an adequate decision. But times have changed since than and these arguments are completely obsolete nowadays. So it seems that finally time has come to return to the essence of the concept of democracy, or to say it with Pierre Calame[4]: "*L'art de la gouvernance serait donc non pas l'art de faire fonctionner des procédures mais l'art de concevoir et de faire vivre des processus collectifs d'élaboration de réponses pertinentes aux défis de la société*.", and the ex- French minister Bernard Kouchner[5]: *"No important reform can be imposed without the direct participation of the citizens."*

What we need is therefore to recreate the citizen, to create and to offer settings in which the people of today, obsessed by their national and –over all- personal interests, defending their acquired rights, pass through an ethical-educational process which enables them to defend the interests of the common weal at a long term properly and which allows them to foment a genuinely European perspective. The mechanisms that would allow this transformation exist. The question is to apply them. Many political parties no longer fulfil this function and probably will never regain this capacity. Normally, the roll of the citizens is limited in these decision making processes to the one of mere spectators or, in any case, beneficiary or victim of the decisions legitimised by administrative procedures. But it is getting more and more obvious that if we want to take the political decisions which are necessary to guarantee a sustainable development, defending the common weal in the long term, this is only possible with and not against the citizens.

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[3] Bernard Manin: *The principles of Representative Government*, Syndicate of the Press of the University of Cambridge, England 1997, pages. 11 and 13

[4] Pierre Calame/André Talmant: *L'Ëtat au Coeur – Le Meccano de la gouvernace*, Desclée de Brouwer, Paris 1997, pag. 195

[5] El Mundo, July 3, 2002

There is a lack of structures and institutions which guarantee that the basic problems and issues, especially the long-term issues and topics of our societies, are present on the political agenda and are adequately discussed. In order to achieve this, we have to change the process of administrative decisions to make them more transparent and open for citizen participation. The administrative process of preparing and making decisions have to respond at the same time to growing social and technical complexity. In these complex situations, the need for a participatory decision-making process is often as - or more - important than the decision itself. In other words, the validity of a decision is often judged by the rationality and appropriateness of the decision-making process. Only public participation transforms decisions that are technically sound into those that are socially sound as well.

The problem of the structural irresponsibility of our representative democracies obliges us to take into account the long-term consequences of political decisions and to introduce new mechanisms of political control. This requires the involvement of the public. The uninterested citizen must have a way of assuming his role in forming political judgements in order to provide new possibilities of common-sense participation. Common-sense participation by citizens - not increasing the bureaucracy - can make politics more human and more humane. And – just to avoid misunderstandings- the participation of citizens in the decision making processes is not seen as an alternative to representative institutions but a complementary element which facilitates these processes, making them more transparent, giving them more legitimite, including more information and points of view, restoring the confidence of citizens into their institutions etc. So it is not surprising that political parties and other institutions are getting more and more interested in this mode of social dialogue. Some of the best and more comprehensive citizen-participatory systems of local representation have been elaborated by institutions which can hardly been considered "anti-system", as for example the World Bank, the Belgium Foundation Roi Baudouin and the German Ministry of the Interior[6]. The methodologies and mechanisms investigated and evaluated are not identical but the development of experiences during the last years can almost be described as an explosion and –astonishing enough – although we live in the era of internet and globalisation, many experiences (sometimes almost identical) have developed in a parallel manner in different countries and cultural contexts without knowing each other (for example: Planning Cell's, consensus conferences in Germany and the system of Citizen's Juries in the United States). Publications describing and evaluating participatory methodologies can be found in this note.[7] However one has to be carefull in order to address the local issues to be dealt with needs to identify the appropriate method fo participatory technology. The following must be observed:

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[6] The World Bank Participation Sourcebook: www.worldbank.org/wbi/sourcebook/sbhome
Roi Baudouin: Participatory Methods Toolkit: www.kbs-frb.be or www.viWTA.be or www.unu.cris.edu; German Ministry of the Interior: "Wegweiser Bürgergesellschaft": www.wegweiser-buergergesellschaft.de

[7] Framework for Public Participation in Commission for Environmental Cooperation 22 October 1999, www.cec.org.
Webler, Thomas. 1995: 'Right' Discourse in Citizen Participation: An Evaluative
Yardstick, in Renn/Webler/Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*, (Dordrecht: Kluwer Academic Publishers), 2000
Thomas C. Beierle: Public Participation in Environmental Decisions: An Evaluation Framework - Using Social Goals, Discussion Paper 99-06, November 1998, www.rff.org
Frewer/Rowe/Marsh/Reynolds: Public Participation Methods: Evolving and Operationalising an Evaluation Framework.Developing and testing a toolkit for evaluating the success of public participation exercises.www.vcn.bc.ca/citizens-handbook/ compareparticipation.pdf
Tickner/Ketelsen: Democracy and the Precautionary Principle www.sdearthtimes.com/et0501/et0501s5
Joan Font (coordinador): Ciudadanos y decisiones públicas, Ariel Ciencia Política, Barcelona 2001
Experiencies i propostes de participació ciutadana, in:Mª Angels Alió/Martí Olivella: Per viure bé nosaltres i les generacions que vindran, Giua per participar en l'aplicació de l'agenda 21 local, Barcelona 1999

- (1). A participatory-for-all principle must be considered at all times. The new mechanisms should not be designed just for special cases or "qualified persons" (experts and stakeholders). The citizenry at large deserves opportunities to take part in social decisions.
- (2). The process shall be deliberative. The participants should not debate on the (lacking) information they bring in but be widely informed about the pros and cons, different interests and options. To offer partial opportunities for participation in social decisions cannot mean having more and more people decide more and more often on more and more issues about which they do not know enough (for example; referendums). The mechanism has to make the necessary information available to the ordinary citizen to enable him to catch up with the information advantage held by the experts. To select, to understand and to apply this information requires time. People making public decisions as civil servants, planners, or judges usually have this time at their disposal. The ordinary citizen, however, is expected to use leisure time to obtain this information. New modes of participation should set the citizen free from the stress of his or her daily job and should grant him or her sufficient time to carry out this kind of social responsibility.
- (3). The participants should be motivated to take part. Many people obviously do not have the time, money, or interest to be present. The new mechanisms should encourage participating in working out solutions to public issues. One way to secure such participation is to guarantee the seriousness of the project. We need mechanisms that cannot be misconstrued as a simulation game or just another form of adult training for its own sake. Participants should be aware that their efforts are taken seriously and will not remain on paper but will be channelled into the decision-making processes. This is how their influence will be exercised.
- (4). The participants should support the common good. New ways of decision-making frequently serve as an invitation to relevant pressure groups to step in. While everybody takes care of its own interests first it is crucial for social decisions to find the generl mean. The structure of the desired mechanism should offer participants a chance to identify themselves with the perceived common good. By randomly distributing the right to take part in the decision process, one insures that all organised interests are excluded and included in the same way. By limiting this right to *one specific subject* and to a *short period of time*, individual interests, like pursuit of a career or re-election, can be curbed if not neutralised. In the same way the group that makes the decision is prevented from developing any organisational group interest. All this create a situation in which participants can support the common good. Taking into account these criteria we'll undertake a short presentation of the existing mechanisms of citizen participation in order to evaluate their appropriateness for our purposes here:

1.2 Referendum/legal popular initiatives

What a referendum is has not to be explained whereas legal popular initiatives are not common in all countries. It is an instrument which enables citizens to incite a referendum (Switzerland) or a parliamentary legislative procedure by collecting signatures of a determined number of citizens (Spain). In spite of the referendums about the Maastricht Treaty in Ireland, Denmark and France there are political parties and social movements which try to reinforce this mechanism for a more direct participation of the citizens[8].

The weak points of these methodologies are that most of the raised questions are too complex to respond just with a 'yes' or 'no' and therefore requires more information than the normal citizens have at their disposal. Another problem pertains to the fact that many legal initiatives are initiated often by powerful pressure groups and lobbies (as in the US and EU) which normally do not defend common interests. And last but not least in most of the referendums organized recently, participation was very low.

[8]for example: World Wide Direct Democracy

Characteristics of referendum/legal initiatives	
Requirements	**Fulfilment***
Technical information of the participants	--
Information of the participants in respect of affected persons and/or users	--
Motivation to take part	--/+
Integration of all social groups and classes	+
Immunity against the access of special interest groups	--
Immunity against the proper interest of the organisation	+
* The classification in (+) and (-) only represent tendencies	

1.3 Enquiries/opinion polls/surveys

This type of direct citizens particpation has become more important recently. No important political decision is being taken without considering the pulse of the citizens by surveys and enquiries. The problem of these methodologies is again the lack of information regarding the participating citizens. It is not at all a deliberative process in which they receive information and have the chance to engage in a dialogue with others.

Characteristics of Enquiries/opinion polls/surveys	
Requirements	**Fulfilment***
Technical information of the participants	--
Information of the participants in respect of affected persons and/or users	--
Motivation to take part	+
Integration of all social groups and classes	+
Immunity against the access of special interest groups	+
Immunity against the proper interest of the organisation	+
* The classification in (+) and (-) only represent tendencies	

1.4 E-democracy; cyber-democracy; interactive policy making[9]

These types of methodologies have come up during the last years with the diffusion of computerised technologies into more households while a stream of publications and technical software and hardware on this topic have been promoted as the solution to local democracy due to its high level of penetration to homesteads. But on the other hand they suffer the same deficiencies such as the lack of possibility of dialogue with other participants. The second

[9] Interactive Policy Making (IPM) is a project of the European Union: http://europa.eu.int/yourvoice/ipm/

point is that actually there is and will probably always be an important part of the population which has no access to it and these are those people who are usually marginalized in other mechanisms of participation as well. Another possible problem is the possibility to abuse this methodology by special interest groups.

Characteristics of e-democracy; cyber-democracy; interactive policy making

Requirements	Fulfilment*
Technical information of the participants	+/--
Information of the participants in respect of affected persons and/or users	+/--
Motivation to take part	+/--
Integration of all social groups and classes	--
Immunity against the access of special interest groups	--
Immunity against the proper interest of the organisation	+

* The classification in (+) and (-) only represent tendencies

2. Roundtable/local dialogue/community planning/ Perspektivenwerkstatt/ Zukunfts-konferenz/planning for real, future search, hearings etc.

Of course everyone of these methodologies is different and has its special characteristics and spheres of application. But for our purpose it seems to be legitimate to put them together because they have something in common: *the participants in these panels are not your average citizens*. They are either experts or stakeholders. These methodologies are quite successful.

Characteristics of Roundtable/local dialogue/community planning/ Perspektiven-werkstatt/ Zukunftskonferenz/planning for real, future search, hearings etc.[10]

Requirements	Fulfilment*
Technical information of the participants	+
Information of the participants in respect of affected persons and/or users	+/--
Motivation to take part	+
Integration of all social groups and classes	--
Immunity against the access of special interest groups	--
Immunity against the proper interest of the organisation	+/--

* The classification in (+) and (-) only represent tendencies

[10]more details about these methodologies can be consulted again in: www.wegweiser-buergergesellschaft.de

2.1 Open space/open house

Open house and open space[11] are events where the public is invited by the mass media to participate. Their principle "whoever comes are the right people and the right number" does not convince, especially dealing issues which touch the interest of important pressure groups. The main argument against these types of methodologies is again the lack of representativity.

Characteristics of open house/open space

Requirements	Fulfilment*
Technical information of the participants	+
Information of the participants in respect of affected persons and/or users	+
Motivation to take part	+
Integration of all social groups and classes	--
Immunity against the access of special interest groups	--
Immunity against the proper interest of the organisation	+

* The classification in (+) and (-) only represent tendencies

2.3 Consensus Conference/Planning Cell's/Citizens Juries/The Worlds' Café/Charette

These methodologies are means for obtaining informed citizen input into policy decisions. The juries/panels/cells/groups are composed of 12-25 randomly selected citizens, who are informed by several perspectives, often by experts referred to as 'witnesses'. The participants then go through a process of deliberation and subgroups are often formed to focus on different aspects of the issue. Finally, they decide and register their recommendations by producing a 'Citizen's Report'. The sponsoring body (e.g. government department, local authority) is required to respond to the report either by acting on it or by explaining its disagreement. This is a 3-5 day process in which the participants are intended to provide a means for more democratic decision-making.

The Charette and World Café methodologies developed in the U.S. The Citizens' Juries have two origins: one developed by Ned Crosby at the Jefferson Centre in Minneapolis, and the second, as an english version of the German Planungszelle (Planning Cell) which was developed by Prof. P. Dienel, University of Wuppertal, Germany, by the Institute for Public Policy Research (IPPR) in London[12]. Consensus Conferences and Planning Cells were

[11] see Open Space Technology: New Perspective for Organizing and Perceiving Change] - a description of Open Space and Self-Organizing Systems, by Linda Olson in: www.openspaceworld.org

[12] more details about them can be found in there corresponding web-sites:
http://home.att.net/~visualizer/Charrette.html
www.theworldcafe.com
www.jefferson-center.org
www.ippr.org.uk/publications/index.php?current=19 - 16k
www.planungszelle.de

initiated in Europe, the Consensus Conferences have been developed by the Danish Institute for Technology Assessment.

Differences between these systems pertain to questions of technical performance, starting with the way: a) participants are recruited, b) how time is distributed (the whole process in one block Planning Cells), during several weekends (Consensus Conference) or a longer ongoing process (Charette), c) the number of participants and/or d) more emphasis on the input of information or on time dedicated to deliberation between the participants etc. But as none of them is a fixed package, these items can change form one project to another, or subject to another, adjust in different countries or alter by the team working with them.

2.4 The Citizen Panels/Planungszelle/Núcleos de Intervención Participativa

For the purposes of this paper we will focus on the application of the participation model developed by P. Dienel of the University of Wuppertal and which has been applied with success to very diverse subjects in numerous projects on local, regional, national and international levels. The purpose of these "Citizen Panels" is simple and direct as it aims to the citizen from spectator into a participant. It is grounded on a genuine respect for the common man and permits a "government of the people, by the people and for the people".

The Citizen Panel operates as follows:

(1). In order to envision solutions to a problem (for example, locating a new industry, construction of a highway etc.) a legally supervised random selection is made. The resulting group reflects the population of a geographical district so that minorities are also included.

(2). Those selected are invited to prepare recommendations to solve a specific problem. For a limited time - from three to five days - participants are given leaves of absence from their employers or businesses. They receive compensation.

(3). Those *elected by lot* are made familiar with the problem for which a solution is sought by means of discussions, lectures and consultations. Information is provided so that all aspects of the issue are covered.

(4). The participants outline the steps to be undertaken *in small groups of five*.

(5). The limited life-span of each decision-making process prevents the creation of organized interests. The groups offer no career, no re-election and no advancement. The citizens are independent advisers and see themselves as such.

(6). According to all our experiences, the groups are full of well-formulated and realistic ideas, something that always surprises the specialists. The results are drawn up as "Citizens' Advisories" and presented to the agency that has asked for help. The identification of realistic plans has the advantage of avoiding legal disputes that otherwise could last a long time.

During the numerous experiences with this methodology in different countries it has been shown that participation promotes two values in a way as a side-effect which seems to be very important when facing the problems of the future:

- Sustainability: In contrast of other organisations (political parties, interest groups, social agents), citizens tend to defend the common, long term interest of their organisation becoming this way authentic agents for a sustainable development. Tomás Rodriguez Villasante (1996) speaks in this context of the necessity to create spaces of shared decision that raise a re-balance of powers, necessary for sustainability and the *integration of the perspective and interests of groups that historically have been completely marginalised socially and politically*. This in itself represents a common obstacle to sustainability. If we do not empower the poor, the handicapped, women, youth and ethnic minorities, that is to say, if *social integration* is not an explicit objective of these processes, we'll hardly be able to solve the problems we are confronted with.
- Social Cohesion: The most important advantage of this model is that the three involved interest groups (social agents, experts and normal citizens) contribute to the process of

decision making in a way that makes the most of their positive potential and simultaneously respects their legitimate rights. The citizens as potential victims and/or beneficiaries of planning measures are the best judges to evaluate the different options based on the information of diverging interests, worries, effects and consequences, facilitated by the representatives of interest groups, administration, organisations, groups of affected etc. and by neutral experts. The common work in the Citizen Panel integrates socially the different districts, social classes, age-groups... etc., and this way becomes a vehicle for the "*creation of community*", jeopardising the citizens in a common project of development of their municipality (or region, quarter, enterprise etc.).

The concern of the process is to come up with timely, concrete and socially acceptable solutions. The 'uninvolved' are precisely the ones who have an advantage over those directly concerned because they (political party people, lobbyists and special interest groups) usually have socially irrational solutions in mind.

2.6 Advantages of the Planning Cell methodology compared with others

Although the Planning Cell methodology is probably the oldest and more experienced (the first projects were realized at the end of the seventies in Germany) in the meantime there are lots of different mechanisms and experiences and in recent years some Universities started to evaluate and experience them in the context of studies on "innovation of democracy". It's not possible and necessary to present here the outcome of all these studies but they are very helpful to have a general view on the growing offer of methodologies and to develop criteria for their comparison and appropriateness which might differ depending on the issue to be dealt and other circumstances.[13]

The reason why we prefer to work with the Planning Cell methodology is mainly two criteria which are indispensable and which exclude most of the others.

- (1). Obviously we insist very much on the necessity of **deliberation** as an important criterion for a useful mechanism in public participation. That means that citizens should be widely informed about the pros and cons of the raised issue and have the possibility to debate among themselves. As said before it makes no sense that more and more people decide on more and more issues lacking the necessary information. And the issue of local participatory democracy in Europe is complex that citizens involved in a debate on this subject need more information than just everyday knowledge. Consequently this requirement disqualifies an important part of the existing mechanism in citizen participation such as: referendums, opinion polls, surveys and the so-called cyber-democracy that means the use of new technologies like the internet.
- (2). The second criteria in which we insist very much for the reasons specified above and which excludes automatically another important group of methodologies is the

[13] some of the evaluations of the different mechanisms are:
Framework for Public Participation in Commission for Environmental Cooperation 22 October 1999, www.cec.org
Webler, Thomas. 1995: 'Right' Discourse in Citizen Participation: An Evaluative
Yardstick, in Renn/Webler/Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*, (Dordrecht: Kluwer Academic Publishers), 2000
Thomas C. Beierle: Public Participation in Environmental Decisions: An Evaluation Framework - Using Social Goals, Discussion Paper 99-06, November 1998, www.rff.org
Frewer/Rowe/Marsh/Reynolds: Public Participation Methods: Evolving and Operationalising an Evaluation Framework.Developing and testing a toolkit for evaluating the success of public participation exercises.www.vcn.bc.ca/citizens-handbook/ compareparticipation.pdf
Tickner/Ketelsen: Democracy and the Precautionary Principle www.sdearthtimes.com/et0501/et0501s5
Joan Font (coordinador): Ciudadanos y decisiones públicas, Ariel Ciencia Política, Barcelona 2001
Experiencies i propostes de participació ciutadana, in:Mª Angels Alió/Martí Olivella: Per viure bé nosaltres i les generacions que vindran, Giua per participar en l'aplicació de l'agenda 21 local, Barcelona 1999

representativity of the selected citizens. If the participants are volunteers there is a high probability that –at least- part of them do not represent the common interest but special interest and pressure groups. This is especially probable if the issue to be dealt touches the interest of well organized pressure groups and lobbies which in our case is obviously the case.

This excludes again all forms of "cyber-democracy", which means the use of computers, webs and e-mail, because so far an important part of the population does not have access to it and although in the future the number of users will probably grow rapidly, an important part of the population will not use this medium, because they don't want to –especially elder people- or because they don't have access to, particularly due to economic reasons. That means this technology excludes again those who are always excluded.

The planning-cell methodology has been the pattern for other methodologies like consensus conferences, citizen juries, panels de citoyens and others[14], although there are slight but significant differences in there application. The decisive difference of the Consensus Conference is again the way participants are being selected. This is done by selecting a "representative" group of persons out of a sample of people who responded to announcements in newspapers, which is obviously an important filter which excludes important social groups.

The difference with Citizen Juries[15] are mainly two: a. whereas the Planning Cell works with several cells of 25 persons, normally no less than four, even in local projects, the Citizen Juries are normally limited to only one group of about 15 to 20 participants; and b. the Planning Cell works only if there is an assignment by a public concellor, whereas Citizen Juries select there topics independently (although in the English case there are also public assignments). The second criteria have been seen by some authors[16] as a disadvantage of the Planning Cell, because the issue is defined by the local authority which might lead to a bias in the input of information. But this can be seen just the other way: the public assignment guarantees the commitment of the administration to take the solution and proposals of the participating citizens into account because they assigned and financed the project. Not to do this is absolutely countrer productive.

The amount of participants is as well important. Although the about with one group might be the same than with several groups (which is normally the case) the legitimacy and the diffusion is not the same. Another point is that the participation of several groups permits the evaluation of the process and the information input by the first group (pilot group) and possible changes for the following ones, if necessary, and this way diminishes the danger of a "sponsor bias". The last advantage which makes the Planning Cell definitely the most feasible is that it is already known and experienced and several European countries and we are in contact with the institutions and persons which realized these projects, which makes it much easier to work with this mechanism than any other.

3. Conclusive Remarks: Crisis of Representative Democracy – the Need of Citizen Participation

In this quest for the participatory forms of local government we explored a number of methods for citizens participation which actually work in Europe and America and have

[14] This is especially clear in the case of the Citizen Juries in GB. The first publication John Stewart, Elizabeth Kendall and Anna Coote: Citizens' Juries, IPPR (Institute for Public Policy Research www.ippr.org.uk), London 1994 refers to the Planning Cell methodology created by Peter Dienel and the different experiences realized with it in different countries.

[15] Beside the English version there exists the US version, realized by the Jefferson Centre www.jefferson-center.org, amazingly comparable to the Planning Cell but developed completely independently.

[16] see for example Abelson/Forest/Eyles/Smith/Martin and Gauvin: Deliberations about Deliberation: Issues in the Design and Evaluation of Public Consultation Processes, Mc Master University centre for health Economics and policy Analysis Research Working Paper 01-04, June 2001.

spread to other countries of the world and present us with a challenge, the challenge of application of these in the Greek situation whereby local government needs to practice subsidiarity at all levels in order to enhance service provision and establish local democracy based on service delivery. The final presentation seems to be a challenging prospect for all community forces and democratic political parties but also local civil society agencies to engage on when they decide to tackle real issues associated with endogenoyw and local employment development in a transparent social economy.

4. References

Abelson/Forest/Eyles/Smith/Martin and Gauvin: Deliberations about Deliberation: Issues in the Design and Evaluation of Public Consultation Processes, McMaster University centre for health Economics and policy Analysis Research Working Paper 01-04, June 2001

Baker, G., (1998) Civil Society and Democratic Theory. Routledge, London

Beierle, T. C., : Public Participation in Environmental Decisions: An Evaluation Framework - Using Social Goals, Discussion Paper 99-06, November 1998, www.rff.org

Calame, P., & Talmant, A., : *L'Ëtat au Coeur – Le Meccano de la gouvernace*, Desclée de Brouwer, Paris 1997, pag. 195 El Mundo, July 3, 2002

Elliott, C. (Ed) Civil Society and Democracy: A Reader. New Delhi: Oxford University Press, 2003.

Font, J., (coordinador): Ciudadanos y decisiones públicas, Ariel Ciencia Política, Barcelona 2001

Experiencies i propostes de participació ciutadana, in:Mª Angels Alió/Martí Olivella: Per viure bé nosaltres i les generacions que vindran, Giua per participar en l'aplicació de l'agenda 21 local, Barcelona 1999

Frewer/Rowe/Marsh/Reynolds: Public Participation Methods: Evolving and Operationalising an Evaluation Framework.Developing and testing a toolkit for evaluating the success of public participation exercises.www.vcn.bc.ca/citizens-handbook/compareparticipation.pdf

Kaldor, M., (2003) Global Civil Society: an answer to war. Polity Press, London

Manin, B., : *The principles of Representative Government*, Syndicate of the Press of the University of Cambridge, England 1997, pages. 11 and 13

Olson, L., Open Space Technology: New Perspective for Organizing and Perceiving Change] - a description of Open Space and Self-Organizing Systems in: www.openspaceworld.org

Ruzza, C., (2007) Europe and Civil Society: Movement Coalitions and European Governance. Manchester University Press, Manchester

Stewart, J., Kendall, E., & Coote, A., : Citizens' Juries, IPPR (Institute for Public Policy Research www.ippr.org.uk), London 1994

Tickner/Ketelsen: Democracy and the Precautionary Principle www.sdearthtimes.com/et0501/et0501s5

The World Bank Participation Sourcebook: www.worldbank.org/wbi/sourcebook/sbhome

Yardstick, in Renn/Webler/Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse,* (Dordrecht: Kluwer Academic Publishers), 2000

Webler, T. 1995: 'Right' Discourse in Citizen Participation: An Evaluative

Yardstick, in Renn/Webler/Wiedemann, eds., *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse,* (Dordrecht: Kluwer Academic Publishers), 2000

More details about them can be found in there corresponding web-sites:
http://home.att.net/~visualizer/Charrette.html

www.theworldcafe.com
www.jefferson-center.org
www.ippr.org.uk/publications/index.php?current=19 - 16k
www.planungszelle.de
The World Bank Participation Sourcebook:
www.worldbank.org/wbi/sourcebook/sbhome
Roi Baudouin: Participatory Methods Toolkit: www.kbs-frb.be or www.viWTA.be or www.unu.cris.edu;
German Ministry of the Interior: "Wegweiser Bürgergesellschaft": www.wegweiser-buergergesellschaft.de
Framework for Public Participation in Commission for Environmental Cooperation
22 October 1999, www.cec.org
Interactive Policy Making (IPM) is a project of the European Union: http://europa.eu.int/yourvoice/ipm/
Newspaper
El Mundo, July 3, 2002

Photography and Sociology: Some Active Learning Approaches

Abstract:
This paper discusses practices sociology instructors can use in institutions of higher education in order to support and promote the use of photographs as a way of generating and imparting sociological insight: depictions of society, using sociological imagination about the social context of higher education, exploring dimensions of identity, rephotographing home album photographs, picturing the family, reading a personal photograph and two options of photo-elicitation interview, production option and analysis option.

Key words: Photography, Sociology, Active Learning Approaches

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1. Introduction

Visual sociology may be defined as the subfield of Sociology in which photography (and increasingly video and film) is used as a research tool to facilitate the gathering of data, or, alternatively, visual images may be used as data in their own right (Visual sociology 2017). Beyond verbal and written descriptions, images, as illustrated in graphics, photos and video material, open new ways for gaining knowledge. Since possibilities and frontiers of sociological research are determined and limited by methodology, the use of images constituting an innovative methodology provides new research perspectives (Porschen 2007)

Students learn to create sociological portraits, to study sociological landscapes, to do studies on socials traumas and to study signs and representations. Students utilize digital cameras and other recording technology to collect data. They use visual media to communicate sociological understanding to professional and public audiences. Visual sociology includes the study of all kinds of visual material and the visual social world and uses all kinds of visual material in its methodologies (Euell 2017).

This paper aims to support and promote the above goals by suggesting and discussing active learning techniques involving the use of photographs. The paper focuses on students attending sociology courses in institutions of higher education.

2. Active Learning Approaches

Depictions of society

Study sociological concepts through photographs. Each lesson should be depicted pictorially. Take five photographs for each lesson of the semester. For each photograph add a caption beneath it describing in sociological terms what is being captured in the photograph. Take the photographs as they are covered in class so you will have a clear idea of the concept and evenly spread out the workload over the semester. All photos must be taken by you. The captions must include a sociological description of the photograph (Wonser 2011).

Using sociological imagination about the social context of higher education

Choose one social force such as race, gender, ethnicity, social class, small groups, social stratification, power, privilege, prestige, conflict, etc. to be the subject for your photo essay.

Then select one or all of the following topics that expresses your subject: a) people in schools b) processes in schools, or c) places in schools. Analyze this topic[s] and the social force you selected via photographs of a school.

Select a college/university as the site for your photo essay.

Take a series of 15 photos that coherently tell a story about how the subject you are focusing on is expressed in your topic[s] at your chosen college/university.

Your photo essay should include copies of your 15 photos, a short commentary about each photo, and an interpretation of what you learned from this activity about how the social force you chose operates in universities (Using sociological imagination about the social context of higher education 2012)

Exploring dimensions of identity

1. Take 12 - 24 photographs which constitute an answer to the question, "Who am I?"
2. Explain in writing the photographic content of your self-concept.
3. The write-up should address four questions:

- What do your identities mean to you? (e.g., the content of your identities as conveyed by the photographs)
- How do you think other people see you? (e.g**.,** reflexivity of identities)
- What identities are the most and least important with regard to defining who you are? (e.g., **salience** of identities portrayed in the photographs).

- What are the implications that your identities have with regard to current or future work-family responsibilities? (Forsyth 2017).

Rephotographing home album photographs

There may be well-documented family albums which capture innumerable family events, with family, relatives and friends depicted in characteristic poses or even more candidly. Rephotograph the same people – or others who have come to assume their place – in analogous poses and in similar settings. If not much has changed, then photograph the usual people in the same settings. Then compare and contrast the photos you have taken with the original ones.

- What changes do you notice between the old and the new photos?
- What has changed in the subjects' relationships?
- What has changed in their settings?
- What has stayed the same?
- Are there any generalizations you can make from the evidence contained in these photographs?

Jon Rieger's work on rephotography is required reading for this assignment (Rieger 1996). Your essay should be adequately illustrated with images from your sample and should be five double-spaced pages in length (Grady 2004).

Picturing the family

Read Zussman's (2006) article "Picturing the Self". Zussman would argue that a family is neither an entity nor a thing but a story constructed through its own telling.

Select a photo album or a series of photographs of your family. Write a 5-page sociological analysis of the pictures using as a basis Zussman's work.

- What do the pictures say about who and what your family is or was?
- What pictures found their way into your album and why? What story or stories are the pictures telling (hint: go beyond the visually obvious)?
- What pictures are missing? Lost? Excluded? Stolen? Why may that be the case?
- What aspects of the story aren't entirely true?
- What messages are the pictures intended to convey to future generations of your family?
- How are social issues (e.g., race, class, gender) dealt with in the pictures, if at all? (Assignment Suggestions for Sociology of Family 2008; Anderson, 2010)

Reading a personal photograph

The length of this paper should be 800-1000 words. You should try to derive meaning from a single personal photograph, using the photograph itself and your own history and/or the history of your family. The original photograph or a copy of it should be one that is in your possession. The photo should be attached to your paper. Your paper can be a straightforward exposition or can take the form of creative writing.

The photograph you use may interest you because it says much about your family or yourself or because it remains a puzzle. You may start with a careful description of the photograph and its significant details as you see them.

Here are a few things to think about that may help you start your paper:

- Consider the photograph not simply as an image, but as a situation. Under what circumstances was it made? For what purpose? Has the photograph been displayed or shared by your family and how? Has photography played a part in your life and/or that of your family members? On what occasions has the camera been used to record events?
- Is the photograph a projection of the photographer's own needs and desires or that of the subject's? Are they different?

- Are there things that are expressed visually about yourself or your family in this photograph that resonate or fail to resonate with what has been expressed by words or actions? Does the photograph represent some truth that you understand about yourself or your family or does it represent a fiction? In what ways does it correspond or fail to correspond to your memory?
- Keep in mind that there are things that this photograph may be able to tell you that it could not tell others because of your personal knowledge of the people and events depicted in the photograph. Does the photograph serve to reveal or to hide these things? (Greenblat 2013)

Photo-elicitation interview

Option 1

Part A

1. Find a setting where you are permitted to photograph and do some interviewing, about some aspect of race, nationality, or gender/sexuality of interest to you.
2. Try to include many different dimensions of the situation. You may need to visit the setting more than once, perhaps at different times of day or the week. Take 35-70 photographs.
3. Select a set of 6-10 photographs to use as the basis of a photo-elicitation interview.

Part B

4. With the photographs and a tape recorder, revisit your subjects and interview them for the contents of the photographs and the photo-elicitation theme you wish to explore. Use the guidelines in Collier and Collier (1986). Plan an in-depth interview where your subject will become your "guide" about themselves and their social/cultural world.
5. Write a 2-3 page summary of the interview as well as what you learned from it. Include the photographs you used. They should be numbered, and your summary should refer to them by number when appropriate (Greenblat 2013a).

Option 2

Part A

Instead of taking the photographs yourself, carefully construct a set of 6-10 photographs that deal with one of the topics (race, nationality, or gender/sexuality).

Find someone who should have some reason to respond to these photos, i.e. someone who will find the photos personally meaningful.

Part B

Follow the general outline in step 4 above, interviewing the person about their response to the photographs. Your work for this option should be 4-5 pages in length. Except a summary of the interview (as in step 5 above) you also need to write a description of the process and criteria you used for selecting the photographs you used (Greenblat 2013a).

3. Some observations

Photo-essays may not be seen as a departure from or as something extra to what you are already doing in your classroom. Rather, they may be seen as another approach to meet your stated goals. Photography, and the photo-essay, can be a means of introducing some variety in your teaching (Stokes et al. 2017).

Levy and Solda (2008) present the benefits of visual research methods this way: Visual research methods may be valuable tools to create a more active, more participatory research process and eventually yield a more elaborate research result. Visual inquiry adds a new, sensory dimension or "unique knowledge to sociology" (Harper 1988). Including people's visual experiences, the search for "visual meaning", and considerations of different

ways of representation may enrich sociological inquiry and enhance our understanding of social relations and social phenomena (Rose 2007; Becker 1974). Participatory visual methods are considered "promising" as they confront "a seminal issue in sociology of getting at the point of view of the subject – Weber's concept of verstehen – in a novel and effective way." (Harper 1988)

Both visual and textual cues are useful in helping students understand and appreciate how private experiences (depicted in the photos) are related to broader cultural and social forces.

When students use their own photos as "data", they step outside their intimate, personal space and examine how their lives have been shaped by social forces. By looking at familiar photographs in sociological terms, students can begin to understand how demographic, racial, economic, and religious influences, among others, have shaped their lives (Grauerholz 2017). Of course, they can also take their own photographs, use photographs from their own photo albums or use photographs taken by others.

Involvement with the learning strategies presented in this paper requires more serious preparation and more effort by both teachers and students.

In addition, involvement with the learning strategies presented above encourages life-long learning and may lead students to get more satisfaction from their studies as well as improve their critical and problem-solving skills.

4. Conclusions

This paper discussed practices sociology instructors can use in institutions of higher education in order to support and promote the use of photographs as a way of generating and imparting sociological insight: depictions of society, using sociological imagination about the social context of higher education, exploring dimensions of identity, rephotographing home album photographs, picturing the family, reading a personal photograph and two options of photo-elicitation interview, production option and analysis option.

Photography can be a means of introducing some variety into the teaching of sociology. It can also be a means of helping students to gain skills which will be applicable in their lives outside of school.

5. References

Anderson, G. Sociology 320 Fall 2010. Vancouver Island University. https://www2.viu.ca/oupa/ProgramReview/SOCI/Appendix%20E.pdf (Last Accessed 2 November 2017).

Assignment Suggestions for Sociology of Family, Unknown author, 2008.

Becker, H. "Photography and Sociology", Studies in the Anthropology of Visual Communication, Vol. 1, No. 1, 1974, pp. 3-26.

Collier J. and Collier M. **Visual Anthropology: Photography as a Research Method** (revisedand expanded). Albuquerque, University of New Mexico Press, 1986.

Euell, J. Soci 222 Visual Sociology, 2017. https://www.google.gr/search?source=hp&q=Julian+Euell+2017+Soci+222+Visual+Sociology&oq=Julian+Euell+2017+Soci+222+Visual+Sociology&gs_l=psy-ab.12...4468.4468.0.9820.3.2.0.0.0.0.711.985.2-1j6-1.2.0....0...1..64.psy-ab..1.1.711.6..35i39k1.12xFu-Gk60o (Last Accessed 28 August 2017).

Forsyth, D. Identity Photographs, A Suggested Work and Family Class Activity, 2017. https://workfamily.sas.upenn.edu/archive/activities/identity-photographs-suggested-work-and-family-class-activity (Last Accessed 5 September 2017).

Grady, J. Visual Sociology. Sociology 282A. Course assignments. Elective Assignment #8: Rephotographing home album photographs. Wheaton College. Massachusetts, 2004.

Grauerholz, L. Getting Started: Note to Instructors, Purdue University, 2017.

Greenblat, C. Reading a personal photograph, 2013. http://dwp.bigplanet.com/alivewithalzheimers/visualsocprojects/ (Last Accessed 12 June 2013).

Greenblat, C. Photo-elicitation interview, 2013a. http://dwp.bigplanet.com/alivewithalzheimers/visualsocprojects/ (Last Accessed 12 June 2013).

Harper, D. "Visual Sociology: Expanding sociological vision", The American Sociologist, Vol. 19, No. 1, 1988, pp. 54-70.

Levy, A. and Solda, M. "New ways of seeing: Visual Sociology and Gender Studies", European Feminist Research Conference, Utrecht, June 2009. https://www.google.gr/search?q=levy+what+is+visual+sociology%3F&oq=levy+what+is+visual+sociology%3F&gs_l=psy-ab.12..35i39k1.6060.7259.0.9273.5.5.0.0.0.0.1641.1641.8-1.1.0.dummy_maps_web_fallback...0...1.1.64.psy-ab..4.1.1639....0.xg5zCwELpiA (Last Accessed 5 September 2017).

Porschen, S. "Visual Sociology for Research and Concept Development. Graphic and film material – additional ways for gaining knowledge", Conference of the International Visual Sociology Association (IVSA), New York, August 2007.

Rieger, J.H. "Photographing social change", Visual Sociology, Vol. 11, No. 1, 1996, pp. 5-49.

Rose, G. Visual Methodologies. 2nd ed. Thousand Oaks, CA: Sage, 2007.

Using sociological imagination about the social context of higher education, 2012. http://webcache.googleusercontent.com/search?q=cache:SEFh2yxgKXMJ:http://sociology.uncc.edu/people/rmickelson/PPOL8000.doc%2Bphoto%2Bessay%2Bassignment%2Bsociology%2Bcourse%2Boutline&hl=el&rlz=1G1TSEH_ELGR481&gs_nf=1&gs_l=serp.12...8075.30480.0.31903.55.51.1.15.0.2.803.7646.2-8j8j2j1j2.21.0.R5cY9EKdiJI&ct=clnk (Last Accessed 25 April 2012).

Visual sociology. A Dictionary of Sociology. Encyclopedia.com. 2017. http://www.encyclopedia.com/social-sciences/dictionaries-thesauruses-pictures-and-press-releases/visual-sociology (Last Accessed 24 August 2017).

Stokes, S., Lobe, B. and Katenkamp, S. Photo-Essays, The Elementary Science Integration Projects (ESIP), 2017. http://www.esiponline.org/classroom/foundations/writing/photoessays.html (Last Accessed 29 Aug 2017)

Wonser, R. Spring 2011 Intro to Sociology. https://www.scribd.com/document/329589869/hello-docx (Last Accessed 22 August 2017).

Zussman, R. "Picturing the Self: My Mother's Family Photo Albums", Contexts, Vol. 5, No. 4, 2006, pp. 28-34. ·

The impact of tourism on the development of the city of Edessa: The views of the citizens

Abstract:
Cities located close to water (rivers and lakes) enjoy a comparative advantage because the existence of water makes the area more beautiful and because it contributes to the development of various activities such as tourism. One such case is the city of Edessa which, because of its waterfalls, is every year visited by a relatively large number of tourists. If together with river tourism other sights of the area had been promoted, then, the development of tourist activity in the area would have been greater. This paper deals with the view of the citizens with regard to the development of their city as a tourist destination. The citizens realize that tourism has a positive impact on the environment and affects neither positively nor negatively their life, that is "traditional hospitality and the urban environment. Waterfalls - channels and urban green - city parks, which constitute its comparative advantage, are assessed as very good to good, while the lowest assessment is attributed to the possibilities of movement within the city. The citizens think that their municipality satisfies more the tourists who are inerested on the natural environment and less the tourists who are interested on the historical and cultural aspects of the city. The existence of the skiing center Voras-Kaimaksalan also contributes to the development of the city. The citizens think that the promotion of their city as a tourist destination via the means of mass communication and the internet is done very badly.

Key words: waterfalls, river tourism, development

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1. Introduction

Lakes and rivers which are near cities give these cities important advantages. This is particularly true for people who live close to water since the water improves their lives greatly (Tampakis et al. 2013). The existence of water upgrades both the aesthetics of the landscape as well as recreation (Lansford and Jones 1995; Klessig 2001; Vesterinen et al. 2010). Therefore, lakes and rivers can both contribute to the development of tourism in cities close to them (Duzgunes et al. 2017).

Tourism is an exceptionally significant sector in regional development and effective use of resources. Nature tourism in general, refers to trips made to the natural environment. It includes all forms of tourism related to the use of natural resources such as scene integrity, topography, water, vegetation and wildlife (Shieh 2014).

Nature-oriented tourism was proposed at the beginning of 20th century; after the re-consideration of recreation and natural ecological conservation in the following years, ecotourism emphasized micro-tourism, different from mass tourism, focusing on local development with the activities based on local resources, economy characteristics, and life (Kurt et al. 2016).

Today, nature tourism is diversified, socio-economic and cultural conditions vary as a result of the parallel rise in living standards. These are referred to as sports tourism, mountain tourism, ecotourism, health tourism, conference tourism, nature tourism, cultural tourism and river tourism (Kushi 2011).

Tourism is not useful only to tourists (Doswel 2002). It is also the biggest global "industry" with regard to jobs, a fact which shows the importance of tourism for development at local, regional, national and international level (Kokkossis and Tsartas 2001).

Shortly after the end of World War II, the considerable increase in tourist flows to Greece as well as to other countries, created the necessary conditions for tourism to become a major factor of economic and regional development (Briassoulis 1993; Arabatzis and Polyzos 2008).

River tourism does not require big investments and constitutes a whole together with environmental, historical, archaeological, cultural, authentic values and other types of tourism (Polat et al. 2016). Tourists mostly visit Edessa for its rivers and waterfalls. Historical and other places of natural beauty are much less known.

The aim of this paper is the investigation of the views of citizens with regard to the tourist product in the city of Edessa. In particular, the evaluation of tourist infrastructure, the promotion of the city via the means of mass communication and the internet, the efforts of the local authorities with regard to promoting their city and the linking of the city with other tourist destinations.

2. Method of research

For the investigation of the attitudes of the residents of the city of Edessa simple random sampling was applied. This choice was made on the basis of the simplicity of this method and the fact that this technique, when compared to other methods, requires the least possible knowledge with regard to the population under study (Matis 1992; Damianos 1999; Kalamatianou 2000). The "population" under study was the total of the adult residents of the city. The estimation of the proportion of the population and the estimation of the standard error of the proportion of the population s_p are given by the formulas of simple random sampling.

In order to calculate the size of the sample we needed to carry out pre-sampling, with the size of the sample being 50 individuals. The size of the sample for each variable was estimated on the basis of the formulas of simple random sampling (for probability (1-a) = 95%, e = 0.05 and without the correction of finite population since n is small in relation to the

size of the population N) (Freese 1984; Matis 1988; Pagano and Gauvreau 1996; Kalamatianou 2000). This way it becomes possible to estimate the most changing variable with the desired precision while the rest of the variables can be estimated with greater precision from what was originally determined (Matis 1992). In this case the size of the sample was calculated to 400 individuals.

The total of questions on tourist infrastructure constitutes a multi-theme variable on which reliability can be tested (reliability analysis). To estimate the reliability of any measurement process means defining the degree of variance with regard to the ranking given by the individuals asked. In particular, we mean the degree which is due to real differences (and standard errors) and the degree which is due to inconsistencies of measurement (Siardos 1999; Philias et al. 2000).

In particular, in order to find the internal reliability of a questionnaire we use the alpha co-efficient (or the reliability co-efficient α-Cronbach), that is we try to find if the data have the tendency to measure the same thing (Howitt and Gramer 2003). When the alpha coefficient is 0.70 or bigger it is regarded as satisfactory (Howitt and Gramer 2003), and when it is bigger than 0.80 it is regarded as very satisfactory. In practice, smaller alpha co-efficients, with values not smaller than 0.60 may also be accepted (Siardos 1999).

The testing must be reliable in order to be useful. However, it is not enough to be reliable, it must also be credible and this can be done through the application of factor analysis (Siardos 1999).

Factor analysis is a statistical method that aims to find the common factors within a group of variables (Sharma 1996). It tries to interpret structure rather than the variability (Djoufras and Karlis 2001). Its goal is to reproduce the correlations between the variables to the highest degree, by using the smallest possible number of factors and thus lead to a solution which is "unique" and can easily be interpreted (Siardos 1999).

More specifically, the principal components method was used, which is based on a spectral analysis of the variance table (correlation) (Djoufras and Karlis 2001). The criterion used for the significance of the principal components is the one proposed by Guttman and Kaiser (Cattell 1978; Frangos 2004), according to which, the limit for receiving the appropriate number of principal components is determined by the values of the typical roots which are equal or bigger than one. We also resorted to the rotation of the principal components matrix by using the maximum variance rotation method by Kaiser (Harman 1976).

Finally, we are interested in finding if there are some factors which can explain the correlations between the variables of our data and attempt to provide an interpretation (if possible) (Djoufras and Karlis 2001). According to Frangos (2004), the variables that "belong" to each factor are those whose loading, on the table indicating the loadings of the factors after rotation, is over 0.5 for that factor.

The data were analysed through the statistical package SPPS.

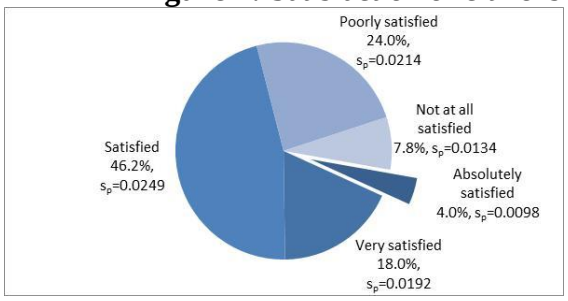
3. Results

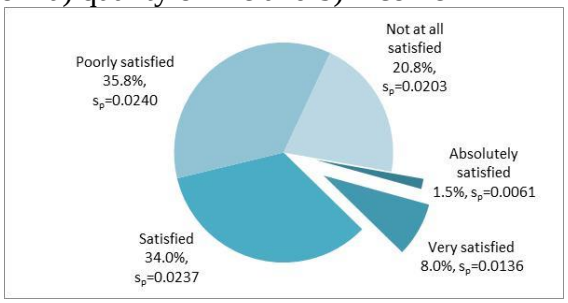
The citizens of the city of Edessa declare satisfied (46.2%) from the quality of their life (Figure 1a) and, respectively, poorly satisfied (35.8%) and satisfied (34%) from their income (Figure 1b). As in the entire country, so in Edessa, too, economic conditions are difficult and as a result the citizens think that their area does not provide to young people (75.2%, s_p=0.0224) what is necessary in order to remain in the area. A lower percentage of citizens (16%, s_p=0.0183) think that their city does provide the pre-requisites in order to keep young people in the area. 8.8% (s_p=0.0141) of the citizens did not answer the question.

Edessa is known as the city of water and for this reason attracts visitors who go there to see its waterfalls (Photograph 1). The impact of tourism on the life of citizens, that is "on traditional hospitality" and the urban environment can be characterized as neutral with the

exception of the natural environment for which tourism has a positive impact (Table 1). However, it should be mentioned that with regard to the all impacts of tourism citizens have positive rather than negative views.

Figure 1: Satisfaction of citizens from a) quality of life and b) income

a 

b 

Photograph 1: The big waterfalls of Edessa.

Table 1: Impact of tourist development.

		Positive	Quite positive	Neutral	Quite negative	Negative	No answer
Life of citizens	%	9.8%	27.2%	54.0%	4.5%	4.5%	
	s_p	0.0148	0.0223	0.0249	0.0104	0.0104	
Traditional hospitality	%	10.0%	31.0%	52.0%	3.8%	3.2%	
	s_p	0.0150	0.0231	0.0250	0.0095	0.0089	
Natural environment	%	18.5%	32.2%	38.2%	7.5%	3.2%	0.2%
	s_p	0.0194	0.0234	0.0243	0.0132	0.0089	0.01025
Urban environment	%	8.8%	29.0%	48.8%	7.8%	5.8%	
	s_p	0.0141	0.0227	0.0250	0.0134	0.0116	

The evaluation by citizens of tourist infrastructure shows that parking areas receive the lowest mark foolowed by the road network and urban transport (Table 2). The rest of the infrastructure as moderate and good. The best position is occupied by the waterfalls - channels and urban green - parks of the city (Photograph 2).

Table 2: Evaluation of the tourist infrastructure of the city of Edessa

		Very good	Good	Moderate	Bad	Very bad	No answer
Pedestrianisation	%	12.2%	39.0%	25.8%	15.8%	7.2%	
	s_p	0.0164	0.0244	0.0219	0.0182	0.0130	
Road network	%	1.0%	18.8%	37.8%	28.8%	13.8%	
	s_p	0.0050	0.0195	0.0242	0.0226	0.0172	
Sewage network	%	6.0%	42.5%	39.0%	8.2%	4.2%	
	s_p	0.0119	0.0247	0.0244	0.0138	0.0101	
Waste collection	%	4.8%	40.0%	37.5%	12.8%	5.0%	
	s_p	0.0106	0.0245	0.0242	0.0167	0.0109	
Water supply	%	11.2%	49.8%	29.0%	6.5%	3.5%	
	s_p	0.0158	0.0250	0.0227	0.0123	0.0092	
Urban transport	%	0.8%	13.0%	39.2%	28.2%	18.8%	
	s_p	0.0043	0.0168	0.0244	0.0225	0.0195	
Transportation with regard to other cities	%	5.0%	39.2%	36.5%	15.2%	4.0%	
	s_p	0.0109	0.0244	0.0241	0.0180	0.0098	
Parking areas	%	0.2%	3.5%	22.0%	37.2%	37.0%	
	s_p	0.0025	0.0092	0.0207	0.0242	0.0241	
Waterfalls and channels	%	30.0%	43.8%	20.0%	4.2%	2.0%	
	s_p	0.0229	0.0248	0.0200	0.0101	0.0070	
Urban green - parks	%	32.0%	44.0%	17.8%	4.2%	2.0%	
	s_p	0.0233	0.0248	0.0191	0.0101	0.0070	
The old city	%	10.8%	35.2%	31.0%	16.0%	7.0%	
	s_p	0.0155	0.0239	0.0231	0.0183	0.0128	
Hotel facilities	%	6.2%	31.5%	48.0%	10.5%	3.8%	
	s_p	0.0121	0.0232	0.0250	0.0153	0.0095	
Establishments serving food	%	18.8%	45.5%	28.8%	5.2%	1.5%	0.2%
	s_p	0.0195	0.0249	0.0226	0.0112	0.0061	0.0025
Entertainment areas	%	10.2%	32,2%	37.5%	13.2%	6.8%	
	s_p	0.0152	0.0234	0.0242	0.0170	0.0125	

We applied reliability analysis to the above variables after completing all the necessary checks. The value of the reliability coefficient alpha is 0.866. This constitutes a strong indication that our data has the tendency to measure the same thing. In fact, this is also supported by the significantly high partial reliability coefficients alpha after the deletion of any variable, since even then no increase of the reliability coefficient is observed. Also before proceeding with the application of factor analysis, we conducted all the necessary checks. The value of the Keiser-Meyer-Olkin indicator is 0.863. Furthermore, Bartlett's test of sphericity rejects the null hypothesis that the correction table is unitary and that the partial correlation coefficients are low. The fact that the measures of sampling adequacy have high to very high values also supports the view that the factor analysis model is acceptable. The factors extracted are four. Table 3 reveals the loads that are the partial correlation factors of the fourteen variables with each of the four factors resulting from the analysis. The higher the load of a variable in a factor, the more this factor is responsible for the total degree fluctuation of the considered variable.

Photograph 2: Pedestrian walkway next to a channel. The bench is placed in the wrong place so those who use it cannot sea the water and the riverside vegetation.

Πίνακας 3: Table with factor burdens after rotation.

Variable	Factor loadings			
	1	2	3	4
Pedestrianization	**0.651**	0.404	0.124	0.034
Road network	**0.557**	0.371	0.147	0.206
Sewage network	0.242	**0.812**	0.088	0.064
Waste collection	0.148	**0.770**	0.204	0.119
Water supply	0.145	**0.774**	0.077	0.165
Urban transport	0.120	0.235	0.071	**0.777**
Transportation with regard to other cities	-0.073	0.316	0.388	**0.593**
Parking areas	0.312	-0.045	0.128	**0.709**
Waterfalls and channels	**0.671**	0.243	0.321	0.043
Urban green - parks	**0.656**	0.200	0.399	0.032
The old city	**0.750**	-0.061	0.083	0.307
Hotel facilities	0.164	0.125	**0.616**	0.180
Establishments serving food	0.194	0.150	**0.821**	0.072
Entertainment areas	0.235	0.053	**0.796**	0.129

The first factor includes the variables “pedestrianization”, “road network”, “waterfalls and channels”, “urban green - parks” and “the old city” and can be titled “tourist facilities linked with the comparative advantage of the municipality of Edessa”.

The second factor includes the variables “sewage network”, “waste collection” and “water supply” and can be titled “tourist facilities linked with every municipality”. Indeed, the variable “pedestrianization” has a high value (0.404) and constitutes a bridge between the first and the second factor.

The third factor can be named “tourist facilities which depend on private initiative” and includes the variables “hotel facilities”, “establishements serving food” and “entertainment areas”. The above variables constitute the most important part regarding provision of tourist services as well as places of communication among locals and visitors.

The fourth factor can be titled “transportation possibilities” and includes the variables “urban transportation”, “transportation with regard to other cities” and “parking areas”.

In a similar research which was conducted on the island of Skiathos the citizens classify the types of tourist infrastructure on the basis of whom they consider responsible for their proper development and improvement. In addition, it seems that in their assessment they do not take into account only the issue of tourism but also how tourism affects the quality of their life throughout the year (Tampakis et al. 2012).

The city of Edessa enjoys the unique privilege at global level that its waterfalls are located in the center of the city. This also constitutes the comparative advantage of the city. Visitors have a natural desire to reach the water's edge and to walk round the river shore (Lucas 1991). The citizens of the city generally declare satisfied from the actions of their municipality with regard to the promotion of the city. However, they declare more satisfied with regard to the promotion of the natural environment and less with the promotion of historical and cultural aspects of the city (Table 4). In parallel, the element of water (waterfalls, bridges, channels), which are closer to the natural environment, is evaluated more positively than the park of the waterfalls (water museum, water mills) which are closer to the cultural environment.

The citizens also think that the construction of pedestrian walkways and other recreation facilities with a view (photograph 3) contribute to the promotion of the natural beauty of the city very much (34.8%, s_p=0.0238) and much (33.5%, s_p=0.0236).

With regard to the promotion of their city via the means of mass communication as a tourist destination the citizens declare that they are poorly satisfied (48%) and not at all satisfied (32.2%) (Figure 2a). However, the promotion of the city via the internet is better as 30.2% of the citizens declare satisfied and 44% poorly satisfied (Figure 2b).

Photograph 3: Pedestrian walkways.

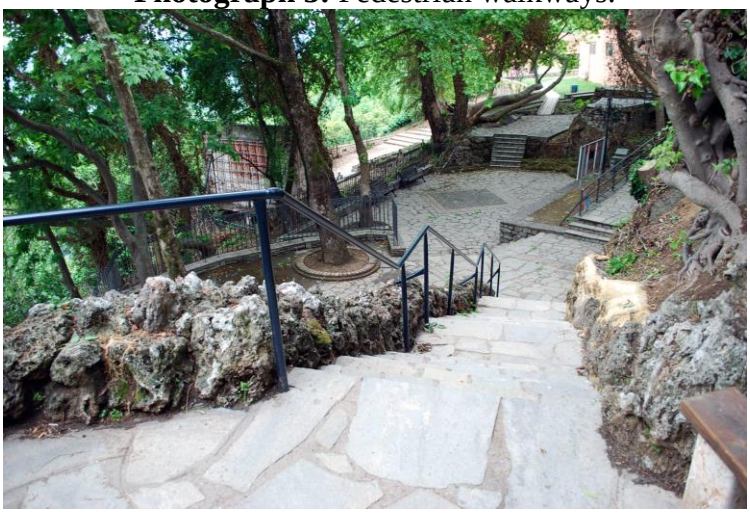
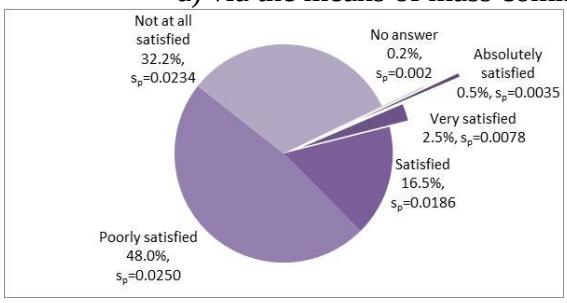


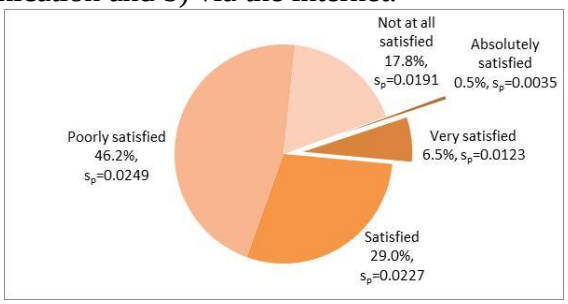
Table 4: Actions of the municipality with regard to the promotion of aspects of the city

		Absolutely satisfied	Very satisfied	Satisfied	Poorly satisfied	Not at all satisfied
Historical and cultural aspects	%	0.2%	3.0%	31.5%	43.2%	22.0%
	s_p	0.0025	0.0085	0.0232	0.0248	0.0207
Water aspects	%	8.8%	24.5%	37.0%	21.8%	8.0%
	s_p	0.0141	0.0215	0.0241	0.0206	0.0136
Waterfalls park	%	8.5%	22.5%	37.0%	24.5%	7.5%
	s_p	0.0139	0.0209	0.0241	0.0215	0.0132
Natural Environment	%	10.0%	26.8%	36.5%	20.0%	6.8%
	s_p	0.0150	0.0221	0.0241	0.0200	0.0125

Figure 2: Promotion of the city as a tourist destination

a) via the means of mass communication and b) via the internet.

a 

b 

A pre-requisite for an area's tourist development is its integration in a network of tourist destinations. According to the citizens of the city the skiing center Voras-Kaimaktsalan is directly linked with the city of Edessa and as a tourist destination contributes to its development from very much to sufficiently (Table 5). On the contrary, the tourist destinations the archaeological area of Ancient Pella, the lake and the wetland Agra-Vrytton-Nisiou, as well as the railway connection of the city with Thessaloniki are factors which contribute to Edessa's development from little to sufficiently. The demographic features of the respondents are given in Table 6. We see that these are distributed on the basis of gender and age, married with children and high educational level.

Table 5: Nearby tourist destinations and actions which contribute to the tourist development of the city.

		Very much	Much	Sufficiently	Little	Not at all
the lake and the wetland Agra-Vrytton-Nisiou	%	3.2%	10.2%	34.8%	37.5%	14.2%
	s_p	0.0089	0.0152	0.0238	0.0242	0.0175
the skiing center Voras-Kaimaksalan	%	25.5%	31.5%	26.2%	15.0%	1.8%
	s_p	0.0218	0.0232	0.0220	0.0179	0.0066
the archaeological are of Ancient Pella	%	5.5%	18.5%	29.5%	36.0%	10.5%
	s_p	0.0114	0.0194	0.0228	0.0240	0.0153
the railway connection with Thessaloniki	%	8.0%	16.8%	38.5%	28.2%	8.5%
	s_p	0.0136	0.0187	0.0243	0.0225	0.0139

Table 6: Demographic features of the respondents.

Gender	male	female		
	50.0% (s_p=0.0250)	50.0% (s_p=0.0250)		
Age	18-30	31-40	41-50	> 50
	25.5% (s_p=0.0218)	25.0% (s_p=0.0217)	25.0% (s_p=0.0217)	24.5% (s_p=0.0215)
Marital status	unmarried	married	divorced or widowed	
	37.8% (s_p=0.0242)	54.8% (s_p=0.0249)	7.5% (s_p=0.0132)	
Childhood				
without children	one child	two children	three children	more than three
45.5% (s_p=0.0263)	15.8% (s_p=0.0182)	28.2% (s_p=0.0225)	7.2% (s_p=0.0130)	3.2% (s_p=0.0089)
Educational level	primary school	lower secondary	technical school	

	3.0% (s_p=0.0085)	5.2% (s_p=0.0112)	10.5% (s_p=0.0153)	
	upper secondary	technological ed.	university	
	35.5% (s_p=0.0239)	14.5% (s_p=0.0176)	31.2% (s_p=0.0232)	
Profession				farmers or
	private employee	public servants	self-employed	livestock farmers
	26.5% (s_p=0.0221)	17.5% (s_p=0.0190)	24.0% (s_p=0.0214)	6.5% (s_p=0.0123)
	students	pensioners	housewives	unemployed
	8.5% (s_p=0.0139)	6.8% (s_p=0.0125)	4.5% (s_p=0.0104)	5.8% (s_p=0.0116)

4. Discussion - Conclusion

The economic crisis which the citizens of this country experience, but also the citizens of Edessa, makes them declare simply satisfied from the quality of their life, poorly satisfied and satisfied from their income and they see no reason for the young to remain in their city.

A way out in this difficult situation is the development of tourism since Edessa is the only city with waterfalls within the city, something which constitutes its comparative advantage. However, most citizens think that tourism affects neither positively nor negatively their life, that is "traditional hospitality and the urban environment. On the other hand, according to the citizens, tourism's impact on the natural environment is more positive. Pre-requisites for the development of the tourist product in an area, beyond the uniqueness of the area, are suitable tourist infrastructure, promotion, continuous efforts by local authorities and the linking of the area with other tourist destinations.

According to the evaluation of the citizens, with regard to the tourist infrastructure of the city, the best position is occupied by waterfalls - channels and urban green - parks of the city while the worse position is occupied by parking areas, the road network and urban transport. In order to exploit more the comparative advantage of the municipality of Edessa (waterfalls within the city) much should be corrected with regard to the possibilities of movent of citizens and visitors inside the city. One suggestion would be the adoption by the inhabitants of the city of sustainable means of transport, e.g. bicycles, as well as the disembarkation of passengers of tourist buses at the borders of the city followed by tours in beautiful places inside the city through special vehicles (trains) with final destination the waterfalls. In other words, actions are needed which will convert Edessa to a green city.

Similar actions have already taken place, such as the construction of pedestrian walkways for walking as well as other recreation facilities in positions with a view. The citizens realize that such actions contribute to the promotion of the natural beauty of their city. The citizens generally declare satisfied by the actions of their municipality with regard to the promotion of their city, more in relation with the natural environment and less with its historical and cultural aspects.

The citizens think that the promotion of the city as a tourist destination via the means of mass communication and the internet is very bad. Other cities of the same size attract publicity through the organization of athletic and cultural activities, conferences, exhibitions, etc. Also, they can achieve this through the adoption of green policies, e.g. exploitation of water for the production of energy, construction of bicycle networks etc.

According to the citizens, the city of Edessa as a tourist destination is linked with the skiing center Voras-Kaimaktsalan while there is a small connection with the archaeological area of Ancient Pella, the lake and the wetland Agra-Vrytton-Nisiou. Also, the railway

connection with Thessaloniki does not contribute sufficiently to the tourist development of the city.

5. References

Arabatzis, G. and Polyzos, S. Contribution of natural and socio-cultural resources in tourism development of mainland Greek Prefectures: A typology. *Journal of Environmental Protection and Ecology*, 9 (2), 2008, pp. 446-464.

Briassoulis, H. "Tourism in Greece", in W. Pompl and P. Lavery (eds), *Tourísm in Europe: Structures and Developments.* Cab Intemational, 1993.

Cattell, R. B. *The Scientific Use of Factor Analysis in Behavioral and Life Sciences.* New York, Plenum, 1978.

Damianos, X. X. *Sampling Methodology: Techniques and Applications,* 3rd Printing, Athens, Aethra Publications, 1999.

Djoufras, I. and Karlis, D. *Elements of Multivariate Data Analysis, Notes for the course Data Analysis I,* Department of Business Administration, University of the Aegean, 2001.

Doswel, R. *Tourism: The Role of Effective Management.* Athens, Kritiki Publications, 2002.

Duzgunes, E., Bayramoglou, E. and Duran, M. Evaluation of Sera Lake nature park (Trabzon/Turkey) in respect to ecological and socioeconomic structure. *Journal of Environmental Protection and Ecology,* 18 (1), 2017, pp. 225–234.

Frangos, C. K. *Market Research Methodology and Data Analysis with the Application of the Statistical Package SPSS for Windows*. Athens, Interbooks Publications, 2004.

Freese, F. *Principles of Forest Sampling,* Translation – Editing, M. A. Karteris, Thessaloniki, 1984.

Harman, H. H. *Modern Factor Analysis.* Chicago, The University of Chicago Press, 1976.

Howitt, D. and Gramer, D. *Statistics with SPSS 11 and Windows*, Athens, Klidarithmos, 2003.

Kalamatianou, A. G. *Social Statistics, Methods of One-Dimensional Analysis.* Athens, The Economic Publications, 2000.

Klessig, L. L. Lakes and society: The contribution of lakes to sustainable societies, *Lakes and Reservoirs: Research and Management*, 6, 2001, pp. 95-101.

Kokkossis, Ch. and Tsartas, P. *Sustainable Tourist Development and Environment*. 1st Edition. Athens, Kritiki Publications, 2001.

Kurt, S. S., Duzgunes, E., Kurdoglu, B. C. and Demirel O. Example study about Meryemana Valley (Trabzon Turkey) for determining the potential campground in the scope of nature tourism. *Journal of Environmental Protection and Ecology,* 17 (2), 2016, pp. 576-583.

Kushi, E. Sustainable tourism and environment protection in Albania. *Journal of Environmental Protection and Ecology,* 12 (1), 2011, pp. 251.

Lansford, N. and Jones, L. Marginal price of lake recreation and aesthetics: An hedonic approach. *Journal of Agriculture and Applied Economics*, 27(1), July 1995, pp. 212-223.

Lucas, O.W. R. *The Design of Forest Landscapes*. Oxford University Press, 1991.

Matis, K. *Forest Sampling.* Thessaloniki, Aristotle University of Thessaloniki Publications, 1992.

Pagano, M. and Gauvreau, K. *Principles of Biostatistics.* Athens, "Ellin" Publications, 2000.

Philias, V., Pappas, P., Antonopoulou, M., Zarnari, O., Magganara, I., Meimaris, M., Nikolakopoulos, I., Papachristou, E., Perantzaki, I., Sampson, E. & Psychogios, E. *Introduction of the Methodology and Techniques of Social Research.* Athens, Gutenberg Social Library, 2000.

Polat, E., Keles, E., Uzun, F. and Gul, A. Sustainable rafting tourism planning and management: An example of Antalya-Koprucay rafting area. *Journal of Environmental Protection and Ecology*, 17 (2), 2016, pp. 789- 795.

Sharma, S. *Applied Multivariate Techniques.* New York, John Wiley and Sons, 1996.

Shieh, C.J. Effects of behavioural norm cognition on tourist satisfaction with ecotourism. *Journal of Environmental Protection and Ecology*, 15 (3A), 2014, pp.1273-1282.

Siardos, G. K. *Methods of Multivariate Statistical Analysis, Part I: Investigating Relationships between Variables.* Thessaloniki, Zitis Publications, 1999.

Tampakis, S., Manolas, E. and Tampakis, V. Assessing tourist infrastructure in the island of Skiathos: The views of locals and visitors. *Tourismos: An International Multidisciplinary Journal of Tourism*, 5 (2), 2012, pp. 99-114.

Tampakis, S., Karanikola, P., Manolas, E. and Zachou, P. The quality of life of inhabitants in the city of Ioannina: The contribution of Lake Pamvotida. *Forestry Ideas*, 19(1), 2013, pp. 3-17.

Vesterinen, J., Pouta, E., Huhtala, A. and Neuvonen, M. 2010. Impacts of changes in water quality on recreation behavior and benefits in Finland. *Journal of Environmental Management*, 91, 2010, pp. 984-994.

The spiritual life. A study through Saint's Cassian theological thought

Abstract:
We all know that Saint Cassian was a simple and humble monk who sought to quench his heavens thought through the plagues of the great ascetics and monks of Palestine and Egypt. Through his writings, he rescues and records great chapters about loneliness and spiritual struggle. However, Saint Cassian does not exclusively write a systematic - ecclesiological work on the Spiritual Life of Christ, as St. Nicholas Kavasilas. Although, through all of his texts, we can discover all the principles, prerequisites and this quintessence of the In-Christ spiritual life predict. Aspects of this engraved spiritual expression and life I will try to develop through this article.

Keywords: spiritual struggle, purity of the heart, repentance

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1. Introduction

Admittedly, it is a very difficult task for a researcher of patristic theology to insinuate and "revive" aspects of the wisdom and holy spiritual experience of all fathers who have lived and manifested through their personal living testimony the Christ Spiritual Life.

Apostle Paul clarifies the Spiritual life that the Christian must live by living in Jesus Christ[2]. On the contrary, if he remains "in the world" and more specifically, in the desires of the flesh, he cannot be the heir of the kingdom of God. It is clear, therefore, that the spiritual man is the one who participates in the grace of the Holy Spirit and becomes a companion of divine life. In other words, spiritual life is neither a man's achievement nor a product of his own moral or intellectual well-being. "Spiritual life stems from God, it is offered with its grace that was manifested in Christ and manifested as the fruit of the Holy Spirit"[3].

We all know that Saint Cassian was a simple and humble monk who sought to quench his heavens thought through the plagues of the great ascetics and monks of Palestine and Egypt. Through his writings, he rescues and records great chapters about loneliness and spiritual struggle. However, Saint Cassian does not exclusively write a systematic - ecclesiological work on the Spiritual Life of Christ, as St. Nicholas Kavasilas. Although, through all of his texts, we can discover all the principles, prerequisites and this quintessence of the In-Christ spiritual life predict. Aspects of this engraved spiritual expression and life I will try to develop through this article.

2. The "framework" of the spiritual struggle

The anthropological and ontological consequences of the original sin have led man to a course of continuous search and redefinition of his spiritual balance. It is an endless effort of the man who has anxiety to maintain his "by nature"(«κατά φύσιν») state, and to use the "image"(«κατ' εικόνα») he has within himself to meet his creator, to arrive at "the likeness"(«καθ' ομοίωσιν») , the God-perfecting.

This dramatic, but yet blessed course of man, is the spiritual struggle that has to struggle in his life in order to acquire the conditions and the possibilities to ascend the steps of the spiritual elevations. What characterizes this spiritual struggle is the "war" between carnal and spiritual beliefs. This is a spiritual state described by the apostle Paul himself[4], which is also appropriated by saint Cassian to "delimit" as much as possible the context of the ontological ''warplace'' of man[5].

By the term "flesh,"[6] saint Cassian essentially means carnal thought and evil desires, as opposed to the term "spirit" that is about the good and spiritual desires[7]. This "fight" is twofold. On the one hand, the flesh attacks on the spirit, and on the other the spirit opposes the flesh. "The flesh is greedy to delight in delight and deviations. The spirit, however, does not consent to these desires, even those that may be natural. One is pathologically dependent on eating and sleeping. The other, benefits from fasting and vigil, to such an extent that it often gives the impression that it is annoying even for the minimal food or the little sleep that is necessary to keep it alive. [...]. One feeds on prices and applause. The other feels his boast and glory of insults and persecutions"[8]. Eating and resting are essential needs in humans

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[2] Gal. 5, 5-26.
[3] George Mantzarides, ''The meaning of the spiritual life'', in the book Orthodox spiritual life, p. 23-24.
[4] Rom. 8, 5-14.
[5] PL 49, 870B – 871A. See also, Jinha Kim., The Spiritual Anthropology of John Cassian, p. 172-175
[6] PL 49, 595A.
[7] See in Rousseau Philip, «Cassian, Contemplation of the Cenobiotic Life», Journal of Ecclesiastical History 26 (1975), p. 120-121.
[8] PL 49, 597A.

because this stimulates the body, but also the spirit is clearer in order to better concentrate on the truths of faith[9].

The time in which the spiritual struggle lasts never ceases. It is, and must be, continuous and unstoppable. Every moment we must take care to plow the field of our heart with the words of the Gospel[10]. Our native mood must not go out in the evening, but keep it warm and brimming in order to rid the night temptations, but also to equip the soul with spiritual resources to maintain its purity during the night. Even if we feel free of a passion, "from the very beginning, we have to look with the same and careful look at the secret movements of the heart"[11]. The spiritual struggle of the believer is not only focused on avoiding penance and evil powers. What always must be kept in mind is the faithful who is struggling to continually cultivate in his soul the love for God and the hope for the future and eternal good of his kingdom. This love for our Lord and creator is the source that strengthens and strengthens our faith in our spiritual struggle. Spiritual life is not only a moral perfection but an apprenticeship in obedience, sharing in the mystical life of the Church, and an ascetic experience in search of Divine Mercy.

The forces of the soul, according to the separation made by the abbot Cassian, are the field through which the battles against evil will continually be conducted[12]. The soul, like the body, is the two essential components of human nature. Through them man either will sanctify his existence, or it will lead to the loss. That is why it is very important for Abba Cassian to protect them, and especially the soul, because if we neglect and do not take care of protecting it, then the small - small passions will pierce it, and then they will overwhelm it. If man manages to activate all the forces of the soul, then he will be able to purify his heart and eliminate from him the passions that overwhelm him. Thus, "when the soul pacifies and breaks all the bonds of fleshly passions, when the heart adheres to the only, Most High and All-wise God, then the commandment of the apostle Paul will be fulfilled, which says," continually pray "[13].

Thus the soul will be a "sacred baptism" that will continuously transfer the spiritual knowledge and eternal and heavenly sweetness of concealed treasures[14]. It is the spiritual maturation and receptivity of every human being that allows his soul to reveal the divine notions above. "As our soul with this study strengthens and progresses, both the meanings of the Bible make other dimensions within us. The beauty of sacred meanings grows, according to our own spiritual progress"[15]. Only those who have a deep faith in God and live according to His will can become shareholders of true spiritual knowledge[16].

2. Indices of spiritual life

It is impossible to think of a spiritual struggle with beneficial spiritual fruition without the necessary effort and labor. Exercise and struggle to thrive requires the constant and painful spiritual effort of man, which is directed towards a purpose. Part of this exercise is patience in tribulations and persistence against calculus. Masturbation and exercise of the body are excellent tools in the lives of ascetics to master the fate of the flesh. Most aptly, the saint puts

[9] PL 49, 868B - 869A.
[10] PL 49, 520A
[11] PL 49, 630B
[12] PL 49, 507B -508B
[13] PL 49, 778B
[14] PL 49, 971A - 972A.
[15] PL 49, 972B.
[16] PL 49, 983A

forward the example of a farmer who constantly works to sow his field, cultivate it and take care of it, always aiming at the new harvest[17].

Fasting, vigil, studying the scriptures, self-denial (for the monks) is not perfection as such. Saint Cassian clarifies that all these are the tools and means to gain perfection. By losing the flesh through physical exercise we can reach more easily in love, the eternal and "by nature" good. Through these signs of salvation our struggle will converge to its ultimate purpose. The hard test that fighters spend through many sufferings is for them sports and spiritual maturation. That is why the monks have to live every day as though they were the last day of their lives and despise everything. The fruit of this tireless and painful exercise is nothing but to appeal to us the mercy of God. "Let's be worthy to accept the beneficial hand of God for the redemption of the desires of the flesh and the all-powerful tyranny of passions"[18]. It is the means and the tools with which we can strengthen our vulnerable and weakened soul so that it can be prepared if it stops from the very first moment of any passionate calculus.

If the spiritual struggle of every believer might be painful and cruel, it cannot lead him to his essential and saving course, if he does not aim at an endless and deeper ontological rebirth of man. This is the repentance and conversion, for which Honorable John the Prophet recalls[19], and Jesus Christ constantly insisted on all His earthly action[20]. It is basically the mystical act of the Church through which man is cleansed of passions. This cleansing of passions is the work of the Grace of God, and the synergy of man himself. Repentance (''poenitentia'') is defined according to Saint as our attempt not to commit after our repentance other sins or ones under our conscience. He does not consider it necessary to examine the nature of repentance, but (he examines) it is concluded as a living within the soul of man and that it is accepted by God[21].

Certainly in order to get rid of our sins, we must first get rid of the causes and the causes that created them[22]. This alone is not enough. If we try and pull out of our hearts desire and intent to sin, but also all kinds of remembrance with sincere repentance, with tears and crushing, asking at the same time for the mercy of God, then we will be completely liberated and we will feel in the soul that God also accepted our repentance. "It is utterly impossible to attach the soul to good thoughts, when the main part of our heart is occupied by thoughts of a shame, earthy and falconets"[23]. The perfect repentance exists when it completely erases from our soul every trace that sin may have left in us. Even the remembrances of sin or the desire for some enjoyment are elements where sin is inherent and subjugated.

The man who repents is more receptive to understanding the truths of Christ's life. Repentance crushes the sinner, while the mistakes of his previous sinful life cause sadness and pain. These people are thirsty and in need of the warming of faith and the word of the Gospel for this, and we must support them. Otherwise, grief and despair will nest in their soul and they will stutter them in dangerous lucewarmness and negligence.

Continued and unceasing prayer is a basic prerequisite for man's spiritual struggle to succeed and to reach out to the purification of the heart and perfection. "It is an ontological request of human existence"[24]. The Savior, through Abbas Isaac's words, explores the nature, characteristics, and the way in which we can remain in constant and unceasing prayer, since as he says, "the purpose of lonely life and spiritual perfection are inextricably linked to pure

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[17] PL 49, 484A
[18] PL 49, 874A
[19] Mar. 3,2
[20] Mar. 1,15. Louk. 13,3
[21] PL 49, 1153B
[22] PL 49, 1168B.
[23] PL 49, 1167A
[24] George Mantzarides, Christian morality II, p. 169.

and uninterrupted prayer.[25]" Perfect prayer (orationis perfectionem) is the cohesive bond that unites and forms unbreakable in unity the virtues that exist in the soul of man.

But virtues are also prerequisites for prayer, because virtues alone cannot lead man to perfection. In order for man to have a clean and turbulent prayer, he must be prepared to meet certain basic prerequisites, for as the Saint tells us, "from the condition that one has before prayer, the moods of the soul depend on the hour of prayer"[26]. This is because prayer depends on the mood in which the soul is. Otherwise, one prays if he is under the pressure of the various passions, or else when he has his heart light within the grace of God. But it is not an absolute requirement to reach perfection to experience perfect and pure prayer.

Prayer is the medium and the way through which righteous and virtuous people can look with pure soul the glory of the Person of God and the theory of His Majesty. A precondition for such a soul is the effort to remain free and clear of earthly thoughts and passions, away from all evil and foolishness. It must be full of faith and virtue. Cruel and pure, perfect forever, for the one who will visit it is herself the creator, the Word of God. Our prayer is heard by God, and God gives us what we ask for it, provided that what will give us is in the interest of our soul, and in accordance with the will of God. So the soul awakens because it is bathed in the "flame of pure prayer" (orationis ignitae)[27]. Through the unceasing prayer (orationis perpetuae), man can preserve God's memory forever in his heart, since the mind will constantly turn his attention to it. The "secret" of unceasing prayer as revealed by the Saint Cassian is not something he invented himself, but it is a revelation of the fathers of the first solitary period. It is a singular and very short phrase of a psalm, which must always and repeatedly be repeated in the heart of man: "God helped me in my help. Lord helps you to hurry me.[28]" This wish expresses all the experiences through which human nature is susceptible. It is suitable for all circumstances, for every need and for every temptation. It is the cry that the soul brings to God when he realizes the enemy's insults. It is the panacea that exterminates all kinds of temptation. We call upon God in all our circumstances to intervene, to help us, and indeed to call Him to rush directly and effectively, since only this is the hope of our salvation.

3. The preconditions of the spiritual life in Christ

A basic prerequisite for spiritual life is that "the monk should do His Lord's love, a fixed center, around which all his works move like rays"[29]. According to Saint, it is not right in the spiritual struggle that one is doing to mimic altogether another sibling because this is dangerous. We do not all have the same conditions, but we do not have the same purposes in our spiritual path. If we once again try to imitate someone in a virtue again we will find ourselves in some fallacy and the failure will be complete. Everyone has to look into the possibilities of the lifestyle they can follow.

Another basic principle in the theological thinking of abba Cassian is the fact that one must always combine teaching and knowledge with his experiential experience and works. That is, in order to teach someone about a subject, he must first practice it in practice[30]. The content of orthodox theology, the theoretical expression of the doctrines of our faith, is the very life of Orthodox spiritual life as expressed through the experience and deed of its

[25] PL 49, 779C.
[26] PL 49, 774A
[27] PL 49, 802B
[28] Psalm. 69, 2. PL 49, 832B
[29] PL 49, 1295B
[30] PL 49, 1210B

faithful[31]. This truth confirms the inextricable and organic relationship that unites doctrine with morality, good faith with right action. It is the organic relationship between theory and action whose inalienable adherence makes the knowledge (God and the world) personal and existential[32].

Saint Cassian underlines the great importance of the truths of faith in the salvation of man, and points out that ignorance of these matters, especially in dogmatic matters, is very dangerous, as it can cause damage not only to the person who spreads them but and to those who hear him[33]. The doctrines are the truths that express the living experience of the Church that Christ, the Son and the Word of God, in whose face the energies of the Triune God are revealed, made the renovation and the deification of man.

The "heart" holds a prominent role in the entire ascetic and native secretary as it denotes the center of the totality of the psychosomatic entity of man, the central organ and the root of the inner senses, is the predominant place of spiritual life[34]. "In the midst of the hearts of men, the distractions, the evil, the proverbs, the murders, the wickedness, the wickedness, the deceit, the assault, the wickedness, the blasphemy, the superpower, the wisdom"[35]. The heart naturally is the most valuable organ in the human body, as it is the vital organ that keeps all other body parts in operation, oxygenating endlessly every cell of our organism. The heart, however, not as a vital organ any longer, but as the inner neural self-conscious state of man, is the criterion by which man will display the proper prospect and will claim the salvation of life. It is a fundamental prerequisite for seeing God.

The purity of the heart is not simply the discharge and the purification from the passions. This is what most nobility call apathy. Saint Cassianos does not mention the word apathy, but uses the term "puritatio cordis"[36], that is means, purify heart. It is a stage before perfection. It is the absolute emptying of the fleshly man. It is the point where the divine illumination begins to rebut in the soul. They all drive, or rather have to lead to the pure heart. It is a prerequisite for human society with God, but also for the secret experience of His presence: the perfect purity of the soul and body. "Our entire struggle must aim at the acquisition of a pure heart. For her sake we need to seek quietness. For her we have to fast. For her we have to be vigilant, suffer from malignantness, laugh, and study. For her we must practice all other virtues, with which we can prepare our heart and keep it intact from passions. So the heart, by comfortably going up the scale of virtues, will reach perfect love.[37]"

The spiritual progress of the soul is definitely gradual. "Until the soul reaches the state of perfect purity, it often goes through similar changes that are necessary for its spiritual progress. The soul of the one who lives repentance will regress until God begrudge her and fulfill her desires. Then the soul living in fullness and stability in the good is able to honestly say: "I have stayed with the Lord, and he gave me thanks, and she proclaimed my devotion, and repaid me with sorrow, and with clay, and with the stone, and with the foot of the foot and led my ways[38]"(Psalm 39, 2-3).

The sanctification of man is not merely the goal of man, but also "the will of God.[39]" The prerequisite for sanctification is the effort to remain pure and pure, cultivating all the

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[31] George Martzelos, ‘‘Theology and spirituality according the Sinai patristic tradition’’, published in Orthodox dogma and theological thinking, Articles of dogmatic theology Vol. D’ p. 123-124. Nikos Matsoukas, Dogmatic and Symbolic Theology Vol. B΄, p. 22.

[32] Nikos Matsoukas, World, Human, Society according Saint Maximos the Confessor, p. 196.

[33] PL 49, 823A – C και 825B.

[34] Placide Deseille αρχιμ. East and West Christianity, p. 83, 205

[35] Mark. 7, 21-22.

[36] Columba Stewart, John Cassian’s Schema of Eight Principal Faults and his Debt to Origen and Evagrious, p. 210.

[37] PL 49, 489A

[38] PL 49, 880A

[39] A’ Thess. 4,3

virtues of the soul and preserving his body from every sinful desire and prostitution. Our body and heart to remain a dwelling place of the Holy Spirit must oppose the multi-minded and abhorrent passions. Shame and uncleanness is alien to the holiness we seek. So, in order to attain perfect purity it is not enough just the fasting of the body, but it must precede the crushing of the heart, the persistence in prayer and the continuous study of the Holy Bible. Spiritual knowledge must also be accompanied by manual labor so that the mind is not continuously distracted from the essential to the temporal and perishable.

The culmination of perfection is to claim from this mortal and perishable life, to foretell the eternal life and the splendor of heavenly glory. This perfection, however, to reveal itself requires a soul that is light and free from the gravity of the fleshly desires and every movement is to lift it up and down. Each step is a constant prayer and desire to meet Christ. "There is no other way to go to true love. God loved us first and wanted nothing but our salvation. That is why we owe it to Him to love Him exclusively for His love and not for what He gives us "[40].

4. References

Joannis Cassiani, De Coenobiorum institutis libri duodecim, PL 49, 53A – 476B.

Joannis Cassiani, Vigintiquatnor collations, PL 49, 477A – 1328D.

Joannis Cassiani, De incarnatione Christi, Contra Nestorium Haereticum – Libri Septem, PL 50, 9A – 368C.

Nestle-Aland (1993), Novum Testamentum Greace, publ. Deutsche Bibelgeselischaft, Stuttgart.

George Mantzarides, (2006), Orthodox spiritual life, ed. P. Pournaras, Thessaloniki.

George Mantzarides, (2004), Christian morality II, ed. P. Pournaras, Thessaloniki.

George Martzelos, (2011), ‘‘Theology and spirituality according the Sinai patristic tradition’’, published in Orthodox dogma and theological reflections, Dogmatic theological studies D΄, ed. P. Pournaras, Thessaloniki.

Jinha Kim, (2002), The Spiritual Anthropology of John Cassian.

Rousseau Philip, (1975), «Cassian, Contemplation of the Cenobiotic Life», Journal of Ecclesiastical History 26, p. 113-126. Cambridge University Press.

Nikos Matsoukas, (2007), Dogmatic and Symbolic Theology Vol. B΄, p. 22.

Nikos Matsoukas, (1980), World, Human, Society according Saint Maximos the Confessor, ed. Gregoris, Athens.

Placide Deseille, (2004), East and West Christianity, ed. Armos, Athens

Columba Stewart, (2001) “John Cassian’s Schema of Eight Principal Faults and his Debt to Origen and Evagrious”, Jean Cassien entre l’ orient et l’ occident: actes du colloque international: Bucarest, 27-28 Septembre 2001, p. 205-219.

[40] PL 49, 853B.

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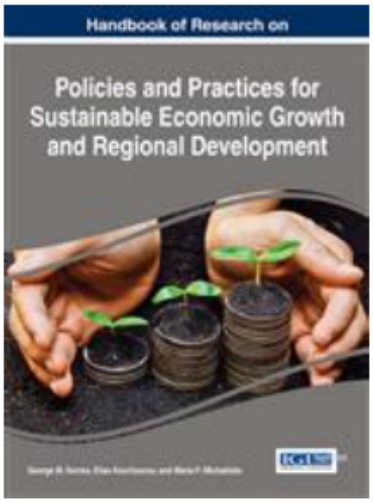

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Journal of Regional & Socio-Economic Issues (JRSEI)

Instructions to Authors

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Aims of the Journal:
Journal of Regional Socio-Economic Issues (JRSEI) is an international multidisciplinary refereed journal the purpose of which is to present manuscripts that are linked to all aspects of regional socio-economic and all related issues. The journal indexed by Copernicus Index, DOAJ (Director of Open Access Journal), EBSCO & Cabell's Index and welcomes all points of view and perspectives and encourages original research or applied study in any of the areas listed above. The views expressed in this journal are the personal views of the authors and do not necessarily reflect the views of JRSEI journal. The journal invites contributions from both academic and industry scholars. If you have any questions about the journal, please contact the chief editor. Electronic submissions are highly encouraged (mail to: **gkorres@geo.aegean.gr**).

Review Process:

Each suitable article is blind-reviewed by two members of the editorial review board. A recommendation is then made by the Editor-in-Chief. The final decision is made by the Editor-in-Chief. If a revision is recommended, the revised paper is sent for a final approval to the Chief-Editor.

Instructions to Authors:

In order for a paper to be submitted to the Journal for publication, the following should be taken into consideration:

1. All papers must be in English.
2. Papers for publication should be sent both in electronic format (MS Word and MS Excel for charts) to the Chief Editor (mail to: **gkorres@geo.aegean.gr**).
3. The Editor takes for granted that:

- the submitted paper contains original, unpublished work that is not under consideration for publication elsewhere;
- authors have secured any kind of permission necessary for the publication from all potential co-authors, along with having agreed the order of names for publication;
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