

Rural renaissance – fostering innovation and business opportunities in the quarry sector of Paggaios Municipality

Thomas Panagopoulos¹, Paraskevi Karanikola^{2*}, Stilianos Tampakis², Nikoleta Gounari², Antonios Tampakis³

¹Research Center for Spatial and Organizational Dynamics (CIEO),
University of Algarve, Gambelas Campus, 8000
Faro, Portugal (tpanago@ualg.pt)

²Department of Forestry and Management of the Environment and Natural Resources,
Democritus University of Thrace, 68200, Orestiada, Greece (pkaranik@fmenr.duth.gr,
stampaki@fmenr.duth.gr, nikoletadgounari@hotmail.com)

³Department of Forestry and Natural Environment
Aristotle University of Thessaloniki, Greece (atampaki@for.auth.gr)

*Corresponding author: E-mail: pkaranik@fmenr.duth.gr

Abstract. In the Municipality of Paggaios near to Kavala city, the main sectors of development in the region constitute agriculture and stock breeding. There are also 8 active quarries extracting white marble and slate. The quarrying industries take place in the region related only to a small part of the population. Nevertheless residents of the nearby villages perceive that quarrying activities contribute to the economic development and employment accepting the creation of new quarrying industries in their region. Major problem according to residents constitutes the abandonment of quarries after the exploitation that reduces the quality of the landscape. They are of the opinion that the quarrying products don't have the appropriate promotion. The most preferable mean of information is done from Internet and merely by the private companies. Although the residents realize that there is a great opportunity of creative tourism and elaboration of the materials extracted from the quarry for the experienced handcrafters working the marble and slates. The development of the quarrying activities in the region in combination with a sense of place in architecture will offer a better quality of live to the young people to stay in their region.

Keywords: Primary sector, development, quarrying activities, landscape quality, creative tourism.

1 Introduction

As agriculture loses its importance as a source of income throughout the development word, the rural population gradually shifts to alternative sources of

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income (Apostolopoulos et al., 2000; Freshwater, 2000). The decline in farm activity and the rise in farm income diversification through off income- generating activities go hand in hand (Ahituv and Kimhi, 2006).

The question is if the relative importance of agriculture in the rural economy has impact on the standard of living. On the one hand, it would be that communities with a relatively large share of agriculture so that farming is profitable enough even at times of decline overall terms of trade in agriculture. On the other hand, perhaps the relatively large share of agriculture indicates lack of alternative income resources rather than lower incentives to engage in other income generating activities (Kimhi, 2011). Creative tourism allows visitors to deepen contact with the local culture by directly participating in cultural/creative activities and being involved in the creative life of the destination. On the top of these arguments, given the flow of urban families who join rural communities in order to improve their quality of life (Mitchell, 2004).

The last eight years Greece covers a time of deep economic depression in which the National GDP reduced about 25% and unemployed increased 28%. In those years of economic crisis, we have the phenomenon that young people return to agriculture and countryside. In rural areas the unemployment is little lower than in urban areas. Young people return to agriculture activities because they expect a better quality of life (Kasimis and Zografakis, 2014).

Although rural areas considered marginalized and having features that avert the local population to establish a venture or make them less attractive for others to invest, this handicap is twofold, linked to features regarding low density of population, lack of infrastructure and geographical isolation, ageing, lack of skilled labor force and conservatism (Spilanis et al. 2004) today there is a growing interest, an outcome both of a globalized economy and the change role of the countryside in the development of entrepreneurship. This trend has been embedded in policy frameworks for the development of the rural, through a multi- sectorial approach (Iakovidou, et al., 2012; Lekkos and Leventakis, (2015).

Within this framework residents have been stimulated to develop entrepreneurial activities and new roles in the local communities. A prerequisite for the efficient and effective local development strategy is innovation in products, processes and management (Ciannarella and Piccioni, 2007). The Creative Tourism concept appeared in the 2000's, and defined as a tourism, which offers visitors the opportunity to develop their creative potential through active participation in learning experiences, which are characteristic of the holiday destination where they are taken (Richards and Wilson, 2000).

Because households in rural communities that rely heavily more on agriculture have negatively effects on their income comparatively that they created alternative employment opportunities in rural areas and prevent rural poverty (Kimhi, 2011). According to Kasimis and Zografakis (2014), in Greek households the higher dependence have from agriculture, the most population has income under the poverty level. So it is necessary to the rural communities to promote new economic activities for supplementing their income.

The main objective of the paper is to record through questionnaire, the residents' opinion about the opportunity there is in the region for the renaissance the primary

sector by fostering and promoting the quarrying products, marbles and slates that have been excluded from the quarries developing creativity in tourist experiences.

2 Methodology

The research area of this study was the municipality of Paggaios in Northeastern Greece, which covers a total area of 698.01 km² and accounts 32,085 residents.

The sampling method used was simple random sampling. In order to calculate the sample size, a pre-sampling was conducted on a sample of 50 respondents. The size of this sample was calculated based on the formulae of simple random sampling (where $t = 1.96$ and $e = 0.048$). Even though simple random sampling without off reset was used, the correction of the finite population can be omitted as the sample size n is small in relation to the population size N . More specifically, the sample size was determined to 400 individuals. The data collection was carried out during the second semester of 2016.

In the two groups of variables (variable 3 and 4) frequency analysis, with more than two criteria, was carried out. The hierarchical loglinear analysis was applied. Prior to the initiation of the loglinear analysis (in particular of the hierarchical) it is intentional to examine the size of the expected frequencies in the crossing table. Large number of the expected frequencies (higher than 20%) with rate lower than 5 – but not lower than 1, run the risk of leading to the power loss of the applied analysis. This examination is carried out with control of double-sided crossing tables through the SPSS program. The classes of variables were grouped in order to satisfy the above-mentioned conditions. Our data are classified in accordance with 3 or 4 criteria and express frequencies. The assumption H_0 is: H_0 : 3 or 4 criteria are fully independent from each other. It is unlikely for this assumption to be accepted, but the analysis will allow the precise level of various interrelations and will be included in a model that expresses the data interrelations.

Statistic controls of optimum adjustment are used for the estimation of the correspondence degree between the model and the data. Statistical significance shows that the examined model does not represent the observed frequencies perfectly, whereas the statistical non-significance means that the examined model is adjusted to the observed frequencies respectively. X^2 test is applied.

Loglinear analysis forms a special case of multiple regression analysis according to which one or more variables relate to others, in the framework of a multidimensional crossing table. During this analysis, all homographs are considered independent and any recess of the crossing table dependent. Finally, in order to interpret the impacts on the model of optimum adjustment, we present the data in the form of one or two – dimensional tables.

3 Results and discussion

Four hundred completed questionnaires filled out from the local people (235 males and 165 females). Most of them 34.8% are young (18-30 years old), mainly farmers or stockbreeders (22%) with medium education (36.3%), married (52%).

Residents of Municipality of Paggai asked to evaluate the development sectors (Fig. 1). According to this, the most important sectors are mainly agriculture and stock breeding, tourism and forestry. The residents evaluate lower, sectors like mining and quarrying activities. This happens because of the economic crisis, the constructions in the area are very limited (the construction sector evaluated even lower).

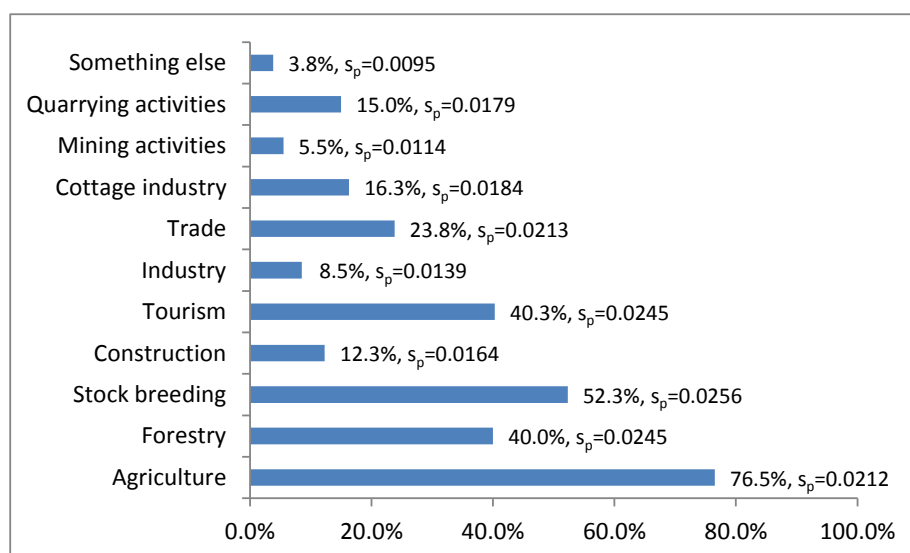


Figure 1. Importance of main sectors of development in the Municipality of Paggai

Then they asked about their satisfaction of their living in the village. The residents are rather satisfied (43.5%, $s_p=0.0248$) for their quality of life in their region and 42.0%, $s_p=0.0247$ are little satisfied for their annual incomes. Also the majority of them (50.3, $s_p=0.0250$) are of the opinion that the region doesn't give them opportunities to stay young people in their village. It is important to mention that only 2.5% ($s_p=0.0078$) of the respondents activated in quarries, 2.3% ($s_p=0.0074$) with elaboration of marbles and slates and 3.5% ($s_p=0.0092$) with placement of them.

Then the residents were asked to rate the level of significance of the quarrying effects in the area (Table 1). Although it is well known the impacts of the quarrying and mining activities in the environment and health, the residents of the municipality of Paggai underline more the positive effects of recruiting of the employment and supporting the local economy and more negative the reduction of the landscape quality almost ignoring the negative results in the soil, underground water and

peoples health. These make to us obvious the importance for the people to raise their income finding job.

In the group of variables “quality of life”, “opportunities to stay the young people in their village”, “Recruiting the employment” long liner analysis was applied.

We have interaction per 3 criteria, because the X2 for Pearson’s test is 0.755 with probability (p)=0.686 and because the X2 likelihood ratio is 0.757 with probability (p)=0.685. The above-mentioned results are confirmed by the zero/“null” controls for the interaction of the k terms and the terms of higher degree, as well as the “null” controls for the interaction of the k terms.

In fact, for two pairs of variables there is a statistically significant interaction: Residents are absolutely satisfied or satisfied with the quality of life believe that there are the opportunities of young people to stay in their village, correspondently the people are not at all or little satisfied with their quality of life they are of the opinion that there aren’t opportunities for the young people to stay.

Table1. Effects of the quarries in the area

		Very positive	positive	Either positive nor negative	negative	Very negative
Local economy	%	23.8%	34.5%	36.0%	4.5%	1.3%
	s _p	0.0216	0.0238	0.0240	0.0104	0.0056
Soil	%	3.0%	10.5%	41.0%	40.8%	4.8%
	s _p	0.0085	0.0153	0.0246	0.0246	0.0106
Underground water	%	0.8%	7.0%	49.0%	38.0%	5.3%
	s _p	0.0043	0.0128	0.0250	0.0243	0.0112
Landscape quality	%	2.8%	7.3%	25.3%	46.5%	18.3%
	s _p	0.0082	0.0130	0.0217	0.0249	0.0193
People’s health	%	0.8%	5.5%	68.8%	22.0%	3.0%
	s _p	0.0043	0.0114	0.0232	0.0207	0.0085
Recruiting the employment	%	37.0%	36.5%	22.8%	3.3%	0.5%
	s _p	0.0241	0.0241	0.0210	0.0089	0.0035

Residents state that the quarries effects are very positive or positive to recruit the employment also are of the opinion that there are opportunities of staying the young people to their village. Respectively, residents rate as very negative to neither positive nor negative the effect of recruiting the employment, also state that the young people do not have opportunities to stay to their region.

As shown in Table 2 most residents agree to permit new excavations of aggregate material, slates and marbles.

Most of the residents (52.3%, $s_p=0.0250$), are of the opinion that the elaboration units are little in the region, also (36.3%, $s_p=0.0244$) the well trained personnel to work on. To the group of variables “Recruit the employment”, “permission of excavation stones” “elaboration units” “exist of well-trained personnel” also longliner analysis is applied. We have interaction per 4 criteria, because the X^2 for Pearson’s test is 12.159 with probability $p=0.144$ and because the X^2 likelihood ratio is 12.388 with probability $p=0.135$. The above-mentioned results are confirmed by the zero/“null” controls for the interaction of the k terms and the terms of higher degree, as well as the “null” controls for the interaction of the k terms. In fact, for three pairs of variables there is a statistically significant interaction: According to this residents that agree with the permission of new excavations state that the quarries effect very positive to positive to the local economy and there are few well trained personnel work on elaboration unit. Respectively the ones that disagree or are indifferent with the permission are also indifferent or negative about the effects of quarries to the local economy and are of the opinion that there are a lot of well-trained personnel that works on units.

Table 2. Permission for create new excavations

		Absolutely Disagree	disagree	Neither agree or disagree	agree	Absolutely Agree
Extraction of aggregate material	%	10.5%	13.5%	28.3%	31.3%	16.5%
	s_p	0.0153	0.0171	0.0225	0.0232	0.0186
Extraction of slates	%	10.0%	11.3%	24.3%	36.8%	17.8%
	s_p	0.0150	0.0158	0.0214	0.0241	0.0191
Extraction of marbles	%	9.3%	8.8%	28.3%	35.5%	18.3%
	s_p	0.0145	0.0141	0.0225	0.0239	0.0193

4 Conclusions

Municipality of Paggaio bases its wealth on agriculture, extractive industry and tourism. Famous for its wine, fine marble and slates industry. Because of the economic crisis in Greek countryside, the shrinkage of the income leads people searching for other ways to supplement their income. A great opportunity is given in the specific Municipality because of the extracted materials can be elaborated and promoted to new products. Local architecture based on handcrafted materials can create a sense of place that will attract tourism and economic development. Creative tourism may offer to visitors the opportunity to develop their creative potential through active participation in learning experiences characteristic of the region where

they are taken. The creative tourism approach will allow Paggaion to benefit from significant advantages, and enables artistic and other creative activities to play a driving role in broader socio-economic development. Residents are well predisposed to the permission of new marble and slate quarries and see the elaboration industries and handcraft art as a mean of increasing employment and supporting the local economy.

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