

Public Spending allocation factors for "Alternative Tourism Investment Program" NSFR 2007-2013 Evidence from Greece

Martha Geraki¹, Serafeim Polyzos¹

¹Department of Planning and Regional Development
University of Thessaly, Greece
mageraki@civ.uth.gr; spolyzos@prd.uth.gr

Abstract

Within the framework of co-financed investment actions aiming at the strengthening of the Greek economy, the reducing of inequalities and the regional development, the central government of the European Union and the European Regional Development Fund (ERDF), introduced a Small Medium Enterprises investment program to exploit alternative tourism in Greece. Main developmental objective was the improvement of the competitiveness and extroversion of enterprises and the country's production system, the diversification and the enrichment of the Greek touristic product, utilizing alternative forms of tourism. In this context, the paper investigates at first the spatial distribution of the approved funds concerning the investment program "Alternative Tourism" in Greece, as well as the allocation of funds to each type of alternative tourism (e.g. cultural tourism, religious tourism, conference tourism, etc.). Moreover, the differentiations and inequalities observed in each region are discussed. Finally, an investigation of the influencing factors of such funding programs is performed and an attempt for quantitative analysis and determination of a statistical forecasting model.

Keywords: Public investment, alternative tourism, regional allocation, co-financing, NSFR 2007-2013

JEL classification: R11, R12, R58

Introduction

One of the critical factors contributing to regional economic development is public capital. Therefore the government's decisions on public investment regional allocation are of great political concern among policymakers. The main industries in Greece are tourism, shipping, industrial products, food and tobacco processing, chemicals, metal products and mining. The main problems that the Greek economy faces are the high rate of unemployment, bureaucracy, corruption and tax evasion. The global competitiveness is low compared to the other European Union countries whereas economic growth has been diminishing since 2009. The ratio of loans to savings was over 100% during the first months of 2010, showing an existing trend of over-lending. The problem of regional allocation of investment has been of increased interest to researchers in recent years (Polyzos, 2011; Polyzos, 2015, Polyzos et al, 2015).

This paper analyses the Alternative Tourism Investment Program, NSFR 2007-2013, its regional distribution and the factor that influenced this allocation. Describing briefly the context of this article, the

next section refers to the description of the Alternative Tourism Investment Program and next to a quantitative analysis is presented in graphs and maps. In the following section a research is performed for determining the Public Spending allocation factors allocation that will form the forecasting model presented next. Finally, an additional research is performed regarding the public spending for each type of alternative tourism and the results are mentioned comparing them to the ones of the initiative research about the total public spending of alternative tourism investment aid.

The Alternative Tourism Investment Program (ATIP²)

The Alternative Tourism Investment Program (IP¹) was launched in 2011 and was addressed to existing small and medium enterprises. The guidelines on which this investment program was designed are the following three: to accelerate the transition to a knowledge economy, the development of healthy, sustainable and outward-looking entrepreneurship, enhancing the attractiveness of Greece as a place to develop business activity, with respect to the environment and sustainability. Objectives of the Act is the diversification, the enrichment of the Greek tourist product with the business use of alternative forms of tourism, tourism promotion and exploitation of natural and cultural assets and mitigate the seasonality of tourism demand. Indicative under the Program Guide distinguish the following five forms of alternative tourism: Athletic leisure tourism Sea tourism, rural tourism, gastronomic tourism, health tourism and wellness. The total budget that was planned to be allocated through the Act and that comes from public expenditure amount to 20 million €. The Public Expenditure of the Act is funded by the European Union and in particular by the European Regional Development Fund (ERDF) and by Greek national resources (ATIP Guide, 2011; Polyzos, 2015).

Table 1: Maximum eligible expenditure in the total project's budget

Expenditure Categories	Maximum eligible expenditure in the total project's budget
1. Equipment	≤100%
Building constructions	
2. Rooms' formation	≤60%
Special & auxiliary facilities.	
3. Marketing and Advertisement.	≤25%
4. Consultancy fees	≤5%
5. Other expenditures	≤6%

Eligible actions which may be included in the investment proposal for an undertaking which participated in the Act "Alternative Tourism" are separated into categories (see table below) must be linked to the performance of the alternative activity and must not exceed the limits set by the "Alternative Tourism Investment Program Guide" to the total project budget. The expenditures should belong to the five defined categories, which are equipment, building constructions, marketing and advertisement, consultancy fees and other expenditures (ATIP² Guide, 2011).

¹ Investment Program

² Alternative Tourism Investment Program

Quantitate analysis. Evidence from Greece.

The Alternative Tourism IP is underway, which means that the recipient undertakings carry out the approved investment plan or have already completed. Interestingly, the final allocation of grants by county and by form of alternative tourism. Then, the distribution of investment projects presented by form of alternative tourism in all the approved proposals of the said Act.

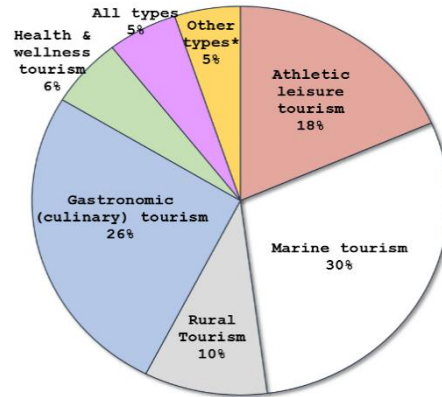


Figure 1: Rate for each Type of Alternative Tourism (Source: AEDEP, own processing)

Both the diagram in figure 1 and the related table 2 show, which type of alternative tourism adsorbed most of the funds. Moreover the different types of alternative tourism are presented in which SME invested in. Most of the budget of the act were distributed to leisure, marine tourism and gastronomic tourism.

Table 2: Investment allocation for each category of alternative tourism

a/a	Type of Alternative Tourism	Number of Enterprises	Rate for each Type of Alternative Tourism
1	Athletic leisure tourism	112	18,45%
2	Marine tourism	179	29,49%
3	Rural Tourism	58	9,56%
4	Gastronomic (culinary) tourism	159	26,19%
5	Health and Wellness Tourism	35	5,77%
6	All types	33	5,44%
7	Other types*	31	5,11%

(Source: AEDEP, own processing)

*Other Types of Alternative tourism: cultural tourism, religious tourism, thematic tourism, conference tourism, tourism for disabled people, business tourism, traditional art tourism, wedding tourism.

From the following graph it is observed that the counties which absorbed the largest per capita grants is Zakynthos, Rethymnon and Cyclades while areas of Fokida, Rhodope Drama and Arta did not receive

any grants. A reason for not funding the four previous mentioned regions, was probably because no investment interest aroused from any SME. In each type of Alternative Tourism the spatial distribution differentiated as shown in the following maps. For marine tourism most of funds were adsorbed from Attica, Cyclades, Magnesia, Dodekanisa, Evoia, for athletic leisure tourism from Magnisia, Rethimno and Cyclades, for rural tourism the top 3 prefectures were Magnisia, Cyclades, Serres and Rethymno, for gastronomic tourism Magnisia, Rethymno, Thessaloniki and for health and wellness Magnisia, Chania, Cyclades, Korinthia, Serres, Kerkira.

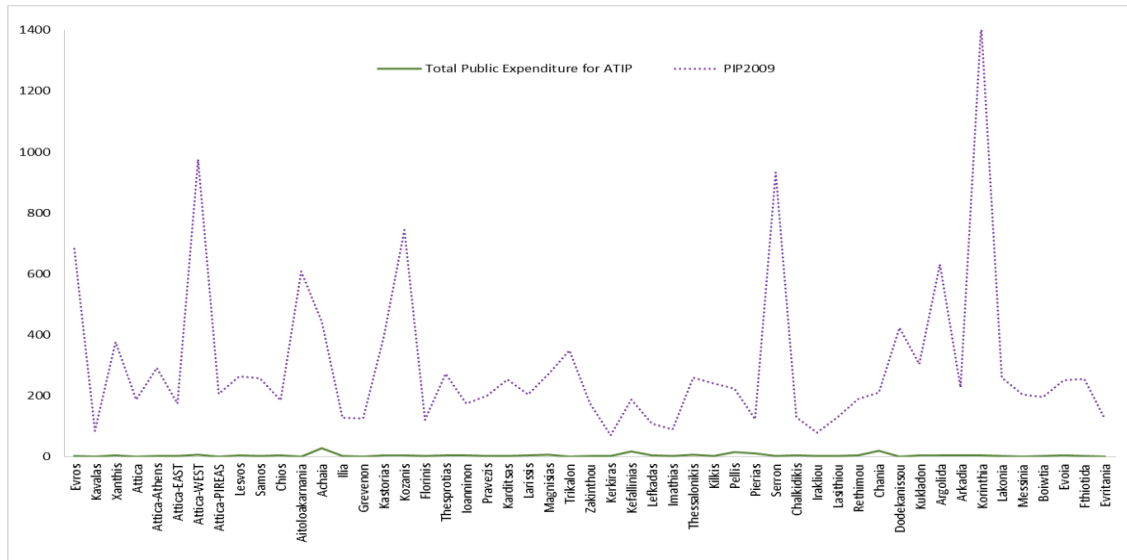


Figure 2: Total per capita budgets for subsidized investment plans of Alternative Tourism IP per prefecture and PIP for 2009 in per capita terms

(Source: ELSTAT, Epilogi 2010, own processing)

Looking at the graph in figure 2, it is concluded that not all funds for ATIP were absorbed by regions which were favored from the Public Investment Program (PIP) of 2009. The most favored regions from PIP2009 are quite different from the ones favored from the ATIP. A reason could possibly be that this is a special investment program that takes into consideration the comparative advantages of the enterprises and the regions subsidized.

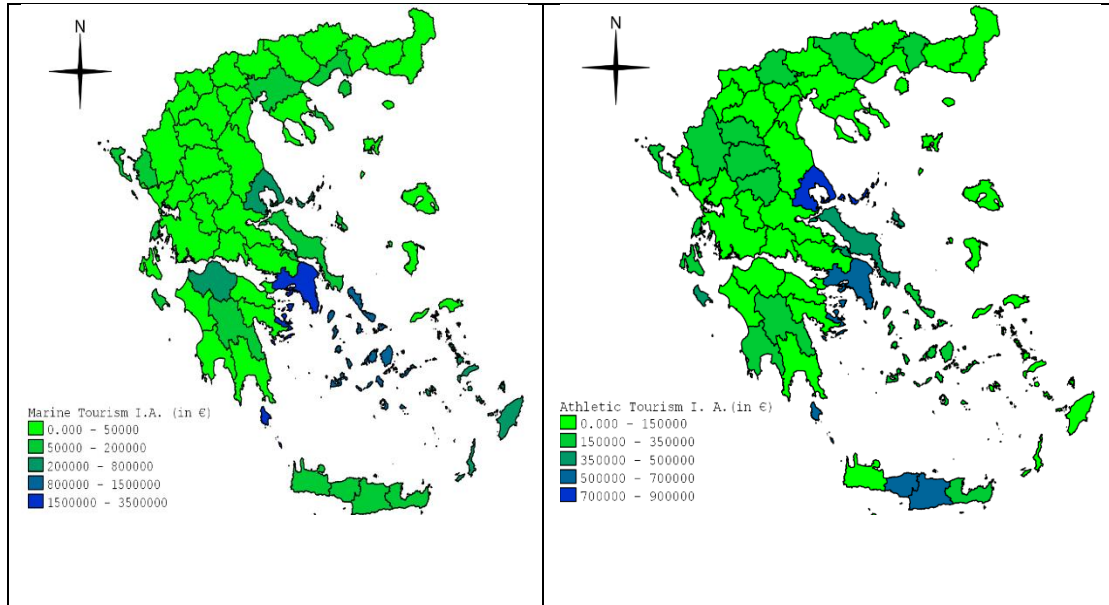


Figure 3: Spatial distribution of funds, in €, according to the type of alternative tourism, (Source: AEDEP, own processing)

Following, the distribution of alternative forms of tourism is presented for all prefectures, introducing the rate of each type of tourism subsidized in ATIP. The statistical data regard the approved for funding investment projects of local enterprises. Variety strongly depends on the region as well as the morphology, which favors the development of different forms of tourism. For example, in mountainous and lowland areas marine tourism rates are not displayed. Gastronomical Tourism has an important rate in most counties. In most cases all types of alternative tourism have absorbed grants but in some cases most SME were interested only in certain type of alternative tourism. This interest depends, as expected, on the topography and the characteristics of each county. Magnesia is a prefecture with both mountainous and marine topography therefore enterprises were both interested in developing rural and marine tourism. On the other hand in Evros rural and athletic tourism were developed and not marine tourism at all.

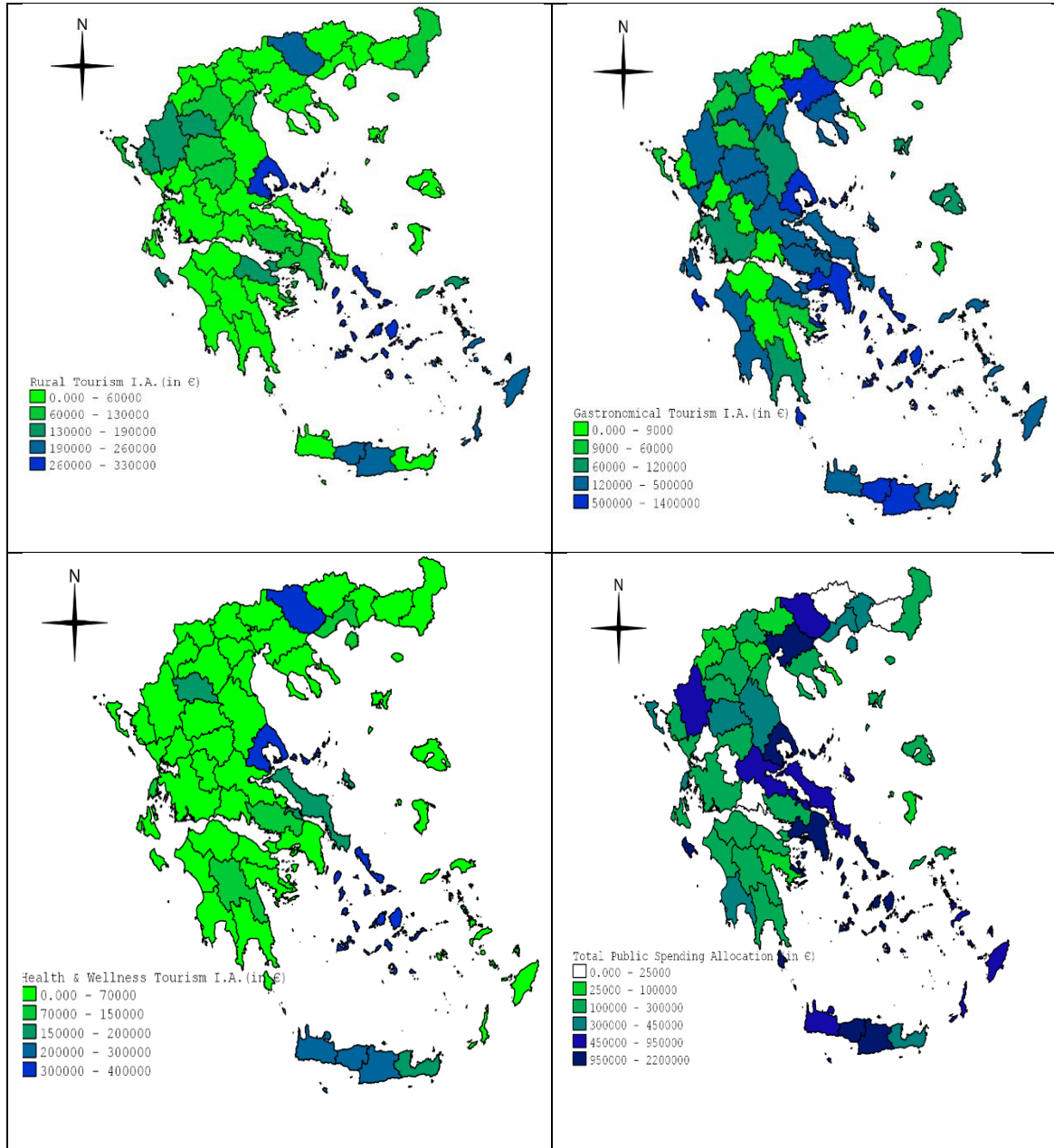


Figure 4: Spatial distribution of funds in € according to the type of alternative tourism, (Source: AEDEP, own processing)

Table 3: Rates for different Alternative Tourism type in Greek prefectures (Source: AEDEP, EPILOGI 2010, own processing)

Regions (Nuts III)	Athletic leisure tourism	Marine tourism	Rural Tourism	Gastronomic (culinary) tourism	Health & wellness tourism	All types	Other types*
Agion Oros	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Evros	18,0%	0,0%	69,4%	12,7%	0,0%	0,0%	0,0%
Kavalas	8,2%	20,4%	15,8%	0,0%	26,1%	0,0%	29,5%
Xanthis	58,7%	0,0%	0,0%	41,3%	0,0%	0,0%	0,0%
Attica-Athens	5,6%	47,3%	5,4%	7,9%	4,5%	14,2%	15,2%
Attica-EAST	28,6%	26,9%	0,0%	20,2%	0,0%	24,3%	0,0%
Attica-WEST	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Attica-PIREAS	8,8%	60,3%	0,0%	30,9%	0,0%	0,0%	0,0%
Lesvos	30,3%	0,0%	0,0%	21,3%	48,4%	0,0%	0,0%
Samos	17,9%	22,4%	34,5%	25,2%	0,0%	0,0%	0,0%
Chios	20,1%	12,6%	38,9%	28,4%	0,0%	0,0%	0,0%
Aitolokarnania	0,0%	17,7%	27,2%	9,9%	45,2%	0,0%	0,0%
Achaia	34,8%	65,2%	0,0%	0,0%	0,0%	0,0%	0,0%
Ilia	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%
Grevenon	12,1%	0,0%	23,4%	25,6%	38,8%	0,0%	0,0%
Kastorias	58,7%	0,0%	0,0%	41,3%	0,0%	0,0%	0,0%
Kozanis	0,0%	0,0%	57,8%	42,2%	0,0%	0,0%	0,0%
Florinis	23,0%	0,0%	44,5%	32,5%	0,0%	0,0%	0,0%
Thesprotias	0,0%	49,3%	50,7%	0,0%	0,0%	0,0%	0,0%
Ioanninon	22,1%	3,5%	21,3%	15,6%	17,7%	0,0%	19,9%
Pravezis	41,5%	0,0%	0,0%	58,5%	0,0%	0,0%	0,0%
Karditsas	30,5%	0,0%	58,8%	10,7%	0,0%	0,0%	0,0%
Larissis	0,0%	2,5%	7,7%	8,4%	0,0%	81,3%	0,0%
Magnisias	16,2%	10,2%	19,3%	21,1%	20,0%	4,2%	9,0%
Trikalon	37,5%	0,0%	36,2%	26,4%	0,0%	0,0%	0,0%
Zakinthou	21,8%	10,9%	8,4%	15,4%	13,9%	29,6%	0,0%
Kerkiras	22,2%	13,9%	17,2%	3,1%	28,5%	15,1%	0,0%
Kefallinias	35,6%	7,4%	0,0%	16,7%	0,0%	40,3%	0,0%
Lefkadas	41,3%	20,7%	0,0%	11,6%	26,4%	0,0%	0,0%
Imathias	21,7%	0,0%	0,0%	0,0%	0,0%	0,0%	78,3%
Thessalonikis	3,5%	11,0%	0,0%	22,4%	0,0%	12,0%	51,0%
Kilkis	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Pellis	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Pierias	11,9%	0,0%	22,9%	25,0%	0,0%	40,2%	0,0%
Serron	11,6%	0,0%	30,0%	5,5%	24,8%	0,0%	28,1%
Chalkidikis	18,1%	5,7%	0,0%	12,8%	0,0%	30,7%	32,7%
Irakliou	11,7%	5,9%	13,6%	11,6%	7,5%	15,9%	33,9%
Lasithiou	22,3%	23,3%	0,0%	5,2%	23,8%	25,3%	0,0%
Rethimou	17,8%	3,0%	12,5%	16,0%	10,4%	11,0%	29,3%
Chania	8,8%	1,8%	5,6%	6,2%	37,4%	29,7%	10,5%
Dodekanissou	3,4%	21,2%	13,1%	14,3%	0,0%	11,5%	36,6%
Kukladon	10,2%	23,3%	19,6%	7,2%	16,3%	17,3%	6,1%
Argolida	0,0%	0,0%	30,9%	11,3%	0,0%	0,0%	57,8%
Arkadia	28,1%	5,9%	36,1%	0,0%	29,9%	0,0%	0,0%
Korinthia	0,0%	0,0%	14,5%	10,6%	47,9%	0,0%	27,1%
Lakonia	0,0%	13,2%	0,0%	14,9%	0,0%	71,8%	0,0%
Messinia	21,1%	4,4%	27,2%	24,8%	22,5%	0,0%	0,0%
Boiwtia	14,6%	0,0%	28,3%	10,3%	46,8%	0,0%	0,0%
Evioia	14,3%	14,9%	0,0%	23,4%	15,2%	32,3%	0,0%
Fthiotida	9,0%	0,0%	17,5%	44,6%	28,9%	0,0%	0,0%
Evritania	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Fokida	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Rodopis	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Dramas	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Artas	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%

In the next chapters a thorough investigation is performed in order the allocation factors and the statistical forecasting model for alternative tourism investment program to be determined.

Public Spending allocation factors for ATIP

The existence of a relationship between different factors and the approved grants is investigated. The research is carried out at county level (Nuts III level). The factors investigated are: the population of each county, the number of tourists arriving by county, total human resources, total cost resources, total forest resources, population Potential, productive dynamism, prosperity index, education index and the tourists' rate of change through time ($\Delta T/\Delta t$). The aim is to determine the factors that influenced the funds allocation for the ATIP. The examined factors have been calculated in per capita terms. The data used are from Epilogi 2010, the ELSTAT and from AEDEP (through the Management Organization Unit of Development Programs "MOU"). The years regarding the used data are close to 2011, for example the data for the population census are from 2010. The variable $\Delta T/\Delta t$ was calculated for the period 1975 to 2009 according to the statistical data from Epilogi, 2010.

In order the possible relation between the independent variable "Total Public Expenditure pc" for ATIP and the other independent variables described above to be determined and finally the forecasting model to be addressed, at first an investigation process took place, where each one of them was tested for the possible type of relationship to the dependent variable of this research. Following a number of scatter dot graphs are quoted, where the best approximate possible curves are presented for each variable that gave a significant result. Two variables, PROSPERITY INDEX and PRODUCTIVE DYNAMISM INDEX did not give satisfactory results, therefore their scatter dot graphs are not presented. As it is observed, not all of the variables do affect the dependent one and moreover, not a simple linear relations is arousing but a composite one. Two variables' relation to the dependent variable, TOTAL HUMAN RESOURCES and THE TOURISTS' RATE OF CHANGE THROUGH TIME, seem to can be simulated with a linear curve, where as a logarithmic curve is more appropriate for the variable TOTAL FOREST RESOURCES, an exponential for TOTAL COAST RESOURCES and a negative power one for POPULATION POTENTIAL.

In order to establish the total forecasting model all above results are taken into consideration. It occurs that not all expected variables do play a significant role in spatial distribution of the ATIP funds. Espetially for the forest resources index it seems not to be a determining factor for this problem. Athletic tourism, rural tourism and other types of alternative tourism were expected to be influencing by the latter variable. A possible reason could be that this research is performed for the total amount of funds for all alternative tourism types and not for the funds regarding each one of them and therefore the lack of significance. Continuing this research, multiple centered regression analysis, forward regression analysis, backward and stepwise regression analysis were applied in order to achieve the best possible forecasting model. Unfortunately, not all the previous mentioned methods emerged satisfactory results.

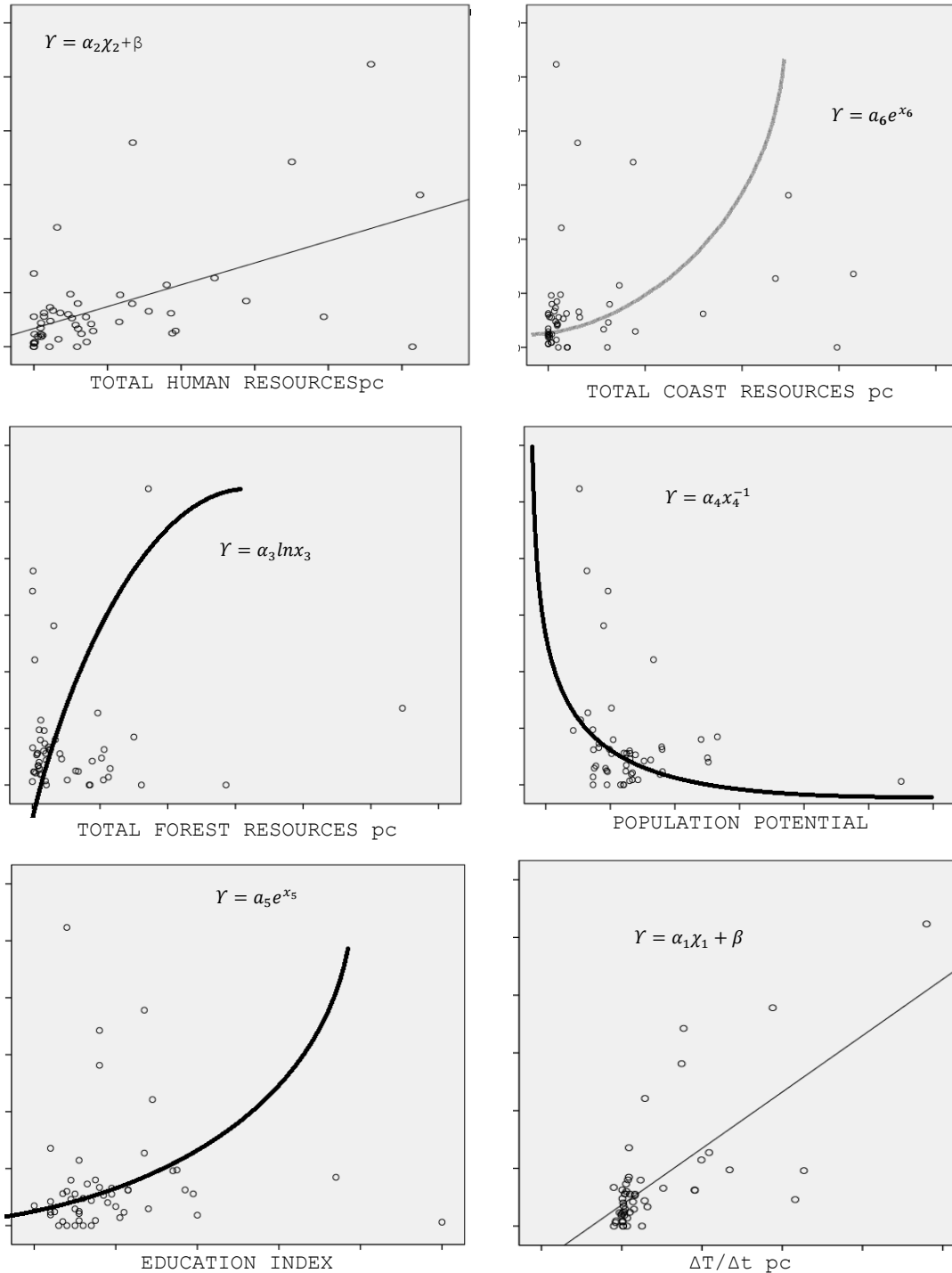


Figure 5: Scatter plots for allocation factors investigated for ATIP where Y in all cases is the Total Public Expenditure pc for ATIP (Source: EPILOGI 2010, AEDEP, own processing).

Statistical forecasting model

After completing the research of the variables that significantly influenced the funds' allocation, next process regarded the use of multiple regression analysis in order to construct the final forecasting model by calculating the coefficients of the variables and the constant term. A large number of επιλύσεις were performed until

the final model was constructed with acceptable values for r^2 and for the significance of each independent variable. The equation for the statistical forecasting model is defined as follows. After performing a number of regression analysis the final forecasting model is defined as follows:

$$Y = \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 \ln x_3 + \alpha_4 x_4^{-1} + \alpha_5 e^{x_5} + \alpha_6 e^{x_6} + \beta \quad (1)$$

where:

- $X_1 = \Delta T / \Delta t_{pc}$
- $X_2 = \text{TOTAL HUMAN RESOURCES}_{pc}$
- $X_3 = \text{TOTAL FOREST RESOURCES}_{pc}$
- $X_4 = \text{POPULATION POTENTIAL}$
- $X_5 = \text{EDUCATION INDEX}$
- $X_6 = \text{TOTAL COSTAL RESOURCES}_{pc}$
- $Y = \text{Total Public Expenditure}_{pc} \text{ for ATIP}$

The standard regression analysis was finally chosen due to the most acceptable given results, which formed the previously described function. In the next table the coefficients and the variables' significance are displayed. An important remark is that certain coefficients have negative values.

Table 4: Coefficients for backward regression analysis

Model 1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-955,105	673,153		-1,419	,163
$\Delta T/\Delta t_{pc}$	9,656	1,754	0,701	5,505	0,000
TOTAL HUMAN RESOURCES _{pc}	4106,502	1548,774	0,273	2,651	0,011
$\ln(\text{TOTAL FOREST RESOURCES}_{pc})$	-0,785	0,309	-0,280	-2,539	0,015
$\text{POPULATION POTENTIAL}^{-1}$	-1211,538	776,158	-0,199	-1,561	0,096
$\exp(\text{EDUCATION INDEX})$	-2,581E-43	0,000	-0,190	-1,715	0,093
$\exp(\text{TOTAL COAST REOURCES}_{pc})$	950,721	672,373	0,141	1,414	0,099

a. Dependent Variable: Total Public Expenditure 2010 pc (2011)

Table 5: Model Summary for backward regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,802 ^a	0,644	0,595	3,2513

Looking at the negative values of the coefficients of the independent variables, a question is arising; in which way the dependent variable "Total Public Expenditure pc for ATIP" is affected and the reasons underneath. Forest resources, population Potential and education index influence in a negative way the dependent variable. It seems the the larger amount of forest resources did not favor the distribution of funds whereas coastal resources did. Moreover population Potential did not have a positive affect in this distribution of funds, whereas human resources did have a positive influence. Finally, education had also a negative influence, which might mean that entrepreneur with

lower educational level accepted more funds than the ones with university degrees.

Statistical Research for each Alternative Tourism type

The research question that arouses is whether the previous displayed independent variables describing the general forecasting model, influence the same when examining each alternative tourism public spending separately and not in total. More specifically, five more analyses are performed using a different dependent variable in for each one, the public spending per capita for Athletic Tourism, Marine Tourism, Rural Tourism, Gastronomic Tourism and Health & Wellness Tourism (Table 6). Multiple regression was used as a tool for this research using, as mentioned before, different dependent variable Y_i in each analysis case. The obtained results of all five cases Y_i are displayed in Table 7.

Table 6: Dependent Variables

Y_i	Description of Alternative Tourism
Y_1	Total Public Expenditure pc for Athletic Tourism
Y_2	Total Public Expenditure pc for Marine Tourism
Y_3	Total Public Expenditure pc for Rural Tourism
Y_4	Total Public Expenditure pc for Gastronomic Tourism
Y_5	Total Public Expenditure pc for Health & Wellness Tourism
Y	Total Public Expenditure pc for ATIP

Table 7: Model summary for each analysis

Alternative Tourism	R	R Square	Adjusted R Square	Std. Error of the Estimate
Athletic	0,7006	0,4908	0,4214	1,7049
Marine	0,6655	0,4430	0,3670	1,2319
Rural	0,4770	0,2275	0,1222	1,0750
Gastronomic	0,7584	0,5752	0,5172	1,8387
Health & Wellness	0,5572	0,3105	0,2165	1,0114
Total Public Expenditure pc for ATIP	0,8020	0,6440	0,5950	3,2513

Performing regression analysis for each type of Alternative tourism public expenditure, led to a number of critical remarks. Table 7 displays the model summary for each analysis Y_i . The best R square is the one that corresponds to the general model. Good or accepted values for R square are also obtained from Gastronomic and Athletic tourism cases, whereas rural tourism and the rest analyses do not give sufficient results. The lower R square value is obtained from the rural tourism analysis case. Following, the coefficients for each analysis case are displayed in graphs and tables.

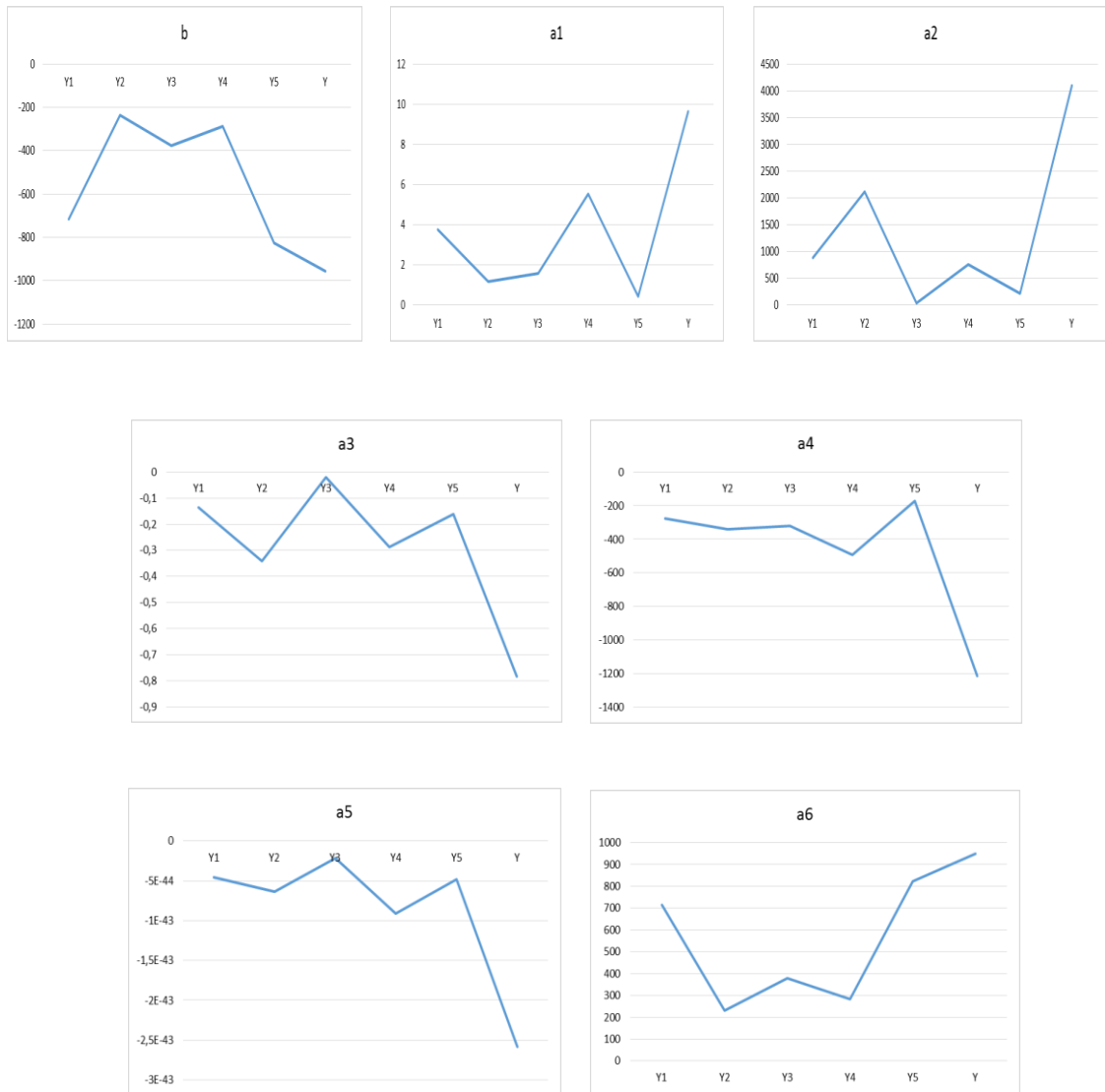


Figure 6: Coefficients for each case Yi

The values of the coefficients for the case Y are either lower or greater than the ones for each of the cases Yi. The independent variables Xi in no analysis case Yi do not simulate sufficiently the problem. Only in regression analysis case using Y as the dependent variable, this particular group of independent variables Xi form a function with high R^2 and low values for sig. In general, the results that are obtained for the analysis cases Yi are not statistical significant, an observation that does not regard the general statistical forecasting function Y. This may result due to the fact that these factors that affect the overall distribution are not equally important for the individual tourism types. For instance, regarding the gastronomic tourism o coastal resources index is not that significant, whereas human resources index is. As it is observed, in the general forecasting model, possible errors are extinct due to the calculation of sum of all individual analyses. Therefore the final solution is balanced and acceptable. As it is displayed in Table 8 and the corresponding graphs, the independent variables' values vary a lot but they don't differentiate from negative to positive. That means, if

an independent variable coefficient has a negative value in the general analysis, then in all five analyses would also be negative.

Table 8: Coefficients for each case Yi

		Constant	$\Delta T/\Delta t$ pc	TOTAL HUMAN RESOURCESpc	ln(TOTAL FOREST RESOURCESpc)	POPULATION POTENTIALml	exp(TOTAL COASTAL REOURCESpc)	exp(EDUCATION INDEX)
Athletic Tourism	Coefficients	-715,944	3,745	878,608	-0,137	-277,468	715,405	-4,580E-44
	t	-2,028	4,071	1,082	-0,843	-0,682	2,029	-0,580
	Sig.	0,049	0,000	0,285	0,404	0,499	0,049	0,565
Marine Tourism	Coefficients	-234,804	1,185	2115,122	-0,342	-339,417	232,162	-6,351E-44
	t	-0,921	1,784	3,604	-2,923	-1,154	0,911	-1,114
	Sig.	0,362	0,081	0,001	0,005	0,255	0,367	0,271
Rural Tourism	Coefficients	-377,447	1,569	31,855	-0,021	-319,819	378,107	-2,159E-44
	t	-1,696	2,705	0,062	-0,203	-1,246	1,701	-0,434
	Sig.	0,097	0,010	0,951	0,840	0,219	0,096	0,667
Gastronomic Tourism	Coefficients	-285,983	5,523	759,610	-0,288	-491,444	284,612	-9,098E-44
	t	-0,751	5,567	0,867	-1,646	-1,120	0,749	-1,069
	Sig.	0,457	0,000	0,390	0,107	0,269	0,458	0,291
Health & Wellness Tourism	Coefficients	-825,013	0,429	215,380	-0,161	-172,063	823,994	-4,857E-44
	t	-3,940	0,785	0,447	-1,671	-0,713	3,940	-1,038
	Sig.	0,000	0,436	0,657	0,102	0,480	0,000	0,305

Conclusions

The optimization problem of allocation of public investment is very complicated. A large number of criteria must be taken into consideration in order to reach a conclusion. Through this research on the distribution of the public funds of the Alternative Tourism Investment Program, it can be concluded that not all regions were favored. More funds were absorbed for marine and gastronomic tourism while less funds were absorbed for Health & Wellness tourism and for other types such as religious tourism and conference tourism. Especially for marine tourism more funds were absorbed in the prefectures of Attica, Cyclades, Magnesia, Dodecanese and Evvoia, for athletic tourism in Magnesia, Dodecanese and Evvoia, for rural tourism in Magnesia, Cyclades, and Serres & Rethymno, for Gastronomic tourism in Magnesia, Rethymno and Thessaloniki and for Health & Wellness tourism in Magnesia, Chania, Cyclades, Korinthia, Serres and Kerkyra. On the other hand for the whole ATIP more funds were absorbed in Attica, Magnesia, Cyclades, Rethymno & Thessaloniki, while there was no funding for the prefectures of Drama, Fokida, Rodopi and Arta.

When the analysis was performed for each alternative tourism type, different results were received. The use of the convenient variables is significant for the occurring results. Examining the contribution of the allocation factors for the ATIP distribution of funds, it is observed that they either have positive or negative influence in the forecasting model. Moreover it is concluded that the independent variables "coastal resources", "the tourists' rate of change through time" and "the human resources" have a positive influence in the forecasting model. Finally, during the coefficients' variation research it was observed that value for R² vary from approximately 0,2 to 0,60. It can be concluded that the independent variables used for the total forecasting model do not describe well the individual forecasting models.

Finally, the negative values of the coefficients of the independent variables arouse research questions; in which way do the corresponding independent variables affect the dependent ones. Forest resources, population potential and education index influenced in a negative way the dependent variable. It seems the the larger amount of forest resources did not favor the distribution of funds whereas coastal resources did. Moreover population potential had a negative affect on the examined distribution of funds, whereas human resources did have a positive influence. Closing, this research topic is quite open for further investigation, cause it regards the regional development of tourism (in its alternative form), the so called, heavy industry of Greece.

References

- AEDEP, 2015, Investment funds for Alternative Tourism Investment Program.
- Alternative Tourism Investment Program Guide, 2011, NSFR 2007-2013, (in Greek).
- Archer, B., 1971, "Towards a Tourist Regional Multiplier," *Regional Studies*, 5, 289-294
- Batabyal, A. and Nijkamp P., 2004, "The environment in regional science: An eclectic review," *Papers Regional Science*, 83, 291-316.
- Bonera, M., 2008, "The vacation decision making process: Tourism in the Garda lake," *Proceedings of 8th Global Conference on Business & Economics*.
- ELSTAT, 2012, Resident population census 2011
- EPILOGI, 2010, *The Greek Prefectures*. Athens, (in Greek).
- Gunton, T., 2003, "Natural Resources and Regional Development: An assessment of dependency and comparative advantage paradigms," *Economic Geography*, 79(1), 67-94.
- Lambrinidis, M., Psycharis Y. and Rovolis A., 2005, "Regional allocation of public infrastructure investment: The case of Greece," *Regional Studies* 39(9), 1231 - 1244.
- Norusis, M., 2005, SPSS 14.0 Statistical Procedures Companion, SPSS Inc.
- Polyzos, S., 2004, "Public Works, Investments and their Regional Economic Effects," *Operational Research*, 4(3), 373-388.
- Polyzos, S., Petrakos, G., Arabatzis, G. and Soutsas K., 2004, "The contribution of national resources in regional development in Greece," *Research Works*, 10(10), 259-282, (in Greek).
- Polyzos, S., 2002, "Analysis of influence factors and empirical investigation of the interior tourist flows in GREECE," *TOPOS 18-19*, 87-108, (in Greek).
- Polyzos, S., 2011, *Regional Development*, Kritiki, (in Greek).
- Polyzos, S., Tsiotas D. and Niavis S., 2015, "Analyzing the location decisions of agro-industrial investments in Greece," *International Journal of Agricultural and Environmental Information Systems*, 6(2), 77-100.
- Polyzos, S., 2015, *Urban Development*, Kritiki, (in Greek).
- Tsung-Yu Chou, Chia-Lun Hsu, Mei-Chyi Chen, 2008, "A fuzzy multi-criteria decision model for international tourist hotels location selection," *International Journal of Hospitality Management* 27, 293-301.