

EXPLORING INTERNATIONAL TOURISM TRENDS IN THE MEDITERRANEAN: CONVERGENCE OR BIG DIVERGENCE

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ABSTRACT

Triggered by the phenomenon of globalisation and unrest on both sides of Mediterranean, during recent decades there has been a process of tourism travelling re-switching in the tourism expenditure domain; hence the debate over convergence or divergence of the international tourism flows, caused by abruptly fall out of vogue of some destinations due to negative shocks produced by unrest in that volatile region, has never ended. Following on the extensive multidisciplinary literature on this issue, the purpose of this paper is two-fold 1) to apply a traditional analysis of convergence (sigma and beta convergence) in tourism demand flows and Principal Component and Cluster Analyses to investigate on the existence of different international tourism models, 2) to analyse tourism receipts expressed as a share of total and derive a possible classification of the countries and its profiles by means of a multivariate approach. This paper tries to test the hypothesis of convergence of tourism demand in Mediterranean area. We considered a sample of 20 Mediterranean countries, and used data from the World Indicator Database 1995-2015, keeping all relevant variables that interfere with international tourism demand in that region. The expected results of this paper can be interpreted as a further contribution to the literature on contemporary positive economics in the international tourism domain.

Keywords: *Tourism demand, receipts, arrivals, convergence, Principal Component Analysis, Cluster Analysis*

1. INTRODUCTION

After the post-WWII emergence of mass travel, the richness of the scenery of its coastal environment, its mild climate, and its impressive cultural heritage turned the Mediterranean into a significant tourist draw. The Mediterranean basin, if considered as a single area, is by far the largest global tourism destination, attracting almost a third of the world's international tourists (306 million out of 980 million worldwide) and generating more than a quarter of international tourism receipts (190 out of 738 billion Euro worldwide). It is forecasted that the

Mediterranean region will reach 500 million of international tourist arrivals by 2030 (UNWTO 2012). (GRID-Arendal, 2013). Do the tourism economy on Mediterranean region and its sector economy shares within countries in the region: converge? The following research question is asked in this paper in an effort to analyze the main problem: whether tourism trends in recent decades push the regional tourism growth in a convergence direction and can we explain and predict the probability that a hypothetical country (saying Croatia, particularly) constitute specific profile linked to convergence? The paper is organized as follows. The next section begins by literature overview and theoretical considerations about tourism convergence in the region, and after mapping out the research strategy, we introduce the dataset. The next chapter shows descriptive analyses carried out on these international tourism flow trends, while in proceeding we carry out the convergence analyses on the whole dataset.

The subsequent section presents and discusses the empirical results in Principal Component Analysis (PCA) and Cluster Analysis (CA), and the final section concludes.

2. LITERATURE PREVIEW

Our research introduces the clustering of tourism countries in Mediterranean region with the intention of explaining the convergence hypothesis within the design methodology. In the existing tourism economics literature, we have not found a valid justification for such a direction of research, most probably due to our original design. We will refer only to a smaller portion of recent empirical research relating to convergence in regard to tourism. Korres et al (2008) investigates and attempts to explain the role and socio-economic effects of tourism activities in the convergence and divergence process of European regions (in an attempt to interpret the so-called Dutch Disease phenomenon). Narayan (2007) test the convergence hypothesis by examining visitor arrivals to Fiji from eight tourist sources markets, and find strong statistical evidence by unit root and cointegration testing that Fiji's tourism markets converge. Ozan Bahar et al (2013) analyze whether or not there is any convergence between top ten countries, listed by World Tourism Organization, which have the largest volume of visitor arrivals in similar venue by cointegration technique. In the context of analyzing services confidence convergence among old and new EU Member States, Vojinović et al (2016) put a special focus on convergence in tourism sector. By analyzing β convergence they tested the volume of tourist arrivals and nights spent by tourists and find no convergence.

3. THE MEDITERRANEAN BASIN AND TOURISM CONVERGENCE

Each Mediterranean state traditionally has viewed its tourist product as competing with that of neighboring states (Apostolopoulos; Sönmez, 2000). Any single Mediterranean country is small with respect to the global tourism market. In regard to convergence idea, once the small Mediterranean country finds a tourism supply niche in which it can compete, it can expand. What matters is a country's relative endowment of the natural resource, rather than its absolute size (Lanza; Pigliaru, 2000). As it does, a country specialized, learns, achieves greater scale, and becomes more efficient in attracting tourism demand. Saying, we assume that a one Mediterranean country has 10 percent market share in the region. Now suppose the tourism induced invisible export is growing 15 percent a year while the global tourism demand is growing at 5 percent. Then, after a year, the market share of the tourism export sector for that country will be 11 percent, not a large change in absolute numbers, but the growth rate is very high. But the hard part about convergence on account of equalizing comparative advantage (mainly compose of various rental objects as a antiquities, culture, history, sun, sea,

sand, and fun at Mediterranean coastal states) is that is not a static condition. It shifts continuously over time, in parallel with investment, tour operator oligopolistic strategy, wars and political turning points, and ultimately, with prices and wages. Tourism demand shifts around the regional tourism economy, driving structural shifts in both developing and advanced tourism economies along Mediterranean coastal tourism centers.

4. DATA AND METHODOLOGY

We consider a sample of 20 Mediterranean countries: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey; we use data on international tourism flows registered for the period 1995-2014 by the WTO World Development Indicator Database (<http://data.worldbank.org/data-catalog/world-development-indicators>). The time interval chosen is particularly interesting for a study on tourism flow trends as it is characterized by increased volatility. For the Mediterranean in particular, there are at least few possible explanations for the high volatility of inbound tourism. First, the region has been continuously subject to dramatic events that endanger the safety of visitors. Among these are the Balkan Wars (1991 -1999); the Arab Springs and wars as an aftermath (2009-2014); debt crisis in Greece (2011-), the terrorist acts, and recently, the refuge crisis (2013-).The frequency and severity of such occurrences strongly influence the risk perception of prospective travelers to the region, causing them to switch to alternative destinations most likely from one country (that become and stays loser for some time) to another (winner) along the Mediterranean rim. The definition of international tourism variables sourced from the WTO development indicator Database and used in the analysis are: 1.AS=number of arrivals (arrivals in relation to the region's total territory); 2.RCD=receipts in current US\$ (receipts in relation to the region's total territory); 3.RXPZS=receipts (% of total exports, receipts in relation to the region's total territory); 4.RTRFRCD=receipts for passenger transport items in current US\$ (receipts in relation to the region's total territory); 5.RTVLITCD=receipts for travel items in current US\$ (receipts in relation to the region's total territory); 6.AIRPAS=air transport, passengers carried (passengers in relation to the region's total territory); 7.ASPOP=number of arrivals to population ratio (arrivals to population in relation to the region's total territory); 8.REXP=receipts to expenditures in current US\$ (ratio, in relation to the region's total territory); 9.RCDGDP=receipts divided to GDP in current US\$ (in relation to the region's total territory). As the primary focus of the paper is comparing data on national tourism levels, we use all variables expressed as a percentage or share in the region's total.

Figure following on the next page

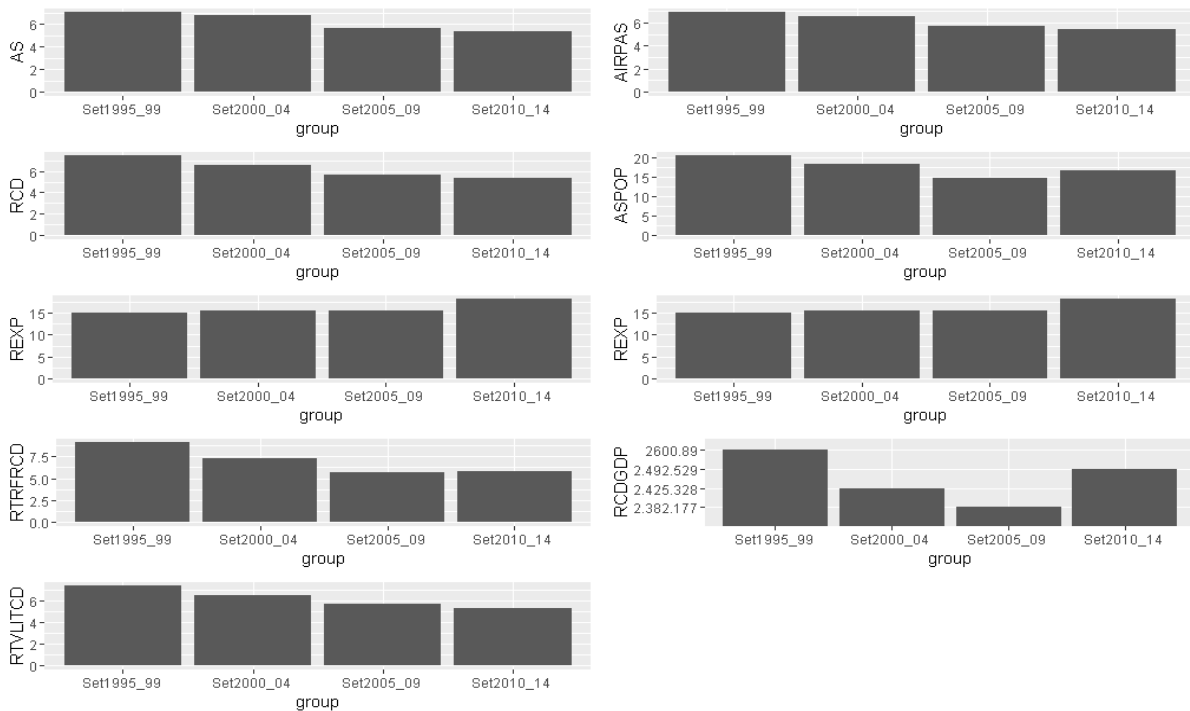


Figure 1: International Tourism Trends in the Mediterranean region
(Author's calculation, all variables are at their means)

5. DESCRIPTIVE ANALYSIS

Figure 1 shows the average level of international tourism variables (and other than interfere to tourism, as air passengers carried for example) registered in our sample for 4 of the time interval studied: 1995-99, 2000-04, 2005-09, 2010-14. The first variable illustrates arrivals divided by countries of destination, with countries classified according to WTO criteria. The decline in statistical mean highlights an important stylized fact: starting from an initial situation dominated by France, Spain and Italy (majority of arrivals in Mediterranean region), the period 1995-2014 witnessed a progressive shift in the geographical distribution of arrivals. The all three major destination noticed fall of arrival share. For France, the shift in arrival share was more striking (from 37% to 26.5%), and that fact would prop up very likely convergence hypothesis in affirmative direction, later on, in formal part of analysis. Generally speaking, such redistribution favored a few countries in the region, foremost: Croatia, Morocco, and Turkey. But the greatest beneficiary of this redistribution was despite all Croatia (passing from a share of 0.9% in 1995 to a share of 3.7 % in 2014). Into majority of countries in the region international arrivals share grew quite slowly (Algeria, Albania, Lebanon, Egypt), or nothing at all (B&H, Malta, Libya, Israel, Greece, Slovenia, Tunisia, Syria) during the period 1995-2014. Comparing dynamics of 1995-99 to 2010-14, an obviously decrease in tourism mean share appears evident in other areas referring to international receipts. The sectors labeled RXPZS, ASPOP, REXP and RCDGDP, despite the trend of falling share in 1995-2009 increased during the period considered afterwards. Figures 2 show RCDGDP trends for each of the countries in our sample as compared with the regional share value. Among them the RCDGDP as additional variable shows somehow atypical or dysfunctional behavior characterizes over the last period analyzed.

It can be seen that some of the countries in the sample, randomly stipulated in the 4 subfigures (B&H, Algeria, Libya, Morocco, Italy, France, Israel, Turkey, Spain, and Slovenia) are characterized by consistently below-average tourism receipts to GDP share levels over the entire period examined; values registered for other countries are at times higher and at times lower than the average. It is hard to deduce any evidence from curves inspection about convergence; some countries seem to show “converging behavior” over the period considered: on the one hand, Croatia, Albania and Greece show increasing RCDGDP growing trends that approach the average levels during the last years, while major actors: France, Italy, Spain repose in decennial stability. The low receipts to GDP share in those countries, along curve look almost as flat lines. The weight of those countries decrease the overall average value of RCDGDP share, but opposite is not the case.

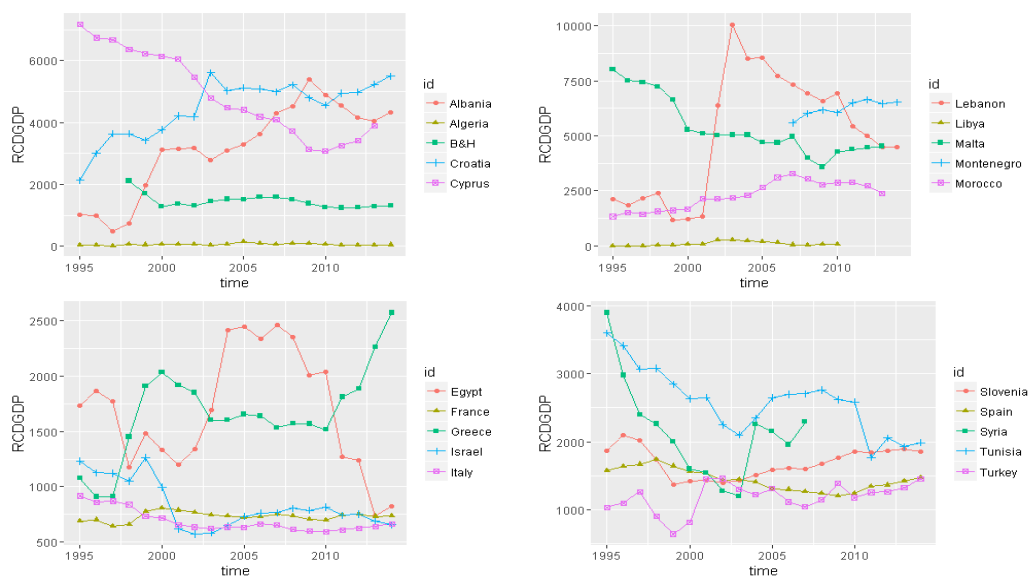


Fig. 2. Trends in international tourism, receipts divided to GDP (current US\$) - in relation to the region's total territory, 1995.-2014., (Author's calculation)

6. σ AND (ABSOLUTE) β CONVERGENCE

In the analysis of international tourism flows trends, σ -convergence is given by a marked reduction in tourism receipts in relation to the region's total territory (RCPTCD) variability over time, measured by the coefficient of variation. In Tab. 1 we show the coefficient of variation values calculated for the whole sample in the five different years: 1995, 1999, 2004, 2009 and 2014. Comparing 1995 to 2009, we found a substantial reduction in variability for the variables: tourism receipts to GDP ratio in relation to the region's total territory (RCDGDP), but the variability in sector after 2009 has increase. In similar fashion we find reduced variability in arrival share (AS) variable when comparing 1999 to 2014. The variability in arrivals share per capita (ASPOP), tourism receipts to expenditure share (REXP) and receipts from tourism items (RCPTXPS) among the countries in the Mediterranean is likely the result of: a. divergence of tourism flows in those areas of consideration.

	1995	1999	2004	2009	2014
AS	167.777	172.623	165.177	147.164	142.411
RCD	168.953	166.687	153.198	142.041	133.801
RXPZS	51.867	61.255	79.108	80.519	80.519
RTRFRCD	157.831	207.193	190.736	173.130	181.489
RTVLITCD	148.767	167.878	156.234	145.678	154.342
AIRPAS	160.567	172.241	163.739	158.067	171.569
ASPOP	129.545	162.385	166.620	186.708	202.848
REXP	60.024	65.541	68.653	81.926	91.336
RCDGDP	100.999	90.253	88.850	81.915	86.260

Table 1. Coefficient of Variation Values for 1995, 1999, 2004, 2009 and 2014 (Author's calculation)

To test the absolute β convergence hypothesis, we performed for each variable a cross-section Ordinary Least Square (OLS) regression to estimate the parameters for convergence regression. The results are shown in Tab. 2 (Table continues on the next page).

Time period	1/5*ln(Y99/Y95)	1/10*ln(Y04/Y95)	1/15*ln(Y09/Y95)	1/20*ln(Y14/Y95)
	(1)	(2)	(3)	(4)
<i>Dependent variable: Int.Arrivals Share</i>				
lnAS95	-0.010(0.008)	-0.015(0.009)	-0.014*(0.007)	-0.010*(0.006)
Intercept	0.020(0.013)	0.033**(0.014)	0.031**(0.011)	0.024**(0.009)
R ²	0.106	0.174	0.220	0.19
<i>Dependent variable: Int.Receipts in Current US Dollar Share</i>				
lnRCD95	-0.199*** (0.044)	-0.361*** (0.074)	-0.359*** (0.071)	-0.297*** (0.089)
Intercept	0.259** (0.101)	0.532*** (0.168)	0.644*** (0.161)	0.661*** (0.182)
R ²	0.557	0.599	0.615	0.482
<i>Dependent variable: Int.Receipts in % of Total Export Share</i>				
ln RXPZS95	-0.128*** (0.019)	-0.073*** (0.009)	-0.043*** (0.009)	-0.033*** (0.007)
Intercept	0.221*** (0.040)	0.111*** (0.020)	0.048** (0.020)	0.046*** (0.014)
R ²	0.723	0.780	0.541	0.579
<i>Dependent variable: Int.Receipts for Passenger Travel Share</i>				
ln RTRFRCD 95	-0.071*** (0.013)	-0.052*** (0.010)	-0.027** (0.011)	-0.044*** (0.009)
Intercept	0.097*** (0.026)	0.068*** (0.019)	0.015 (0.023)	0.061*** (0.018)
R ²	0.627	0.626	0.245	0.589
<i>Dependent variable: Int.Receipts for Travel Items Share</i>				
lnRTVLITCD95	-0.051*** (0.013)	-0.042*** (0.010)	-0.017** (0.011)	-0.024*** (0.009)
Intercept	0.067*** (0.026)	0.068*** (0.018)	0.019 (0.021)	0.031*** (0.016)
R ²	0.727	0.646	0.225	0.589

<i>Dependent variable: Air Transport Share Share</i>				
lnAIRPAS95	-0.128*** (0.019)	-0.073*** (0.009)	-0.043*** (0.009)	-0.033*** (0.007)
Intercept	0.221*** (0.040)	0.111*** (0.020)	0.048** (0.020)	0.046*** (0.014)
R ²	0.723	0.780	0.541	0.579
<i>Dependent variable: Int.Arrivals Share /Population Share*10</i>				
lnASPOP95	-0.038(0.045)	-0.016(0.021)	-0.004(0.013)	0.001(0.009)
Intercept	0.194*** (0.066)	0.379*** (0.032)	0.117*** (0.019)	0.142*** (0.014)
R ²	0.038	0.030	0.005	0.0002
<i>Dependent variable: Int.Receipts/Expenditure in Current US Dollar Share</i>				
lnREXP95	-0.032*** (0.010)	-0.043*** (0.010)	-0.018** (0.007)	-0.031*** (0.007)
Intercept	0.012(0.012)	0.013(0.012)	0.009(0.009)	0.013(0.008)
R ²	0.354	0.524	0.251	0.544
<i>Dependent variable: Int.Receipts/GDP in Current US Dollar Share</i>				
lnRCDGDP95	-0.052** (0.024)	-0.046*** (0.009)	-0.028*** (0.006)	-0.031*** (0.006)
Intercept	-0.012(0.040)	0.034** (0.015)	0.025** (0.011)	0.020* (0.011)
R ²	0.205	0.584	0.512	0.573

Note: # observ.= 20 countries; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 2: Absolute beta convergence. Cross-section OLS regression results, (Author's calculation)

Support for the absolute β convergence hypothesis is found for the all considered variables excluding only: AS and ASPOP. In the paper of Vojnić et al (2013), regarding the results of testing β convergence for arrivals and overnight stays variables in tourism sector, over the period between the years 2003 and 2011, no convergence was found; either. For all these variables, regression results show an acceptable value of R^2 , while all coefficients are significant at least 5% and, as expected, have a negative sign.

7. PRINCIPAL COMPONENT AND CLUSTER ANALYSES

The results of the previous paragraph show convergence for almost all of the variables considered (besides two variables that referring to international arrivals). Anyway, in order to obtain more detailed information about the position of each country as regards convergence variables and time span 1995-2014 considered, we decided to perform a multidimensional analysis (MDA) by means of a Hierarchical Cluster Analysis based on a Principal Component Analysis (PCA). In the proceeding our analysis is processed using *FactoMineR* & *factoextra* packages adopted by R (Husson et al, 2007; Kassambara & Mundt, 2016). The variables considered are the same as for the convergence analysis, without AS and ASPOP. We consider the average value in the period 1995-2014, for included variables. This solution helps to obtain a factorial plan and to reduce the bias of all possible expenditure outliers in a single year. On the other hand panel structure (time and cross-sectional data) in cluster analysis have no sense, because one country can be positioned in multiple clusters. PCA projects observations (Mediterranean country), thereby reducing a 7-dimensional space (7 initial variables) to a lower dimensional space while preserving as much information as possible.

The first couple of eigenvalues have a cumulative percentage of variance of 87.32%, which entails a 12.68% information loss for a bidimensional space for the analysis. Our present result is a model case for clear-cut analysis. The first two principal components explain more than 87% of the variance. The best situation is when the first two or three components "explain" about 80% of total variance (Escaith, Gaudin, 2014). From this point on, a new research direction appears, as we can use these two factors, nominate it and use it for a hierarchisation of the countries, visible in a space of only two dimension and not 7 dimensions, one for each variable, as it was before the PCA. The PCA reduces a p-multiple dimensional space (p: number of initial variables, 7 in the present case) to a lower dimensional space, correlated with the initial dimensions (see Table 3) while preserving as much information (or variance) as possible.

Our auxiliary figure (which due to lack of space in this paper is missing) draw the results of the projection of variables according to the first two principal components; to facilitate the interpretation of these two factorial axes, Table 3 displays the main correlations between the two first axis and the variables.

<i>Variable</i>	<i>F1: receipts & flying a far greater</i>	<i>F2: economies dependent on tourism</i>
RCD	0.949	0.289
RXPZS	-0.418	0.734
RTRFRCD	0.926	0.280
RTVLITCD	0.940	0.293
AIRPAS	0.966	0.249
REXP	-0.339	0.762
RCDGDP	-0.599	0.686

Notes: Variables are bolded when their correlation coefficient with F1 or F2 is greater than or equal to 0.5 in absolute value; all values are averaged for 1995-2014

Table 3: Correlation of selected variables with the first two factorial components (Author's calculation)

Basically, this matrix shows the correlations between the variables and the principal components. According to the table, some of international tourism receipt share (RCD, RTRFRCD, RTVLITCD) excluding RXPZS plus AIRPAS does matter substantially when the word is about forming the first principal component: the RXPZS does not qualify for the selection criteria ($|R| > 0.5$); correlation of those variables with the first axis is almost 1 (0.949, 0.926, 0.94, and 0.966, respectively). This says that the name for our first factor should be generally related with some combination of tourism receipts share and the air passenger share. This factor is amalgam of international receipts on account of visitors that entered the country through airports. Tourism research in this domain shows that high intensity air traffic implies an economically strong impulse, in generating tourism receipts for too far and not so well developed country. Therefore, since we desire a high value for that indicator, a proper name to suggest its meaning could be "Receipts & flying a far greater factor" showing us how relevant is a certain country from the point of view of its carried air passengers and its international tourism receipts capacity. The second principal component is much less correlated with the same variables, but it is obvious that some variables that mimic receipts (and that are negatively correlated with first factor) are present here also. Two variables are

contained in the second factor are in fact some kind of transformed receipt shares: REXP (receipts/expenditure share) and RCDGDP (receipts/ GDP share) forming so, latent variable, the tourism economy dependency rate. The very high F2 can be important for countries whose economies are heavily dependent on tourism.

We used *cluster analysis* to view how the Mediterranean countries are clustering on principal components formed, maintaining the same group. To decide the number of clusters for each group, we applied hierarchical cluster analysis. The data processing detected 6 clusters that give an idea of the tourism flows convergence trends of the countries considered. The detected clusters (see Tab. 4. & Fig. 3) are:

Cluster 1 characterized by a high level for REXP (*T value* 3.426), RCDGDP (*T value* 2.377), and RXPZS (2.229). In this cluster are Montenegro, and Croatia. These economies are the most heavily dependent on tourism. This cluster is primary formed by F2 and is defined as the “*East Adriatic model*”.

Cluster 2 characterized by a high RXPZS level (*T value* 2.529) but and RCDGDP (*T value* 2.065). The countries that form this cluster for all periods are Lebanon, Cyprus and Albania; we label this cluster “*Levant model*”.

Cluster 3 include following countries: Morocco, Malta, Tunisia, Greece, Egypt, Syria, Bosnia and Herzegovina Due to specific working methodology, the relevant statistics of these countries in cluster 3 is missing. Hence there is not label for this cluster.

Cluster 4 characterized by a low level of own economies dependent on tourism, inherited: low REXP (*T value* – 2.033), low value of RCDGDP (*T value* - 2.065), and RXPZS (*T value* -2.542). This cluster includes, for the whole period, Slovenia, Israel, Algeria and the Libya. This cluster is labeled “*Tourism as a secondary business*”.

Cluster 6 characterized by a high level of tourism receipts for various receipt variables considered beside RXPZS (positive *T value*), and high level of air traffic share (positive *T value*). Spain falls into cluster 6 and France as well. Those countries are the tourism receipt lieder, hence this cluster is labeled “*Tourism Top country*”. It is surprising that Turkey and Italy remain in cluster 5 for the whole period (also without noticing T-testing about difference in means. Yet, this cluster gravitated toward cluster 6 (Tourism top country), because it is positioned in close neighborhood.

Table following on the next page

	T-test	Mean in category	Overall mean	SD in category	Overall SD	p-value
Cluster 1						
REXP	3.426	2.298	0.000	0.764	0.975	0.001
RCDGDP	2.377	1.595	0.000	0.485	0.975	0.017
RXPZS	2.229	1.495	0.000	0.429	0.975	0.026
Cluster 2						
RXPZS	2.529	1.346	0.000	0.545	0.975	0.011
RCDGDP	2.012	1.071	0.000	0.455	0.975	0.044
Cluster 4						
REXP	-2.033	-0.909	0.000	0.260	0.975	0.042
RCDGDP	-2.065	-0.923	0.000	0.358	0.975	0.039
RXPZS	-2.542	-1.137	0.000	0.283	0.975	0.011
Cluster 6						
RTRFRCD	3.935	2.640	0.000	0.605	0.975	0.0001
AIRPAS	3.706	2.486	0.000	0.318	0.975	0.0002
RCD	3.626	2.433	0.000	0.097	0.975	0.0003
RTVLITCD	3.563	2.390	0.000	0.054	0.975	0.0004

Table 4: The results of cluster analysis - final cluster centers (Author's calculation)

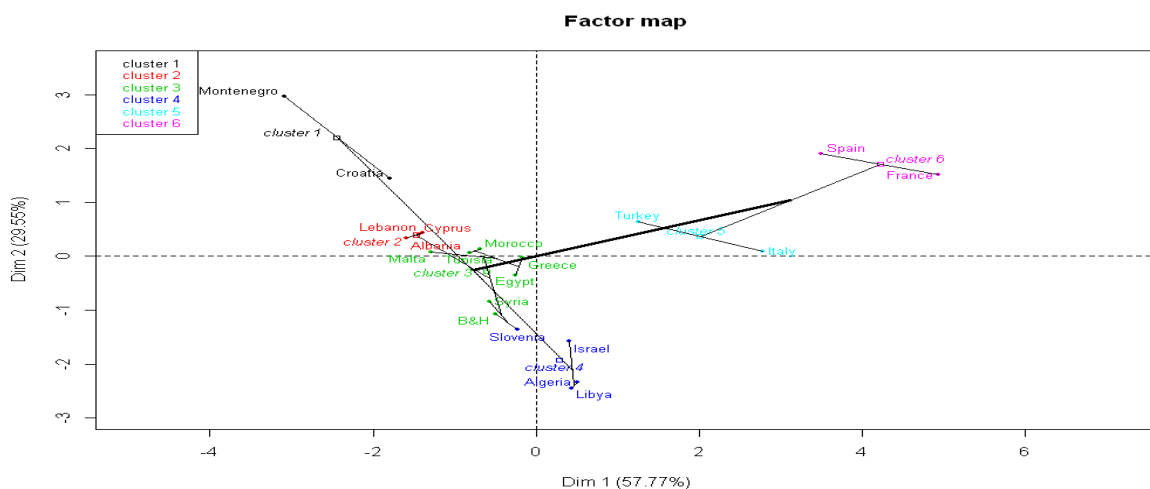


Fig. 3: Clustering by Factor Map with Countries' positions (Author's calculation)

8. CONCLUSION

This paper aimed at investigating convergence for a large group of Mediterranean countries, over a time span of twenty years (from 1995 to 2014). Monovariate and convergence analyses, carried out by means of the traditional instruments of descriptive analysis and σ and β absolute convergence, reveal that for international tourism arrival shares (AS and ASPOP), the convergence hypothesis is not supported. Multivariate analysis, a further tool for studying the convergence dynamics among the other variables, revealed that the harmonization process in the tourism flows domain was not so overwhelming as to support the emergence of a single Mediterranean tourism growth model. We are find even six different models of tourism convergence. The most important cluster for us is the first. Many countries, especially transition nations from former Yugoslavia, by opening up to foreign investors, have gradually become more dependent on tourism as a source of revenue enable them to build the muscle of their economy. The cluster analysis results showed that the two east- Adriatic countries generally retained their singularities because both of them fall into the first cluster over time despite considerable movements inside each cluster that translate into convergence displacements on the factorial plan. Those countries are Croatia and Montenegro. Croatia is the top country in the world in regard share of tourism in GDP formation. Despite success in attracting international tourists those trends recalling on careful diversify future development in both countries, persisting in at the same time on policy of sustainable tourism.

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