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Chapter 2

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

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

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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 co integration testing that Fiji's tourism markets converge. Ozan Bahar at 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 co integration technique. In the context of analyzing services confidence convergence among old and new EU Member States, Vojinović at 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 neighbouring states (Apostolopoulosk; 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 costal 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 centres.

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 travellers 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.

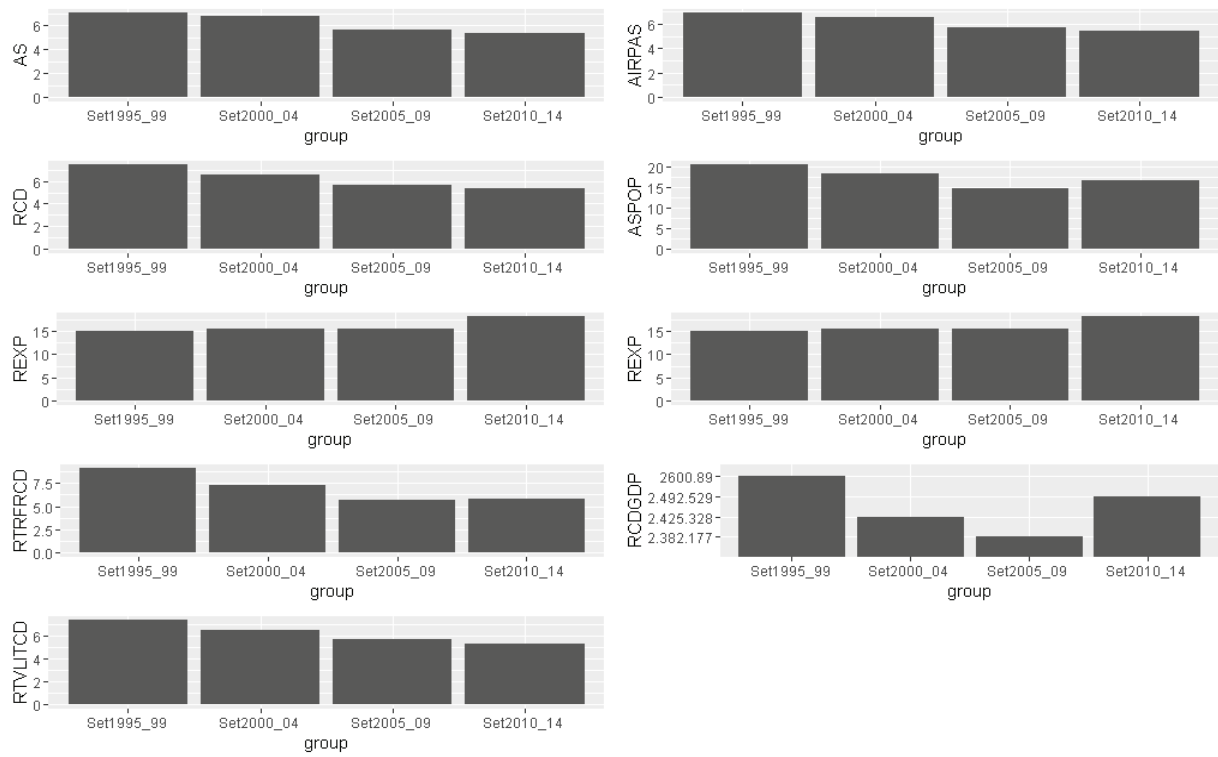
Table 1. Variables, Labels and Descriptions

VARIABLES	LABEL	DESCRIPTION
1	AS	International tourism, number of arrivals (expressed as arrivals in relation to the region's total territory).
2	RCD	International tourism, receipts (current US$). Expressed as receipts in relation to the region's total territory).
3	RXPZS	International tourism, receipts (% of total exports). Expressed as receipts in relation to the region's total territory).
4	RTRFRCD	International tourism, receipts for passenger transport items (current US$). Expressed as receipts in relation to the region's total territory).
5	RTVLITCD	International tourism, receipts for travel items (current US$). Expressed as receipts in relation to the region's total territory).
6	AIRPAS	Air transport, passengers carried. Expressed as passengers in relation to the region's total territory).
7	ASPOP	International tourism, number of arrivals to population ratio (expressed as arrivals to population in relation to the region's total territory).
8	REXP	International tourism, receipts to expenditures (current US$) ratio (expressed in relation to the region's total territory).
9	RCDGDP	International tourism, receipts divided to GDP (current US$). Expressed in relation to the region's total territory).

Source: WTO development indicator Database

International tourism flows are grouped in 6 development indicator areas: 1) number of arrivals, 2) receipts (current US$), 3) receipts (% of total exports), 4) receipts for passenger transport items (current US$), 5) receipts for travel items (current US$), 6) air transport, passengers carried. We use 3 additional variables, one expressed as a percentage of population, it is: 7) arrivals to population ratio, 8) expressed as a percentage of GDP - receipts to GDP, 9) and the receipts to expenditures ratio variable (see Tab. 1 for details).

Figure 1. International Tourism Trends in the Mediterranean region



Source: Author's calculation

* all variables are at their means

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.

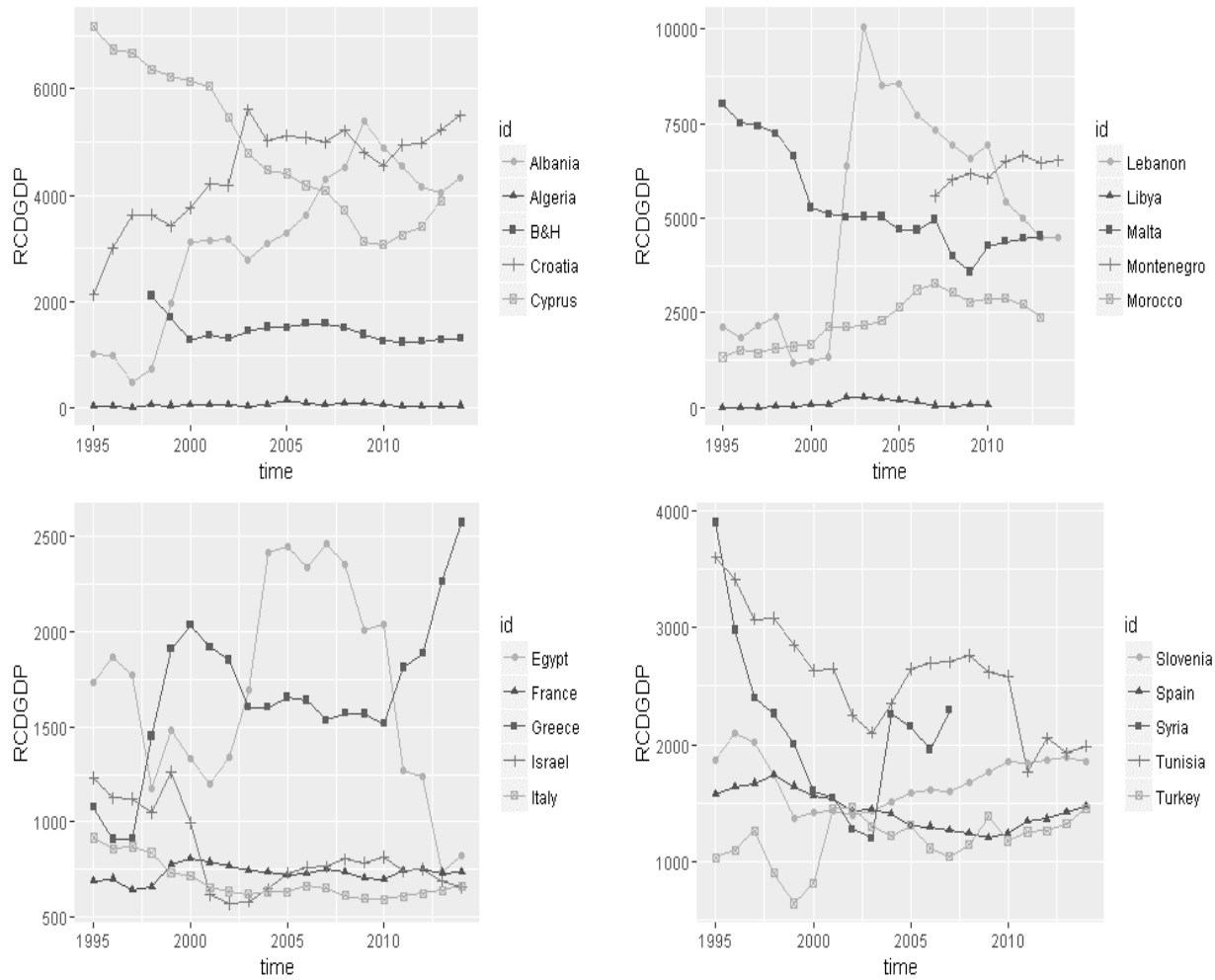
5. Descriptive analysis

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 favoured 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 behaviour 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 behaviour" 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.

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



Source: 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. 2 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 (RCPTCD_GDP), 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.

Table 2. Coefficient of Variation Values (1995, 1999, 2004, 2009, 2014)

YEARS COEFFICIENT	1995	1999	2004	2009	2014
AS	167.777	172.623	165.177	147.164	142.411
RCPTCD	168.953	166.687	153.198	142.041	133.801
RCPTXPS	51.867	61.255	79.108	80.519	80.519
RCPTPFS	157.831	207.193	190.736	173.130	181.489
AIR	160.567	172.241	163.739	158.067	171.569
AS_POP	129.545	162.385	166.620	186.708	202.848
RCPTCD_EXP	60.024	65.541	68.653	81.926	91.336
RCPTCD_GDP	100.999	90.253	88.850	81.915	86.260

Source: Author's calculation

The variability in arrivals share per capita (AS_POP), tourism receipts to expenditure share (RCPTCD_EXP) 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. 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. 3.

Table 3. Absolute beta convergence. Cross-section OLS regression results

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)
	Dependent variable: Int.Arrivals Share			
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)
Observations	16	16	16	16
R^2	0.106	0.174	0.220	0.19
	Dependent variable: Int.Receipts in Current US Dollar Share			
lnRCPTCD95	-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)
Observations	18	18	18	14
R^2	0.557	0.599	0.615	0.482
Dependent variable: Int. Receipts in % of Total Export Share				
lnRCPTXPS95	-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)
Observations	20	20	20	20
R^2	0.723	0.780	0.541	0.579
Dependent variable: Int. Receipts for Passenger Travel Share				

lnRCPTPFS95	-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)
Observations	20	20	20	20
R^2	0.627	0.626	0.245	0.589
Dependent variable: Air Transport Share Share				
lnAIR95	-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)
Observations	20	20	20	20
R^2	0.723	0.780	0.541	0.579
Dependent variable: Int. Arrivals Share /Population Share*10				
lnAS_POP95	-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)
Observations	20	20	20	20
R^2	0.038	0.030	0.005	0.0002
Dependent variable: Int. Receipts/Expenditure in Current US Dollar Share				
lnRCPTCD_EXP95	-0.032***	-0.043***	-0.018**	-0.031***

	(0.010)	(0.010)	(0.007)	(0.007)
Intercept	0.012(0.012)	0.013(0.012)	0.009(0.009)	0.013(0.008)
Observations	20	20	20	20
R^2	0.354	0.524	0.251	0.544
Dependent variable: Int. Receipts/GDP in Current US Dollar Share				
lnRCPTCD_GDP95	-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)
Observations	20	20	20	20
R^2	0.205	0.584	0.512	0.573

Source: Author's calculation, Note: *p<0.1; **p<0.05; ***p<0.01

Support for the absolute β convergence hypothesis is found for the all considered variables excluding only: AS and AS_POP. In the paper of Vojnić at 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 R2, 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). 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 side 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. As shown in Table 4, the first couple of eigen values have a cumulative percentage of variance of 87.32%, which entails a 12.68% information loss for a bi dimensional 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 hierarchization 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 5) while preserving as much information (or variance) as possible.

Table 4. Eigen values of the original variables

EIGEN VALUES OF THE ORIGINAL	EIGEN VALUE	% OF VARIANCE	CUMULATIVE % OF VARIANCE
comp 1	3.466	57.766	57.766
comp 2	1.773	29.554	87.321
comp 3	0.456	7.601	94.921
comp 4	0.215	3.587	98.509
comp 5	0.085	1.415	99.92
comp 6	0.005	0.076	100.000

Source: Author's calculation

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 5 displays the main correlations between the two first axis and the variables.

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.

Table 5. Correlation of selected variables with the first two factorial components

VARIABLE	F1: RECEIPTS & FLYING A FAR GREATER	F2: ECONOMIES DEPENDENT ON TOURISM
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

Source: Author's calculation

*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.

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. 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.

Table 6. The results of cluster analysis - final cluster centres

	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

Source: Author's calculation

The detected clusters are:

Cluster 1 (see Tabs. 6 and 7), 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 (see Tabs. 6 and 8), 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".

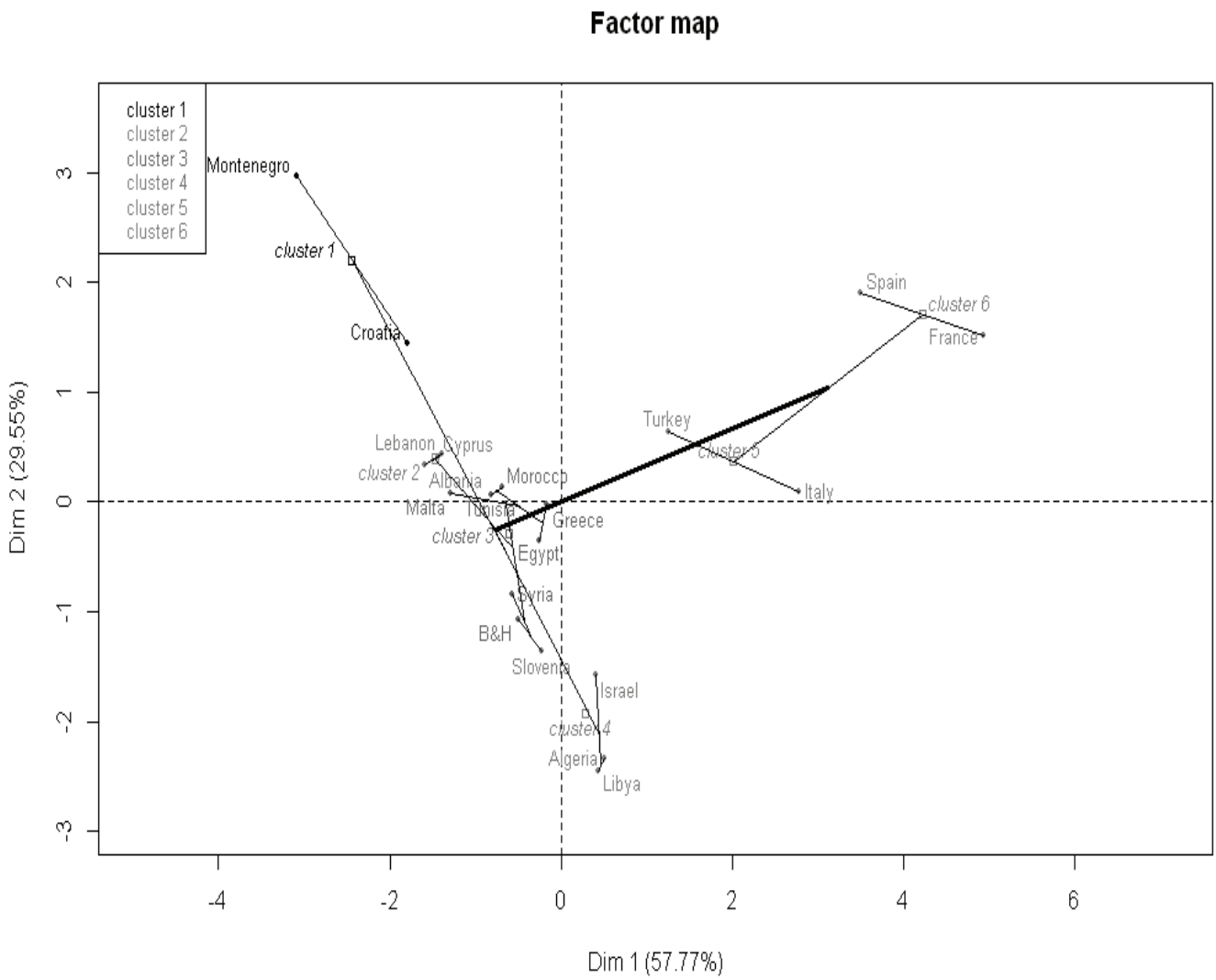
Cluster 3 include following countries: Morocco, Malta, Tunisia, Greece, Egypt, Syria, Bosnia and Herzegovina Due to specific working methodology, the relevant statistics of these countries in cluster 3 is missing. Hence there is not label for this cluster.

Cluster 4 (see Tabs. 6 and 10), 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 labelled "Tourism as a secondary business".

Cluster 6 (see Tabs. 6 and 9), 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 labelled "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 neighbourhood.

Fig. 3. Clustering by Factor Map with Countries' positions



Source: Author's calculation

8. Conclusions

This paper aimed at investigating convergence for a large group of Mediterranean countries, over a time span of fourteen 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.

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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