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INTERNATIONAL TOURISM DEMAND IN MACEDONIA: CURRENT STATUS AND ESTIMATION

МЕЂУНАРОДНА ТУРИСТИЧКА ТРАЖЊА У МАКЕДОНИЈИ: ТРЕНУТНО СТАЊЕ И ПРОЦЈЕНА

Summary: *The paper aims to investigate current international tourism demand in Macedonia, as well as to make an attempt to forecast it in a short-term horizon by 2014. For this purpose, the past and current patterns are based on stylized facts obtained from secondary data spreading over a sample period from 2000-2011. Furthermore, the estimation of future trends is based on Box-Jenkins methodology. Several alternative specifications were introduced and upon the outcomes of standard indicators for accuracy testing, the research identified the most appropriate one. According to projected values, moderate, but constant increase of international tourist arrivals is expected. The paper strongly recommends this empirical evidence in a line of mitigating the potential negative impacts as well as in preparation of tourism development plan in Macedonia. Finally, its contribution lies in the fact that it enriches poorly-developed empirical academic work within this scientific area in Macedonia.*

Key words: *international tourism demand, estimation, Macedonia.*

JEL classification: *C32, C52.*

Резиме: *Рад има за циљ да истражи тренутну међународну туристичку тражњу у Македонији, као и да покуша да је прогнозира у краткорочном периоду до 2014. године. У ту сврху, прошли и садашњи обрасци су засновани на чињеницама стилизованим и добијеним од секундарних података који обухватају узорак периода 2000-2011. Осим тога, процјена будућих кретања заснива се на Бок-Јенкинсовој методологији. Уведено је неколико алтернативних спецификација и према резултатима стандардних индикатора за тачност тестирања, истраживање је утврдило најприкладнији. Према пројектованим вриједностима, очекује се умјерен, али константан раст међународних туристичких долазака. У раду се снажно препоручује овај емпиријски доказ у циљу ублажавања могућих негативних утицаја, као и припреми плана развоја туризма у Македонији. Коначно, његов допринос лежи у чињеници да обогаћује слабо развијен емпиријски академски рад у овој научној области у Македонији.*

Кључне ријечи*: међународна туристичка тражња, процјена, Македонија.*

JEL Класификација: *C32, C52.*

1. INTRODUCTION

Tourism has been defined as one of the most dynamic world industries which is constantly faced with numerous challenges that affect each country's development. In order to cope with them, the planners and policy-makers apply the process of estimation as the only way to furnish information, which permit them to reach decisions before the occurrence of certain events. In order to create a comprehensive tourism development plan as a base for formulating tourism policy, reliable estimates of future demand must be undertaken. However, that is not a trouble-free process due to numerous dissimilarities which prevail to tourism industry. So, the main aim in introducing estimations in tourism is to envisage success of the destination by ensuring that visitors are hosted in a way that maximizes the benefits to stakeholders with minimum negative effects, costs, and impacts (Wilkinson 1997; Mason 2003; Goeldner and Ritchie 2006; Edgell et al 2008,).

The objective of this paper is to present current status and future trends of international tourism demand in Macedonia in terms of international tourist arrivals. In order to achieve the first part of that goal, the paper reports on analyses based on stylized facts obtained from secondary data spreading over a sample period from 2000-2011. In order to present future trends, the paper makes estimations by 2014 based on Box-Jenkins methodology. The outcomes point to positive impulses and expectation of continuous increase. Despite the fact that this method is not capable of explaining the driving factors behind the results, the projected values can serve as a solid base in preparation of tourism development plan in Macedonia. Generally, the contribution of this paper lies in the fact that it enriches the poorly-developed empirical academic work within this scientific area in Macedonia. Moreover, this research contributes to alarming relevant tourism-actors that the varieties of changes that influence tourism often cannot be envisaged, so the application of estimation methods is fully justified. Additionally, this empirical investigation may serve as a reminder that only if being prepared in due time, one may struggle the unexpected challenges.

The remainder of the paper is organised as follows: Section 2 provides a critical overview of the theoretical and empirical literature on necessity of analyzing tourism demand and justification of its estimation. The methodology is presented in Section 3. Section 4 comprises of different types of analyses and refers to discussion of results towards past and current status of international tourism demand. Additionally, this section encompasses the projected values for a short-term estimation of future international tourism demand. Concluding remarks are presented in Section 5 which is the final section of the paper.

2. LITERATURE REVIEW

There is a large body of literature that emphasizes the necessity of analyzing tourism demand of which main thesis is the wide range of influencing factors. Most often, they can be detected within the tourism-generating countries as stated by Lickorish and Jenkins (1997). Nevertheless, the tourism demand affects all sectors of an economy - individuals and households, private businesses and the public sector (Sinclair and Stabler 1997; Stabler et al 2010). In this respect, each country is interested in developing tourism since it generates various positive impacts, in the first line economic ones. So, estimating tourism trends may be the only way in reducing the risk of decisions for future tendencies, as well as representing a key determinant of business profitability (Frechtling 2001; Song and Turner 2006).

Estimation of tourism demand has attracted much interest in academia, and practitioners as well. The vast majority put an accent on application of different techniques, both qualitative and quantitative, to project tourism demand in various destinations. According to Witt and Song (2000) and Li et al (2005), the performance of estimation models varies upon various factors, like: used data frequencies; destination-origin country/region pairs under consideration; length of horizons and so forth. Consequently, a variety of econometric models are applied. According to the comprehensive study of Song and Li (2008) the methodology is very diverse since the researches employ both, the time series and econometric approaches in estimating tourism demand. Although the basic variable in determining tourism demand has gradually modified, the tourist arrivals is still the most applicable one. It is noticeable that many authors, decomposed this variable further in more in-depth manner into: holiday tourist arrivals, business tourist arrivals, tourist arrivals for visiting friends and relatives purposes (Turner and Witt 2001a, 2001b; Kulendran and Wong 2005), tourist arrivals by air (Coshall 2005; Rosselló 2001), tourist expenditure in the destination (Li et al 2004, 2006a and 2006b) tourist expenditure on particular tourism product categories as meal expenditure (Au and Law, 2002), sightseeing expenditure (Au and Law 2000), and shopping (Law and Au 2000). Other tourism demand variables used in the literature include tourism revenues (Akal 2004), tourism employment (Witt et al 2004) and tourism import and export (Smeral 2004).

Regardless of the applied model, the accuracy is one of the most important estimation evaluation criterion (Witt and Witt 1992). Namely, it is expected that the chosen model would produce projections that are as precise as possible. However, it is not always the case due to data limitations, measurement errors, unclear picture for the system of tourism demand etc. (Song and Witt 2000). Yet, even when an ideal estimation model can be identified, it can only serve as an approximation for complex tourists' behavior, for it is possible that tourists' decisions change reflecting the changes in

preferences, motivation or economic shocks. Hence, the planner should always be prepared to make a revision to the previously identified and defined model, to the newly created changes.

3. METHODOLOGY

The paper intends to present the whole picture of international tourism demand in Macedonia, meaning the past, current and future status. In order to document different approaches on past and current tendencies, the paper is rich on different types of analyses mostly based on stylized facts obtained from available sources of secondary data. In the line of presenting future data on international tourist arrivals, the Box-Jenkins methodology (Box and Jenkins 1976) is introduced. It is a quantitative method which is commonly applied in estimation, known as autoregressive integrated moving averages (ARIMA) models. It is a time series model that explains a variable with regards to its own past and a random disturbance term. As one of the most popular linear models for forecasting time series, it enjoys great success in academic research (Qu and Zhang 1996; Law 2000 and 2004; Goh and Law 2002; Kulendran and Shan 2002; Huang and Min 2002; Lim and McAleer 2002; Coshall 2005). The gathered data are processed by the software E-views version 6.0.

4. ANALYSES, RESULTS AND DISCUSSION

4.1. Current international tourism demand in Macedonia

The past and current tendencies are addressed through different types of analyses generally based on stylized facts covering a period from 2000-2011. The data are obtained from available sources of secondary data, mostly from the State Statistical Office. They refer to international tourist arrivals, their average length of stay as well as the highest ranked incoming countries.

The international tourist arrivals participate with only 30-40% of tourism demand in Macedonia, which points to very unfavourable proportion. Namely, the international tourism demand is 1.3 - 2.6 times lower towards the number of domestic tourist arrivals. Yet, one may stress the upward trend noticeable in the sample period (Chart 1). So, the past decade is characterized by positive impulses. The exception is 2001 with a shock and decline by more than 50%. The main reason was the war conflict in Macedonia and bad political climate, which are the most powerful factors for tourism development, supplemented by economic recession. Luckily, the very next 2003, the bad tourist season was far behind, with significant increase of 24%. This ascending tendency is noted during the whole sample period and in 2007, Macedonia registered the same number of international tourist arrivals as the year before the war conflict. So, Macedonian tourism was back on track with modest, but continuous progress. Such encouraging results are marked even in the time of the world economic crisis.

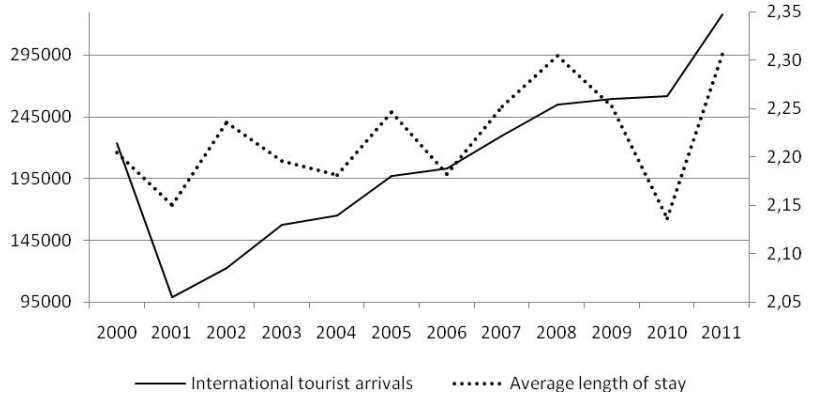
However, the forth mentioned conclusions must be taken with a precaution. Namely, it is often a case the number of registered arrivals not to match with the actual number of foreign tourists, due to following reasons:

1) Many tourists often change their accommodation during the stay, so they are registered several times; and
2) Many tourists may be accommodated at friends or relatives, so consequently are not registered by official tourism statistics.

Furthermore, the Chart 1 presents data for an average length of stay of foreign tourists in Macedonia. This is very interesting and highly important indicator for measuring the level of tourist development of a country. Based on calculations, during the sample period, the foreigners stay in Macedonia only 2.2 days in average. In this line, one may note that in 2000, the average length of stay of foreign tourists was 2.2 days, but over a decade later, no significant change was made, turning this indicator to hardly 2.3 days. Compared to other tourism-oriented countries, this is significantly shorter. According to Voithofer et al (2006) the average length of stay of non-resident tourists in all accommodation establishments in certain countries is: Bulgaria - 8.6 days; Croatia - 5.6 days; Slovakia - 3.6 days; Albania - 3.3 days; Slovenia - 3 days; Romania - 2.5 days etc. This info clearly points to

conclusion that foreign tourists do not travel to Macedonia motivated from tourist point of view, but are rather led from business purposes. Additionally, it is noticeable that nothing was done in terms of quality improvement of current tourism supply in Macedonia.

Chart 1: International tourist arrivals and average length of stay, 2000-2011



Source: Author's own calculations based on State Statistical Office (various years and publications).

Furthermore, the investigation continues with analysing the structure of tourist arrivals by country of origin. Table 1 gives an overview of top six countries that visited Macedonia in the period 2000-2011. One may perceive that the table is comprised only with neighbouring countries, like: Serbia, Bulgaria, Greece, Albania, Croatia and Slovenia. Among them, tourists from Serbia are everlasting and dominant foreigners. This refers to extremely unfavourable structure, since these six countries share an average of 54% of total number of countries that comprise international tourism demand in Macedonia in the sample period.

Table 1: Tourist arrivals by country of origin, 2000-2011

Year/Country	Serbia	Bulgaria	Greece	Albania	Croatia	Slovenia	Total 6 countries (share %)
2000	35522*	27623	21304	24747	4651	5288	53
2001	16429*	8484	10637	6419	2609	2658	48
2002	23239*	11703	14677	9086	4097	3837	54
2003	27325*	14147	27042	12088	5467	4579	57
2004	30771*	12156	29901	13452	6828	5444	60
2005	39147*	17462	33080	16868	7667	7514	62
2006	38208*	17421	30835	16188	8817	9228	60
2007	44661*	18901	28618	17573	12326	13046	59
2008	45134	21992	21060	19314	12302	13159	52
2009	38744	23619	22253	19757	12519	13970	50
2010	35840	15513	26843	17110	12791	12606	46
2011	35692	18541	45509	13614	13885	14063	43

Source: Author's own calculations based on State Statistical Office (various years and publications).
Note: * Data refers to Serbia and Montenegro.

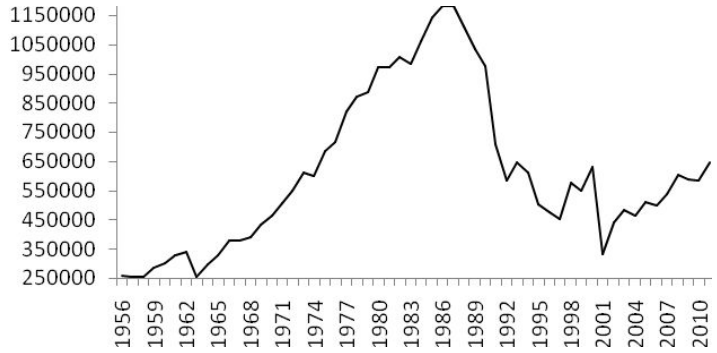
Nevertheless, as of mid-2000s, due to certain measures and activities of government in the line of promotion, country branding, subsidies and many various forms of support, this disadvantage has slightly positively transformed. Consequently, in 2011, the neighbours encompass 43% of international tourist arrivals meaning that other countries discovered Macedonia as interesting tourist destination.

4.2. Estimation of international tourism demand in Macedonia

The research carries on with estimation of international tourism demand by applying the Box-Jenkins methodology. So, we model the original time series - international tourist arrivals in Macedonia in the period 1956-2011, thus having a sample consisted of 56 observations. Chart 2

visually evaluates the potential stationarity as a first basic assumption for applying ARIMA modeling. Yet, one can observe two pronounced trends in the movement of the time series, so some of its characteristics imply non-stationarity. Therefore, it is obvious that the series has different average values and inconstant time series variance in all sub-periods of the sample.

Chart 2: International tourist arrivals, 1956-2011



Source: State Statistical Office (2012).

However, for precautionary reasons, the above noted intuitive conclusion is tested by correlogram of the series, showing the autocorrelation function (ACF) and autocorrelation coefficients (ρ_k) calculated for 18 lags (Table 2). Due to fact that correlogram starts with very high correlation coefficient of 0.95, the ρ_k slowly decay and there is a highly expressed autocorrelation in the series even for several lags (ρ_k at lag 6 is still high and is almost 0.5), one may conclude that the series is non-stationarity.

Furthermore, the research continues with checking statistical significance of ρ_k in order to find out whether they really represent the true ρ_k of the population. As stated in the statistical theory, if dealing with a random process, than the ρ_k are approximately characterized by the normal distribution, with a zero mean and variance of 1/*n*, where *n* is the sample size (Gujarati, 1995: 717). Hence, the standard error of the ρ_k is : $\sqrt{1/53} = 0.137$. According to the table for normal distribution, the 95% confidence interval for the ρ_k is $= \pm 1.96 \times 0.137 = \pm 0.269$.

If the calculated ρ_k lies within the confidence interval, it means that the null hypothesis that the true ρ_k of the population is zero (H_0: $\rho_k = 0$), cannot be rejected. From Table 2, it can be seen that the first seven ρ_k are statistically significant, i.e. different than zero, the coefficients from lag 8 until lag 13 lie within the confidence interval, and then, the coefficients are again different than zero. The large number of statistically significant coefficients confirms that the series is non-stationarity.

Table 2: Correlogram of international tourist arrivals

Lags (k)	ACF (ρ_k)	LB-statistics	p-value
1	0.947	50.258	0.000
2	0.874	93.897	0.000
3	0.784	129.73	0.000
4	0.685	157.62	0.000
5	0.579	178.02	0.000
6	0.467	191.54	0.000
7	0.359	199.69	0.000
8	0.255	203.91	0.000
9	0.157	205.55	0.000
10	0.059	205.79	0.000
11	-0.053	205.98	0.000
12	-0.154	207.66	0.000
13	-0.252	212.31	0.000
14	-0.346	221.28	0.000
15	-0.423	234.98	0.000
16	-0.486	253.62	0.000
17	-0.527	276.07	0.000
18	-0.545	300.80	0.000

However, given the problems with individual testing of the significance of ρ_k, the joint hypothesis that all ρ_k are equal to zero, is tested by employing the Ljung-Box statistic (LB). It tests the null hypothesis that there is no autocorrelation for all coefficients at certain number of time lags. Further on, if the null hypothesis is true, the LB-statistics asymptotically follows the χ^2 distribution with degrees of freedom equal to the number of autocorrelation coefficients. The values of LB-statistics are presented in Table 2, whereas it can be concluded that for all time lags, the LB-statistics by far exceeds the critical values. For instance, even at lag 18, the LB-statistics is statistically highly significant (300.8). In that respect, this test shows that the null hypothesis can be rejected, which by all means is a proof that the analyzed time series is non-stationarity.

Nevertheless, it is known that the LB-statistics has low power because the significant coefficients can be neutralized by the insignificant ones. Hence, the evidence gained by the LB-statistics is additionally tested by employing two unit root tests: the Augmented Dickey-Fuller (ADF) and the Phillips-Perron test (PP).

Table 3: Stationarity tests

Test	constant	constant + trend	none
ADF	-1.547875 (0.5016)	-1.498094 (0.8174)	-0.511774 (0.4899)
PP	-1.599661 (0.4756)	-1.496664 (0.8182)	-0.557843 (0.4708)

In the first row of Table 3, the values of the ADF-test are shown in its three variants, and in all cases, the null hypothesis for the presence of unit root, cannot be rejected. Consequently, this test suggests that the series is non-stationarity. Yet, it is known that the ADF-test has low power and, hence, the results are checked with the PP-test. As shown in the second row of Table 3, all the variants of the PP-test show that the null hypothesis of a unit root cannot be rejected. Hence, this test, too, suggests that the series is non-stationarity. As mentioned previously, if the time series is non-stationarity, then the Box-Jenkins methodology cannot be applied. It means that it is necessary to transform the series in order to make it stationarity, which is done by differencing the original series (Table 4).

Table 4: Correlogram of international tourist arrivals (First differences)

Lags (k)	ACF (ρ_k)	PCF (ρ_{kk})	LB-stat.	p-value
1	0.256	0.256	3.5980	0.058
2	0.208	0.153	6.0355	0.049
3	0.150	0.073	7.3325	0.062
4	0.078	-0.000	7.6874	0.104
5	0.100	0.053	8.2802	0.141
6	-0.059	-0.123	8.4935	0.204
7	-0.110	-0.114	9.2448	0.236
8	0.024	0.093	9.2823	0.319
9	0.047	0.086	9.4246	0.399
10	0.199	0.207	12.078	0.280
11	-0.122	-0.247	13.103	0.287
12	-0.044	-0.058	13.242	0.352
13	-0.026	-0.038	13.290	0.426
14	-0.168	-0.162	15.375	0.353
15	-0.091	0.005	16.002	0.382
16	-0.260	-0.128	21.283	0.168
17	-0.170	0.000	23.602	0.131
18	-0.051	-0.001	23.819	0.161

When the series is differenced, one cannot observe some regular movement of the autocorrelation coefficients, which begin with low values, decreasing quickly to zero, and then moving in a wave-style, i.e. increasing and decreasing. Also, one can observe the great value of the ρ_k at lag 10. It can be explained with the fact that the series declines sharply twice with an interval of 10 years (the collapse of Yugoslavia in 1991, and the war conflict in Macedonia in 2001). In order to check the stationarity of the differenced series, the ρ_k are individually tested with the confidence interval, which in this case is $\pm$ 0.272. Further on, it was shown that the null hypothesis that the true ρ_k of the population are equal to zero cannot be rejected. Namely, the value of LB-statistic with 18 degrees of

freedom is 23.819, which is not sufficient to reject the null. By all means, the above results show that by differencing of the original time series, stationarity is obtained. Yet, once again, in order to verify the results, the ADF-test and the PP-test are used. From Table 5, it can be concluded that the values of the statistics are highly significant, so once again, it can be concluded that the differenced series is stationarity.

Table 5: Stationarity tests (First differences)

Test	constant	constant + trend	none
ADF	-5.376144 (0.0000)	-5.445010 (0.0002)	-5.415973 (0.0000)
PP	-5.466517 (0.0000)	-5.529348 (0.0002)	-5.503297 (0.0000)

After performing the additional tests, it can be concluded that the Box-Jenkins methodology can be applied. The first step is to identify the appropriate model that will explain the time series movement. Here, crucial instruments are the sample autocorrelation (ACF) and partial autocorrelation (PACF) functions. The detailed analysis of both functions (presented in Table 4) did not show any regularity in the movement of the autocorrelation coefficients (slow decay, sharp picks at certain lags etc.), from which, the model could be identified. What the correlogram suggests is that we have a mixed process, i.e. combination of autoregressive (AR) and moving average (MA) processes.

Given the unclear character of the time series, several alternative specifications were used to model the original series: ARIMA(1.1.1) with dummy, ARIMA(2.1.2), restricted ARIMA(1.1.10) with dummy, and restricted ARIMA (10.1.10). All models represent the original time series in an adequate manner.

The ARIMA(2.1.2) model has a slightly higher coefficient of determination comparing to the previous model, but the second MA is marginally insignificant at 5%. Also, the inverted MA root is 1, which makes the process inappropriate for forecasting. The restricted ARIMA(10.1.10) model tracks the original time series quite well, both terms are highly significant and the coefficient of determination is twice higher comparing to the previous model. However, the reciprocal root of the MA term is very near to 1. Yet, the main problem with this model refers to the economic interpretation of the two terms. Namely, the statistical significance of the AR and MA terms at 10 lags is a consequence solely of the effects of the structural breaks in 1991 and in 2001. Since there is no reason for these events to take place in future on regular basis (in the time interval of 10 years), the inclusion of these AR and MA terms will not ensure adequate forecasting in the future.

According to the statistical features of the models, two specifications out of four, show best results: the ARIMA(1.1.1) with dummy and the restricted ARIMA(1.1.10) with dummy. These models have the highest coefficients of determination and, also, they are favored on the basis of both the Akaike and the Schwarz information criteria. Further on, here, there are no problems with the inverted AR and MA roots. Yet, despite the positive statistical characteristics, the restricted ARIMA(1.1.10) with dummy is discarded due to interpretation problems with the MA term. Once again, one may emphasize that inclusion of the MA term with a time lag of 10 periods ensures a good approximation of time series in the past, but not in the future. Hence, only the results of the ARIMA(1.1.1) with a dummy are presented here, as the most appropriate model for estimating the original time series.

Table 6: ARIMA(1.1.1) with a dummy

Dependent Variable: International tourist arrivals (First differences)				
Method: Least Squares				
Sample: 1958-2011 (54 observations)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
DUMMY	-191192.4	21341.93	-8.958533	0.0000
AR(1)	0.787363	0.165950	4.744591	0.0000
MA(1)	-0.423157	0.241562	-1.751749	0.0862
R^2	0.650544	Akaike info criterion		23.66973
Adjusted R^2	0.635984	Schwarz criterion		23.78337
S.E. of regression	32448.72	Durbin-Watson statistics		2.089552
Inverted AR roots 0.79				
Inverted MA roots 0.42				

From Table 6, it can be concluded that the AR term is highly significant with value of 0.8, which suggests a high level of persistence in the series. The second term is not significant at the level of 5%, but having in mind the relatively small sample, we decided to work with the model, because of its significance at 10%. In the same line, the coefficient before the dummy is highly significant. The adjusted R^2 is satisfactory high (0.64) having in mind that we have modeled the first difference of the series. The values of the inverted roots of the AR and MA terms lie within the unit root, which, once again, confirms that the chosen model is appropriate. Finally, as stated above, according to the information criteria, this model has better performances comparing to the previous ones.

Due to the fact that the primary purpose of building a forecasting model is to clearly discern the future of a phenomenon, the most important criterion is how accurately a model does this. It means to make an effort to disentangle how closely the estimations provided by the model conform to the actual events being forecasted. In this respect, we support the accuracy of the suggested model by the within-sample forecasts. So we employ some of the standard indicators, like: Mean Absolute Percentage Error (MAPE), Theil Inequality Coefficient (TIC), Bias proportion, Variance proportion and the Covariance proportion.

Table 7: Accuracy testing with standard indicators

MAPE	TIC	Bias proportion	Variance proportion	Covariance proportion
9.26	0.043	0.017	0.029	0.954

Table 7 gives an overview of some standard indicators which are also in the favor of suggested model. Consequently, all research outcomes point to fact strongly to propose the model ARIMA(1.1.1) with a dummy. The overall good performances of the chosen model allow its application in forecasting process. Therefore, the final step is estimation of international tourist arrivals in Macedonia by 2014 (Table 8).

Table 8: Estimating international tourism demand in Macedonia, 2012-2014

Year	2012	2013	2014
International tourist arrivals	333 213	338 344	342 865

The results of the short-term estimation of international tourism demand in Macedonia using the ARIMA(1.1.1) with a dummy, point out that by 2014, the international tourist arrivals will increase with a moderate rate, leading to the forecast of 342 865 foreign tourists in 2014. So, according to the suggested model, it is expected the international tourism demand to mark increase of 1.8 - 4.7%. The projected values are in the line with the updated analyses of the world leading tourism experts which confirm confidence weakening, but still with positive patterns. Namely, it is expected that Europe will mark a moderate upward trend of 2 - 4% in the forthcoming years (UNWTO 2012: 6).

5. CONCLUSIONS

Based on research outcomes, one may argue that the positive effects of tourism development in Macedonia are rising from day to day. The paper made an effort to present past and current patterns on international tourism demand up to 2011, as well as to project future short-term trend up to 2014.

With regards to international tourist arrivals in the past decade, the results mark positive impulses due to upward trend. Exceptions are noted only in 2001 (shock and decline of more than 50% because of the war conflict in Macedonia) and in 2008-2010 (slight, but encouraging stagnation during the world economic crisis). So, Macedonian tourism was back on track with modest, but continuous progress. When addressing the issue of length of stay, the foreigners stay in Macedonia only 2.2 days in average. Compared to other tourism-oriented countries, this is significantly shorter and implicates necessity of undertaking urgent measures in the line of quality improvement of current tourism supply. Furthermore, the research continued with interesting conclusions on the structure of tourist arrivals by country of origin, stressing that the top six countries that comprise the international tourism demand in Macedonia are the neighbouring countries. They represent 54% which points to extremely unfavourable international tourism structure.

Additional objective of the paper is to make an attempt to estimate the international tourism demand in Macedonia by introducing the Box-Jenkins methodology. From several specifications, according to the accuracy outcomes, the paper suggests the model of ARIMA(1.1.1) with a dummy, based on which, a short-term estimation of international tourist arrivals is provided. The estimation predicts that the upward trend will continue till 2014. Additionally, the paper explains that the implemented model does not provide 'the' solution, but only assists in finding it. Even though the model results are essential elements in the preparation of well-coordinated policies, they cannot do the job all by themselves. The research outcomes may be presented only as a framework, while the rest needs to be fulfilled with a lot of common sense and knowledge of details. So, the projected values cannot explain the factors behind these trends, but on the other hand may serve as a solid base for mitigating potential negative impacts and preparing tourism development plan in Macedonia. Despite the fact that there are varieties of changes in the surrounding which often cannot be envisaged, like financial shocks, terrorist attacks, war conflicts, crisis, epidemics etc., the paper argues the justification of applying estimation process.

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