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DEVELOPMENT OF TOURIST DEMAND IN CORRELATION WITH CLIMATE CHANGE IN THE REPUBLIC OF CROATIA[1]

The Republic of Croatia is a traditionally tourism-oriented country, and the growth of tourist traffic in recent years shows that tourism is one of the major engines of economic development. The biggest touristic demand is for coastal destinations in summer time. Climate change, however, may affect the Croatian tourism through direct effects - some destinations will no longer be able to meet the needs of tourists; and through indirect effects - associated with the environment and the ecosystem. However, the significance of these effects might depend on the intensity of climate change. For this reason, it is very important to study in what way climate change could affect the economic importance of tourism in Croatia. Via the regression model and exponential regression analysis, using one dependent variable (number of tourists) and one independent variable (temperature), the paper analyses the impact of temperature rise on the number of future tourists until 2025. As can be concluded from this work, by 2025, the temperature rise will have

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a positive effect on tourism in the coastal and mountainous part of Croatia, and no significant effect on the number of tourists in Zagreb.

Key words: climate change, tourism, demand, Croatia, modelling

1. Introduction

The modern world is characterized by various forms of global social, economic, political and natural changes. Among these changes, climate change not only poses a unique challenge for humankind and affects all aspects of human life, including tourism, but is also becoming a global environmental problem (Scott, Gössling & Hall, 2012). Climate change is recognized by the majority of governments and scientists throughout the world as a significant social and environmental issue facing the global population and its resources (Amelung, B., Nicholls, S., Viner D., 2007). Climate change is extremely significant for tourism demand because of its influences on the economic viability of tourist destinations and activities, tourist behaviour, and its ramifications for the entire tourism system (Hall, Amelung, Cohen, Eijgelaar, Goosling, Higham, Leemans, Peeteres, Ram, Scott, 2015). In spite of the important contribution of the tourism sector to the economy, research on the effects of climate change on the field has only recently emerged (Bujosa, A., Rossello, J. 2013). Following the conclusion of the Stern Review on the Economics of Climate Change, in the long-term, the negative impact of climate change on global economic growth would reduce the discretionary wealth available to consumers for tourism (UNEP, 2008).

Today, tourism is no longer looked upon as it was in the past. Its rapid development, along with changes in general social structures and awareness, led to a new, differentiated view of tourism. The costs and benefits of tourism for the economy and environment are discussed worldwide. For this reason, it is necessary to develop tourism only as much and as long as it provides the desired economic benefits for the local population, primarily in the form of income and jobs, and only as long as these benefits are permanent and do not decrease the local quality of life.

Tourism is an important economic sector in many countries, intricately linked with societies and communities (Becken, S., Zammit, C., Hendrikx, J., 2014). The redistribution of tourism flows could negatively affect countries and regions that depend heavily on income from tourism (Bigano, A., Hamilton, J.M., Tol, R.S.J., 2007). In Croatia, tourism is an important developing economic activity and one of the key drivers of the country as a whole. Considering the significance of tourism in Croatia for the achievement and growth of the gross domestic product (GDP), as well as for employment, export (invisible), balance of payments and other compo-

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nents of desired progress and rapid development, it is very important to study the possible impacts and consequences of climate change on the long-term development of Croatian tourism (Šverko Grdić, Z., 2012).

2. Climate Change and the Importance of Tourism Demand for Croatian Economy

During the last decade the global climate has changed significantly, affecting in turn human society and nature. One of the greatest challenges facing humanity is maintaining the balance of the global planetary ecosystem which is endangered by growing greenhouse gas emissions and climate change, partly caused by human activity. The consequences of climate change include high risk of floods and droughts, glaciers melting, rising of sea level, loss of biodiversity, various threats to human health, and harm to economic sectors such as forestry, agriculture, water management, etc. (Houghton, 2009). Climate scientists warn that while temperature tends to indicate gradual change, the earth's climate is not a linear system (Bauman, Y., Doppelt, B., Maze, S., Wolf, E.C., 2006). Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased (IPCC, 2013).

Thus, the dilemma facing tourism is great because tourism generates a large proportion of greenhouse gasses. The estimates are that emissions from global tourism, including transport, accommodation and tourism activities subsectors, make up 5% of total CO_2 emissions (Scott, D., Amelung, B, 2008). If it were a country, tourism would represent the fifth largest producer of greenhouse gases behind China, United States, India and Russia (McKercher, B., Mak, B., Wong, S., 2014). Climate directly affects a wide range of environmental resources critical for tourism, wildlife and snow, extreme events, infectious disease vector and fire risk (Pham, T. D., Simmons, D., G., Spurr, R. 2010). Generally speaking, based on an understanding of the motives and conditions for tourism development, it can be concluded that virtually every climate change has particular significance for the long-term positioning of tourist destinations in the world market (Scott, D., Amelung, B., et al., 2008). Some changes will affect tourism; an industry that has achieved a significant level of economic activity and in many countries contributes heavily to the gross domestic product and the overall well-being of the population. Therefore, these two facts, the contribution of tourism to economic growth and the complex two-way relationship between tourism and climate change, suggest that research on the implications of climate change on tourism industry and vice versa

is of significant interest and relevance (Hernandez, A., B., Ryan, G., 2011). Climate change will have certain consequences for tourism (Hamilton, J.M., Maddison, D.J., Richard, S.J.T., 2005), but the uncertainty of the science of climate change prediction means there is no absolute certainty about how tourism will be affected by climate change (Holden, A., 2008.).

Most tourist movement projections around Europe show that by the end of the century, due to climate change and higher daytime temperatures along the Mediterranean, many tourists will avoid these places in the summer months and change them for more comfortable ones in the north (Amelung B., Moreno A., 2009). Climate is a highly influential factor when drawing up holiday calendars, and when, why and where tourists travel (Morrison, C., Pickering, C., 2013). It is related to leisure activities, it influences the sensation of safety due to effects on health, and is an essential variable in a tourist's sense of well-being and satisfaction (Valls, J F., Sarda, R., 2009).

Tourism is the largest industry in the world, with high growth rates, and for this reason it is extremely important to pay attention to the study of climate change effects on tourism. Tourism cannot be seen as a single activity. It has to be viewed as a set of various activities whose demand is not linked only with tourist demand. Identifying the actual contribution of tourism in the economic and social development of any region or country is an extremely complex process which requires many measurements and estimates. The lack of adequate ways of measuring the economic aspects of tourism often leads to underestimating the benefits of tourism, especially in comparison to other economic sectors (Šutalo, I., Ivancić, N., Marušić, Z., 2011).

Tourism is one of the most important industries in Croatia, but with a slow and often impeded development. Since the Croatian declaration of independence in 1991, its tourism passed a twenty-year transition process, burdened with all the problems and contradictions of the country's economic and social development. Despite carrying the burden of an inherited and relatively inefficient business structure, and facing the consequences of war and the effects of various, often sub-optimal, models of privatization, Croatian tourism has nevertheless proven its vitality thanks to the strength and interest of foreign markets, the attractiveness of the country and, in particular, the resistance of tourism as a phenomenon to occasional global disorders. Croatian tourism is concentrated in seven coastal counties that realize 96% of total tourist overnight stays. The leading source countries are: Germany, Italy, Austria and Slovenia.

Tourism's contributions can be analysed through the Tourism Satellite Account that studies the economic contribution of tourism and travel in the world, regional and national economy (Horak, 2001). Tourism Satellite Account was developed by the World Tourism Organization with the goal of implementing a uni-

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versal measurement for the travel and tourism industry. Tourism Satellite Account is a statistical framework for quantifying tourism in the context of national accounts, providing insight into the direct effects of tourism on the economy.

Table 1.

TOURISM SATELLITE ACCOUNT OF REPUBLIC OF CROATIA

	2005	2006	2007	2008	2009	2013	2020**
Total direct contributions							
Employed (000)	156.4	155.8	154.3	160.7	152.1	138.0	179.2
Employed in %	14	13.7	13.4	13.7	13.2	13.3	13.6
GDP (EUR, mn)	3,652	3,973	4,302	4,930	4,588	4,631	10,435
GDP in %	12	11.9	11.8	12.2	11.9	12.1	13.6
Total direct &indirect contributions							
Employed (000)	325.1	327.0	324.9	339.1	316.7	311.5	387.5
Employed, %	29.1	28.8	28.2	29	27.5	29.9	29.3
GDP (EUR, mn)	7,590	8,339	9,057	10,264	9,551	10,606	22,256
GDP in %	25	25	24.8	25.8	24.7	27.8	29.4

Source: Blažević, B., Perić, J. (2010), WTTC (2014)

Likewise, using the WTTC model, the direct contribution of Croatian tourism to the overall economy in 2013 is estimated as accounting for 12.1% of GDP, with direct employment accounting for 13.3% of total employment in Croatia (WTTC Croatia, 2014). However, the total direct and indirect impact of tourism on the economy amounted to 27.8%, with employment amounting to 311,500 or 29.9% of total employment. These data show that, in spite of all the hardships that accompanied Croatia in the previous period, Croatian tourism has significantly improved its business results, showing a high level of resistance to external events in times of global crisis over the past few years. Furthermore, it is important to emphasize the fact that tourism is the only industry in the Republic of Croatia with positive growth rate year after year. In current recession time, all other sectors show signs of either decline or stagnation.

3. Methodology and data

This research studies the correlation between rising temperatures and changes in the number of guests. The data were analysed via the regression model and exponential regression analysis using one dependent variable (number of tourists) and one independent variable (temperature). This methodology was used because the data are not linear and the distribution of results deviates from normal. Hence, the calculated correlations were not Pearson's but rather Spearman's correlations. Spearman's correlation rate is calculated with the following formula (Zenzerović, Z., 2004.):

$$\rho = 1 - \frac{6\Sigma D^2}{N(N^2-1)}$$

Where:

ρ = Spearman's correlation

D = difference of the same respondent at par on two variables

N = number of years

To determine the association between temperature and guest numbers, 336 data were correlated and average monthly temperatures were reviewed in respect with mountainous, coastal and continental Croatia (Zagreb) from 1977 to 2009 (with the exception of the period 1991-1995). The average monthly number of tourists in the same period and in the same regions was also analysed. The average temperature in coastal Croatia is 15.6°C; in mountainous Croatia 8.3°C; and in Zagreb, 11°C. This model reflects the relationship between temperature and tourists number only for Croatia. This model is highly simplified, and has important limitations, but indicates that the raising of temperature will not threaten the tourist demand in the short term (till 2025).

For the purposes of this work, the Republic of Croatia is divided into three regions, as follows: coastal, continental (Zagreb) and mountainous region. All three regions have their own characteristics, both regarding tourist arrivals and climate. Thus, the Croatian coastal area has a Mediterranean climate mainly characterized by mild winters and warm summers. The tourists visit this area primarily for its main tourism product, i.e. sun and sea. The continental part of Croatia is characterised by a moderate continental climate with hot, dry summers and cold winters. The primary motives for tourist arrivals to the capital (Zagreb) are business tourism and urban tourism (Blažević, B., Krstinić Nižić, M., 2015), where climate is not the key factor for choosing a particular destination. The climate in the Croatian mountains is different from the previous two in both temperature and snow – it is characterized by low air temperature and long, heavy snowfall. People who visit

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this region come for a specific tourist experience, which, in part, is influenced by the climate.

Hence, this model takes into account only the tourist numbers and temperature, although climate conditions are affected not only by temperature but also by other factors, such as solar radiation, humidity, and UV index. It is important to understand that climate change will affect different climate variables, such as sea level rising, extreme weather conditions and temperature rise, and that each of them must be studied separately (Galeotti, M., Roson, R. 2012). However, in researches, air temperature was and still is considered the main indicator of climate conditions.

4. Results

According to the Croatian Central Bureau of Statistics data, in the last three decades an increase in average monthly air temperature has been recorded in all three observed Croatian regions (coastal, mountainous and continental Croatia to which Zagreb belongs). The total average monthly air temperature rose from 10.97°C in the period from 1977 to 1987 to an average of 12.49°C during the period 1999 - 2009. The highest average monthly temperature was recorded during the last decade (1999 - 2009), in August 2003, with a temperature of 25.01°C.

In the period 1977- 2009, the highest increase (1.7°C) in average monthly air temperature was recorded in Zagreb, while the increase was slightly lower in mountainous and coastal Croatia (1.4°C). The pronounced increase of air temperature in Zagreb is explained by somewhat higher pollution concentrations.

The average monthly number of tourists in the three observed regions in the period 1999 - 2009 (M=239 396) is higher than in the period 1977–1987 (M = 216,082). The average number of tourists between 1988 and 1998 (M=127,873) was affected by the war and because of that is somewhat lower. War events resulted in a small number of guests during the period 1991-1995 and so this period has been omitted from the correlation analysis of temperature and guest numbers that follows. Wartime events during these years would artificially lower the correlation of temperature & number of guests, which is the main reason why they were not included in this study.

The average number of tourists visiting the coastal region of Croatia per month is significantly higher than the number of tourists visiting Zagreb and mountainous Croatia, where the number of guests is the lowest. This is understandable, since Croatia is a destination mostly visited by "resort tourists" during the summer season.

4.1. The Coastal Part of Croatia

The Croatian Adriatic Sea coast is the most important tourist region in Croatia which attracts the largest number of tourists during the summer months. Because of its attractiveness, most of tourism events and accommodation are located in this area. Tourism in this region is highly seasonal, due to the fact that the offer is based mostly on sun, sea and sand; a fact which represents a major limiting factor of this industry.

The correlation rate between the number of tourists in Coastal Croatia in the period 1977-2009 and the air temperature recorded during that period is extremely high (r = .93). Moreover, the air temperature increase exponentially causes an increase in the number of tourists. The best model to predict this correlation is the *exponential regression model*, which can explain 85.7% of the total variation of the number of tourists in this area. The obtained regression rate $R^2=0.857$ is statistically significant at 5% level (F=2002.849, DF1=1, df2=334, N=335, p<0.05), which means that this model is rather representative of the population. On the basis of such close correlation, it can be concluded that air temperature is an extremely good predictor for changes in the number of tourists in Coastal Croatia. However, it should also be noted that in Croatia, as well as in its coastal area, the average summer temperatures are still at an "optimum level" (on coastal part of Croatia in summer time the average temperature is around 23°C) and that the ongoing temperature rise has not yet caused a decrease in tourist numbers. In other words, should air temperature rise above the "optimum level", the upward trend in tourist numbers in Croatia is not likely to continue.

By using the following exponential regression equation:

$$y = bo \cdot e^{b1 \cdot x}$$

it is possible to predict monthly tourist numbers for different average monthly temperatures where:

y - predicted number of tourists

x - air temperature

bo – constant, 17841.144 in this model

e - 2.7183

b1 – parameter of exponential equation, in this model equal to 0.178

Input data consisted of air temperature forecasts made by the Meteorological and Hydrological Institute (Fifth Croatian National Communication under the UN Framework Convention on Climate Change, 2010). These studies predict that,

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by 2025, the average temperature in Croatia will rise by 1°C (winter, summer and autumn) while spring temperatures will remain the same. The projection of the number of tourists in 2025 can be obtained by including the predicted air temperature increase in the exponential regression model.

Table 2.

PROJECTIONS OF TOURIST NUMBERS IN COASTAL CROATIA IN 2025

Month	Air temperature in 2009	Predicted air temperature in 2025 (research)	Number of guests in 2009	Predicted number of guests in 2025 (regression model)	Difference in number of tourists in 2009 and 2025
1	8.0	9.0	74,107	88,545	14,438
2	7.2	8.2	64,271	76,793	12,522
3	10.4	11.4	112,931	135,735	22,804
4	15.7	15.7	293,548	291,811	-1,737
5	21.1	21.1	758,524	763,038	4,514
6	22.1	22.1	906,303	911,697	5,394
7	25.9	26.9	1,782,503	2,142,454	359,951
8	26.6	27.6	2,031,048	2,426,748	395,700
9	22.6	23.6	1,002,488	1,190,713	188,225
10	15.9	16.9	300,598	361,299	60,701
11	12.9	13.9	178,331	211,814	33,483
12	9.2	10.2	91,754	109,630	17,876

Source: Croatian Central Bureau of Statistics, the Weather Bureau and the author's interpretation.

In accordance with this model's predictions, if air temperature in Coastal Croatia were to increase by 1ºC in the winter, summer and fall, it would lead to an increase in the number of tourists the whole year round except April. In the period until 2025, the average temperature, and thus the summer temperature, will not exceed the "optimal level" which tourists find enjoyable (temperature between 25-30°C) (UNEO, 2008). Once the temperatures exceed the "optimal level", the tourists move to cooler destinations that become more attractive, resulting in a significantly different distribution of tourists. When using this model for projections in 2050, the situation is significantly different since the projected increase of the average temperature in Croatia is much higher, with an emphasis on the significant increase of temperature in the summer months.

3.2. The Continental Part of Croatia (Zagreb)

Zagreb, the capital of Croatia, is the most important tourist destination in the continental part of Croatia. Other parts of the mainland are not recognized as tourist destinations, even though they offer many cultural, historical, natural and other attractions. The number of guests and average monthly air temperature distribution of the analysed period does not correspond to the normal distribution nor are these two properties in a linear relationship. The correlation between city guests and air temperatures measured in Zagreb in the period 1977-2009 is quite low (Spearman r = 0.29), because the number of guests in Zagreb does not depend so much on temperature. Zagreb has an equal number of guests in winter and summer, regardless of air temperature. This fact is understandable since Zagreb is the capital of Croatia and people come there mainly for business reasons. However, the city of Zagreb is continuously increasing its efforts to achieve quality promotion, and will undoubtedly attract a large number of future tourists interested in sightseeing, culture and customs of the capital of Croatia, as well as entertainment and fun. Since there is no (or a very low) correlation between air temperature and the number of tourists in Zagreb, it is impossible to create a model predicting the number of guests on the basis of temperature.

3.3. Mountainous Croatia

This area has the resources and the potential for year-round operation: preserved nature, cultural offer, tradition, peaceful life, events, sports and recreation, business meetings. Nevertheless, the mountainous part of Croatia is still not recognized as a tourist destination. The tourists visiting this region are mostly hikers, nature enthusiasts or transit guests. In order to achieve a controlled tourism growth and development, the area needs to develop each form of tourism solely on the principles of sustainable development. This will result in a long-term economic and social development.

The correlation ratio of guest numbers and air temperature in mountainous Croatia is not linear but exponential; i.e. the number of guests does not increase linearly with the increase of air temperature. The best model describing the correlation between the number of guests and air temperature in the mountainous part of Croatia is also the exponential regression model. The efficacy of the model in predicting the number of guests in correlation with air temperature in mountainous Croatia is slightly poorer than for coastal Croatia. Based on the knowledge of temperatures, this model can explain 62.8% of the variation in the number of

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guests ($R2 = 0.63$), since the correlation between temperature & number of guests in this region is also rather high ($r = 0.79$), although slightly lower than in the coastal region of Croatia. This model is statistically significant at $p = 0.05$ and is very representative of the population ($R2 = 0.63$, $F = 564.956$, $p < 0.05$, $DF1 = 1$, $df2 = 334$).

The following formula based on the regression equation:

$$y = bo \cdot e^{b1 \cdot x}$$

makes it possible to predict the monthly number of tourists for various monthly temperatures, where:

y - predicted number of tourists

x - air temperature

b_o - parameter for this model is 3680.107

e - 2.7183

b1 - parameter of exponential equation, 0,128 for this model.

As stated earlier, the Croatian Meteorological and Hydrological Institute has made an assessment in respect of potential climate change in Croatia for the period up to 2025. The assessment indicates that by 2025, the average temperature in Croatia will rise by 1ºC (winter, summer and autumn) while spring temperatures will remain the same. Tourist number estimates for mountainous Croatia in 2025 are obtained by inserting this temperature rise into the model.

Table 3.

ESTIMATES OF THE NUMBER OF TOURISTS IN MOUNTAINOUS CROATIA VIA EXPONENTIAL REGRESSION MODEL

Month	Air temperature in 2009 acc. to DZS	Predicted air temperature in 2025	Number of tourists in 2009 acc. to data by DZS[*]	Predicted number of tourists in 2009 (exponential regression model)	Predicted number of tourists in 2025 (exponential regression model)	Difference in predicted number of tourists between 2009 and 2025
1	-3.0	-1.0	5504	2523	3259	736
2	0.4	2.4	4041	3849	4972	1123
3	4.0	6.0	4409	6102	7882	1780
4	10.1	10.1	13267	13407	13407	0
5	15.1	15.1	27054	25425	25425	0
6	16.1	16.1	33383	28713	28713	0
7	19.3	21.3	54786	43525	56224	12699
8	19.5	21.5	76922	44369	57314	12945
9	15.1	17.1	33955	25263	32634	7371
10	8.3	10.3	13437	10580	13666	3086
11	6.5	8.5	4139	8457	10924	2467
12	0.9	2.9	3566	4103	5300	1197

Legend: DZS- Croatian Central Bureau of Statistics

Source: Croatian Central Bureau of Statistics, the Weather Bureau and the author's interpretation.

Temperature rise would increase tourist demand in the mountainous region. The model predicts that temperature rise would increase the number of tourists:

- Winter – Currently, winter sports tourism in Croatia is not developed due to the lack of ski infrastructure. However, temperature rise could provide better opportunities for developing various forms of sports and holiday tourism.
- Summer - due to high temperatures in the Croatian coastal region, a part of the tourists will switch to "cooler" areas, i.e. mountainous regions.
- Autumn - temperature rise will make the mountainous areas more appealing than they are today.

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- Spring - the number of tourists would remain the same, since the Croatian Meteorological and Hydrological Service does not predict any temperature rise in the spring for mountainous Croatia by 2025. It can be assumed that a further temperature rise would cause an even larger number of arrivals to mountainous Croatia. However, in order to ensure the realization of these predictions, the hoteliers of mountainous Croatia would need to build new facilities capable of receiving a larger number of tourists.

4. Importance of Tourist Number Change on Croatian Economy

Tourism is rightly considered to be a branch that best presents the specific offer and economic evaluation of domestic tourism products, which comprise of elements of tradition, nature, cultural heritage and material culture, as well as service and production components of local tourist attractions. It is a rapidly developing industry with a growing share of knowledge and high added value contributing to the overall social welfare, GDP growth, employment and investment. In economic development policies, tourism has an important role as a factor of development and restructuring of related activities. Tourism has become an important export product that offers the possibility of economic development, higher employment rates and sustainable development (Wong, E., Jiang, M., Klint, L.M., Howes, D.D., DeLacy, T., 2013).

The projections of future trends in the number of tourists in Croatia are positive. To take advantage of these numbers, tourism operators will have to put considerable efforts to enhance the tourism diversity of their area, offer new products in cultural, historical, natural, nautical, rural and eco-tourism, and provide better incentives for further development (Perić, J., Smolčić Jurdana D., Šverko Grdić, Z., 2013).

Accordingly, daily tourist spending is expected to grow; primarily due to tourist number increase, but also due to improved accommodation facilities and an enhanced secondary-spending offering. Currently average daily tourist spending in Croatia amounts to about EUR 58. This amount is expected to grow in the future, due to the reasons stated above. The inclusion of tourism in the development process is most easily observed in the sphere of consumption and spending. Tourist spending opens the market to numerous products and services. Clearly, climate change should lead to positive economic effects in tourism. However, it is important to emphasize that the economic consequences are not the same for all activities, regions or destinations (Shaw, W.D., Loomis J.B., 2008).

5. Conclusion

Climate change will have an impact on environment. On the Mediterranean, including Croatia, the dominant tourism product is "sun and sea", so climate change will undoubtedly affect the tourist flows. The effects of climate change, such as rising temperatures, rising sea-levels, greater incidents of stormy weather, and changing patterns of diseases are sure to affect the distinctiveness of Croatian tourism. However, these effects depend on the future temperature rise. The model used in this paper shows that temperature affects the number of tourists in the coastal and mountainous part of Croatia, while in the continental part (Zagreb), temperature does not affect the tourist flow. From these results, it can be concluded that, in the summer months, climate change will decrease the demand in the coastal part and increase the demand in the northern parts (mountainous region) of Croatia. Likewise, for the same reasons, climate change will improve the pre-season and post-season in the coastal part. Having these facts in mind, it is very important that the tourism industry recognizes the potential impacts and develops solutions that will help to channel tourist flows. The tourism offer in the coastal areas, islands, mountains and continental Croatia will have to adapt to climate change and introduce new tourism products. It is expected that Croatian tourism will enhance its diversity, offer a new range of products and services, significantly improve the quality of its tourism offer, and recognize new trends in the behaviour of modern tourists (greater interest in nearer and safer destinations, an increase of shorter and more frequent travels, a growing interest in cultural events and active holidays, environmental awareness and enhanced value for money).

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RAZVITAK TURISTIČKE POTRAŽNJE U ODNOSU NA KLIMATSKE PROMJENE U REPUBLICI HRVATSKOJ

Sažetak

Republika Hrvatska je tradicionalno turistički orijentirana zemlja, a rast turističkog prometa posljednjih godina pokazuje da je turizam jedan od važnijih sadržajnih i budućih generatora gospodarskog razvoja. Najveća turistička potražnja je usmjerena ka obalnim destinacijama u ljetno vrijeme. Klimatske promjene utjecat će na turističku ponudu Hrvatske koja će se odraziti kroz: izravne učinke klimatskih promjena – neka odredišta uslijed klimatskih promjena neće više moći zadovoljiti potrebe turista, te neizravne učinke koji se odnose na okoliš i pridruženi ekosustav. Međutim, značaj ovih efekata ovisiti će o intenzitetu klimatskih promjena. Zbog tog razloga je veoma značajno izučavati kako će klimatske promjene djelovati na ekonomsku važnost turizma Republike Hrvatske. Putem regresijskog modela i eksponencijalne regresijske analize, koristeći jednu ovisnu varijablu (broj turista) i jednu neovisnu (temperaturu), ovaj članak analizira utjecaj povećanja temperature na broj turista u budućnosti. Iz rada se može zaključiti da će do 2025.godine porast temperature pozitivno utjecati na obalni i planinski dio Republike Hrvatske, dok na području grada Zagreba temperatura ne utječe na broj turista.

Ključne riječi: Klimatske promjene, turizam, potražnja, Hrvatska, izrada modela