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IMPACT OF MOTORWAY A1 ON DEVELOPMENT OF TOURISM IN THE ŠIBENIK-KNIN COUNTY

ABSTRACT

The work studies the impact of the changed traffic flows (motorway A1) on the development of the tourist economy of the Šibenik-Knin County. The selected three-year period (2003 - 2005) includes three phases of different construction levels of the motorway A1 Zagreb - Split in the area of the Šibenik-Knin County. This raises the issue of the cause-effect relation of better traffic connections and the improvement of tourism as well as the compatibility of the new road network with the tendencies of reconstructing the tourist offer with special reference to unbalanced development of different destinations.

KEY WORDS

tourism, traffic connections, Motorway A1

1. INTRODUCTION

This work tends to analyse whether, and if yes, in which way the construction of motorway A1 has affected the development of tourism in the Šibenik-Knin County. A three-year period (2003-2005) during which the effects of tourist activities were analysed, primarily referring to the three summer tourist seasons, includes at the same time also three phases of different construction levels of the motorway A1 Zagreb - Split in the area of the Šibenik-Knin County.

Taking into consideration the geographic position, natural beauties and cultural heritage of that area on the one hand, and the devastation of the pre-war industrial production on the other hand, there is no doubt that the economy of the Šibenik-Knin County is oriented towards tourism. Tourism is developing, with noticeable positive trends, but also indicating differences in the development of individual cities and districts.

The two basic questions that require an answer are: First, can different intensity of tourism growth of individual destinations be brought into relation with

the traffic connections of these locations? How strong is the interaction between the construction of a modern road infrastructure of the highest level as an important factor of the assessment of traffic availability and success of the tourist economy subjects in the market competition for tourists?

2. ŠIBENIK-KNIN COUNTY - IN GENERAL

The Šibenik-Knin County belongs geographically to Central Dalmatia. In the west it borders on the Zadar County, in the East on the Split-Dalmatia County, and in the North on Bosnia and Herzegovina. In the North this area is dominated by mountains: eastern part of Velebit, Dinara, Svilaj and Moseć that form a natural barrier to the traffic corridors of connections with the wider area of the Republic of Croatia, and in the south the Adriatic Sea. A total of 112,890 people live in the Šibenik-Knin County, which covers an area of 2,984km², in 5 cities and 14 districts, which with 37.8 people/km² represents the second lowest population density in the Republic of Croatia.¹

Moving away from the villages, low population density in the interior and high unemployment rate are not just the consequences of war, but also of emigration, either to coastal area or abroad. There is an increasingly noticeable trend of emigration of the younger, highly educated part of the population which makes the development of economy more difficult and acts unfavourably on the labour cost². The economic heritage of this area in the sense of the once dominant metal-working industry still exists but, somewhat due to war destruction, and somewhat due to transition processes, its significance has decreased. The tendency today is to revive this economy first of all through small and mid-size entrepre-

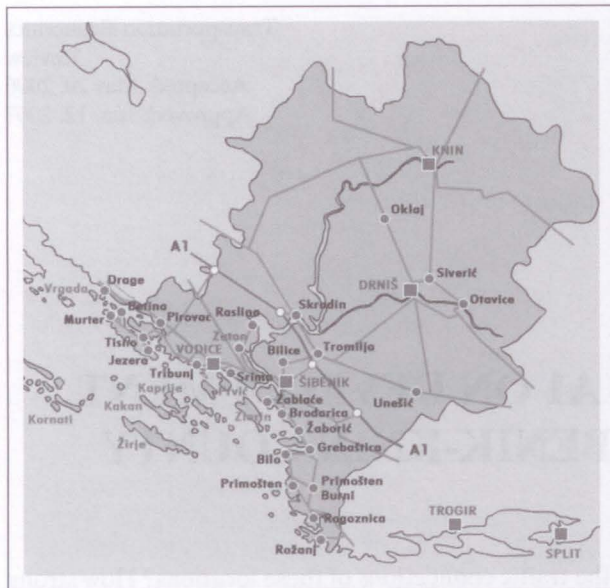


Figure 1 - Area of the Šibenik-Knin County

Source: Croatian National Tourist Board

neurship. A similar case is with the Zagora part of the County around the towns of Drniš and Knin. The situation on the islands is also bad, where the failure of fishery and island agriculture brought to the increase in unemployment and emigration (only 1,191 people living on five islands, mainly retired people).³

Like all the coastal counties, the Šibenik-Knin County turned to tourism as the basic economic branch, which was contributed by the increase in the tourist demand, opening of workplaces, and safe revenues. The focuses of tourism development were differently distributed: Primošten, Vodice, Murter and Rogoznica followed such development. However, the City of Šibenik has not kept pace with these trends, so that, apart from the construction of the "Solaris", the tendency was still on the accommodation of industry, army, cargo port and trade.

3. ROAD TRAFFIC OF THE ŠIBENIK-KNIN COUNTY

The changes of road traffic flows in the Republic of Croatia during the gradual opening to traffic of single sections of Motorway A1 Zagreb - Split had their impact also on road traffic of the Šibenik-Knin County area. The density of road network in the County amounts to 40.6 km/100km², which is 18% less than the national average.⁴

Motorway A1 passes the Šibenik-Knin County in the length of 42km. The traffic flows in the County area are presented in Figures 2 and 3.

The selected area of the Šibenik-Knin County is interesting for the study of cause-effect relations be-

Table 1 - Structure of roads in the Šibenik-Knin County⁵

Road category	Length [km]	Length [%]
State roads	341.89	28
County roads	479.52	33
Local roads	395.90	39
Total	1217.31	100

tween the development of road traffic system and the development of tourism for several reasons:

- the Šibenik-Knin County with its two National Parks and a number of other tourist destinations attracts a large number of tourists so that its traffic load increases multiply during the summer season,
- the Šibenik-Knin County is an area of transit traffic in the North-South direction with the merging of two traffic flows: Rijeka - Split (Dubrovnik) D8 and Zagreb - Split (Dubrovnik) D1;
- Motorway A1 passes through the area of the Šibenik-Knin County, but during 2003 not one section was built. The following year, more precisely in summer 2004 only two sections of the motorway are open to traffic: the north section from the Benkovac node to Pirovac node and the south section from the Vrpolje node to the node of Dugopolje, which in fact "interrupts" the motorway. All the sections of the motorway, which pass through the Šibenik-Knin County, have opened to traffic as late as in the summer of 2005.

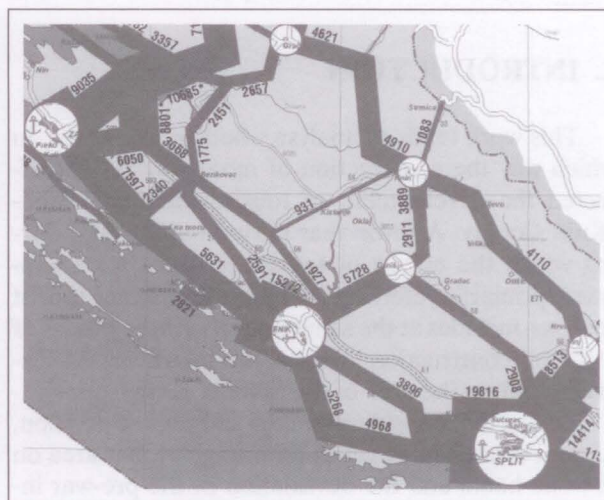


Figure 2 - Traffic flows of the Šibenik-Knin County during 2003⁶

The traffic flows during July and August 2003, Figure 2, show the main focuses of traffic loads (and it is no coincidence that it refers to the three County centres: Split, Šibenik and Zadar), but also the mutually approximately equally congested minor centres: Sinj, Drniš, Knin and Gračac.

The three dominant (transit) traffic flows can also be clearly noticed:

- route Gospić - Sveti Rok - Maslenica - Pirovac (2004), motorway A1, which accommodates the in-flow of vehicles from Zagreb towards the southern coastal counties, as well as towards B&H;
- route Gračac - Knin - Sinj, D1, which accommodates primarily the transit traffic from Zagreb towards two southern-most counties, i.e. towards B&H;
- route Zadar - Šibenik (Split) D8, i.e. Benkovac - Šibenik D56, which brings tourists to the desired destinations, and a smaller number only pass through.

Major traffic in the Šibenik-Knin County flows along the following seven state roads:

- D1 connects Knin and Kijevo, Vrlika, Hrvace, Sinj, Dugopolje, Klis and Split, i.e. Gračac towards Zagreb;
- D8 connects Šibenik and Trogir, Split and via Dubrovnik to the state border of Serbia and Montenegro, i.e. Biograd, Zadar, Rijeka to the state border of the Republic of Slovenia;
- D27 connects node D8 Šibenik Bridge with the node D59 Putičanje, Stankovci, Benkovac, Obrovac and Gračac towards Zagreb;
- D33 connects node D8 Meterize (Šibenik) with node D56 Tromilja, node D56 Drniš, Knin and via Strmice to the state border of Bosnia and Herzegovina;
- D56 connects node D33 Drniš, Petrovo Polje, node D511 and Sinj, i.e. node D27 Tromilja, Skradin, node D59 Bribirske Mostine, node D27 Benkovac, node D502 Smilčić and node D8 Zeleni Hrast;
- D58 connects node D8 Ražine (Šibenik), Vrpolje, Boraja and node D8 Seget Donji;
- D59 connects node D8 and D121 Kapela, node D27 Putičanje, node D56 Bribirske Mostine, Kistanje and node D1 Knin.

Since summer 2004 motorway A1 from the node of Benkovac to the node of Pirovac, as well as the section from the Vrpolje node via Prgomet to Dugopolje node has also been in use. The increase in the number of tourists, especially individual guests, a high percentage of whom travel in their own cars, has doubled the throughput of vehicles between Šibenik and Vodice (D8), as well as on the Putičanje-Šibenik Bridge relation on state road D27, which is a logical increase in the number of vehicles arriving by motorway, with destinations mainly in the region of the Šibenik-Knin County. Another, smaller number of vehicles that arrive by motorway A1 from Zagreb to the Pirovac node continue to travel towards the South via node Vrpolje to Dugopolje. These vehicles travel from Pirovac node

on state road D27 to Šibenik Bridge, bypass the city of Šibenik using state road D8 to Ražine node and continue on state road D58 to Vrpolje node. Local traffic also has to be taken into consideration, on state road D8, which functions as the Šibenik bypass road. Increased load of the state road D8 on sections Šibenik Bridge-Vodice and Šibenik Bridge-Ražine results in traffic congestion which are worst at two critical points:

1. connection of state road D27 and state road D8 only some hundred meters from the Šibenik Bridge;
2. connection of state road D8 and local road in the region of Njivice used as the exit from the city of Šibenik towards Vodice, i.e. western part of the County.

At these critical spots the traffic police had to regulate traffic in order to keep the minimum throughput of vehicles. Kilometre-long queues formed in the morning hours in the west-east direction at the intersection D27 and D8 due to the conflicting flows of vehicles arriving on the motorway, mainly tourists, and vehicles driving from Vodice and other coastal resorts of the western part of the County towards the City of Šibenik, local and tourist traffic, i.e. towards the National Park Krka and other tourist (excursion) destinations. In the afternoon and evening hours, the vehicles queued in the east-west direction on the state road D8, the section Meterize - Njivice - Šibenik Bridge - intersection D8 and D27. A part of the excursionists from the National Park Krka, on their return at Meterize merge with the state road D8 towards the West, whereas a part of local and tourist traffic, going out in the evening to Vodice and other coastal resorts of this part of the County, arrive on state road D8 (Ražine - Meterize) or merge on D8 at Njivice. The long line of vehicles formed in this way confronted the vehicle flows from the motorway at node D8 and D27.

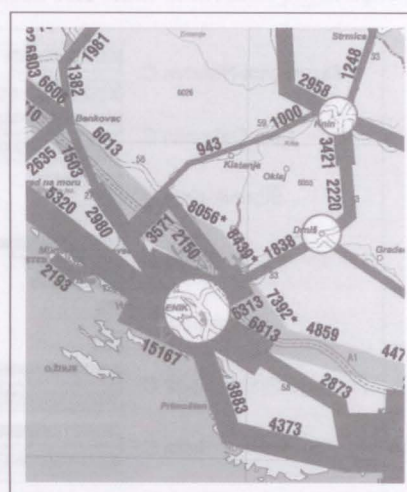


Figure 3 - Traffic flows of the Šibenik-Knin County during 2005⁷

It should be noted that it is precisely for the reason of reduced throughput capacity of the state road D8 that, at the request of the traffic police, one of the tourist attractions - "Bungee Jumping" at the Šibenik Bridge was not allowed.

Since summer 2005 motorway A1 has been used in its entire length from Benkovac node via nodes of Pirovac, Skradin, Šibenik, Vrpolje and Prgomet to the node of Dugopolje.

Table 2 - Data on traffic count at motorway toll-booths in the area of the Šibenik-Knin County during 2005⁸

Motorway	Toll booth	AADT	ASDT
A1	Pirovac	8056	14640
A1	Skradin	8439	15036
A1	Šibenik	7392	13115
A1	Vrpolje	4859	12909

Table 3 - Data on traffic count on state roads in the Šibenik-Knin County⁹

State road	Location	AADT	ASDT
D8	Pirovac	5320	10446
D8	Šibenik	15167	21194
D8	Grebaštica	3883	9801
D27	Gačelezi	2980	3025
D33	Bilice	6313	9074
D58	Vrpolje	6813	5156

Transiting tourists, i.e. tourists-excursionists with accommodation in other coastal counties may visit the National Park Krka using motorway A1 and the node of Skradin, alleviating thus state roads D8 and D33.

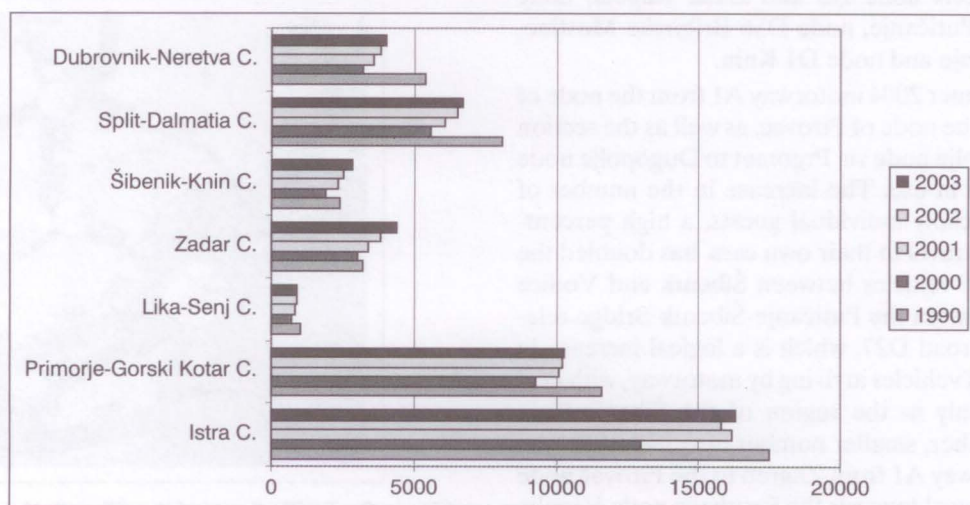
Assuming that the arriving tourists use motorway exit node which is the nearest to their end destination,

the possible relation between the number of vehicles on the motorway A1 nodes and the number of visitors at individual tourist destinations is studied. Also, the traffic count on state roads D8, D27, D33 and D58, Table 3, is taken into consideration.

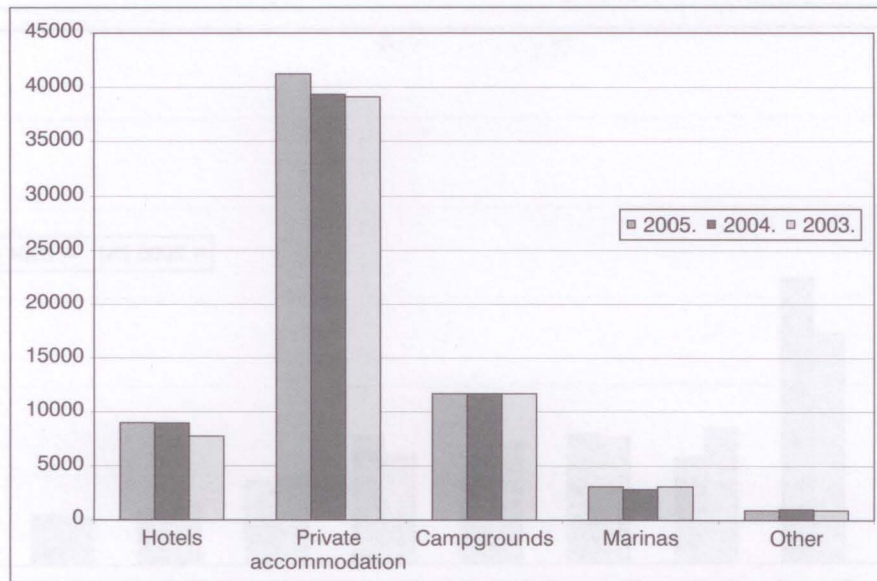
4. TOURISM ECONOMY OF THE ŠIBENIK-KNIN COUNTY

The Šibenik-Knin County has been greatly affected by war which can be noticed also through economic effects in tourism. For many years exiled persons and refugees used the hotel capacities, which have not been completely in the function of tourist offer on the market. Still, the number of overnight stays in the Šibenik-Knin County exceeded already in 2002 the pre-war level. In 2003, there were 6.1% of all overnight stays in the Republic of Croatia realised, whereas this share in 1990 amounted to 4.6%. However, considered through absolute numbers, the total number of overnight stays in the area of Šibenik-Knin County in 2003 was greater only than the number of overnight stays in the Lika-Senj County, and, what is very unfavourable, the number of overnight stays is declining compared to all the other coastal counties.¹⁰

As much as one may be delighted by the positive trend in the increased total of overnights, still, the number of overnights in absolute figures is unfavourable, even more so, since it indicates the insufficiently used available capacities. The Šibenik-Knin County, namely, has 7% of the total accommodation capacities in the Republic of Croatia, and it realises only 6.1% of all overnights at the state level. The reasons for unsatisfactory indicators of the tourism effect should be found in the structure and attractiveness of the offer, and the market position of the local tourist economy.¹²



Graph 1 - Number of overnight stays in coastal counties¹¹



Graph 2 - Structure of accommodation capacities of the Šibenik-Knin County¹³

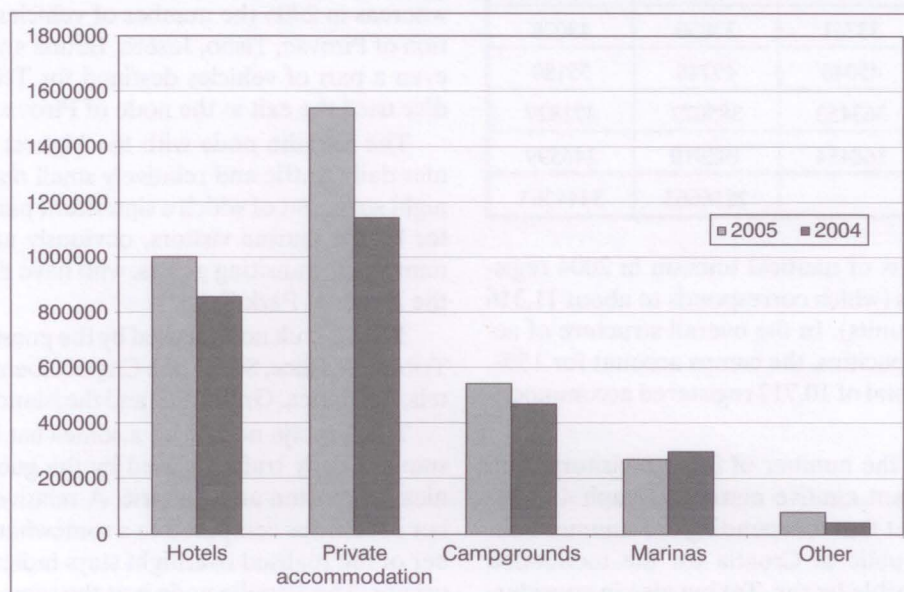
The tourism offer of the Šibenik-Knin County consists of:

- bathing tourism in the coastal area,
- nautical tourism, and
- excursion traffic to national parks and places of cultural heritage.

According to the number of registered beds, there is a noticeable domination of private accommodation and campgrounds for motorists, and partly also marinas (88% of the total capacity). However, this refers to the tourist offer exclusively during the summer season, private accommodation does not provide recreational facilities, and due to climatic reasons, the camps and marinas offer their capacities only during the summer months.

Compared to the state average, private accommodation is excessively accounted for (63% to 42%). Camping is not sufficiently present (19% to 28%) which is related to increased distances to emittive markets, so that all the northern coastal regions have an advantage according to this criterion. Exclusively the registered beds in private accommodation are taken into consideration and the doubling of the capacities has been noticed in the three years only.

In the Šibenik-Knin County, in 2004, a total of 71,350 accommodation units were registered. The largest share is accounted for by private accommodation with 55.2%, i.e. 39,361 accommodation units. In 2004 the hotels of the Šibenik-Knin County registered a total of 8953 accommodation units. Compared to the previous years a positive shift was made in hotel ca-



Graph 3 - Number of overnight stays per accommodation capacities of the Šibenik-Knin County¹⁴

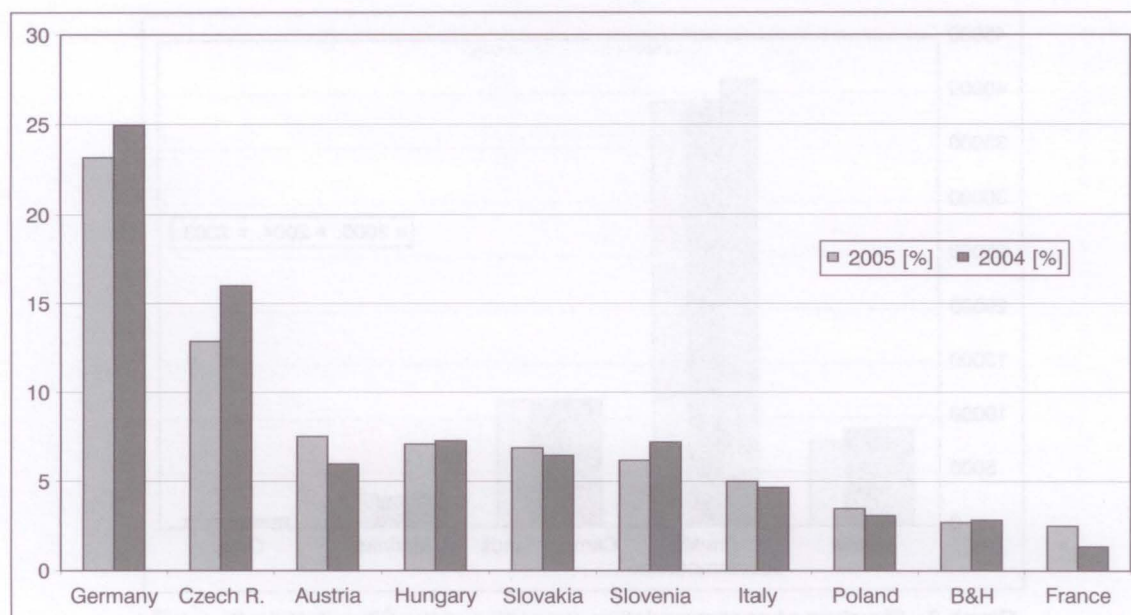
Graph 4 - Structure of foreign visitors according to states¹⁵

Table 4 - Structure of the realised overnight stays per destinations of the Šibenik-Knin County 2003-2005¹⁶

	2003	2004	2005
Pirovac	100391	122039	144019
Murter	187676	253292	270748
Betina	55714	69833	81622
Jezera	196889	206776	227313
Tisno	134288	149838	170283
Vodice	674283	714090	766555
Skradin	56383	59394	62017
Šibenik	509398	503924	802695
Krapanj-Bro.	33761	33850	43078
Grebaštica	45046	49745	55180
Primošten	363453	385073	471827
Rogoznica	168454	192910	246599
Total		2816663	3444363

capacities. The ports of nautical tourism in 2004 registered 2829 berths (which corresponds to about 11,316 accommodation units). In the overall structure of accommodation capacities, the camps account for 15%, and they have a total of 10,717 registered accommodation units.

According to the number of foreign visitors from ten most significant emitive markets, Graph 4, a hypothesis can be set that for spending the summer holidays in the Republic of Croatia for the mentioned guests, it is accessible by car. Taking also in consideration the datum that the largest number of guests stays

in private accommodation, it may be concluded that the most numerous tourists are precisely individual guests who travel by their own cars and that they mostly use motorway A1.

5. CONCLUSION

If one compares the data on traffic count on the state roads and the toll booths of Motorway A1 with the data on realised overnight stays at tourist destinations the following coincidences were noticed:

The Pirovac node, similar to the previous year, features high average summer daily traffic; in 2004 all vehicles from the motorway had to pass the toll booths whereas in 2005 the number of vehicles with destination of Pirovac, Tisno, Jezero, Betina and Murter, and even a part of vehicles destined for Tribunj and Vodice used the exit at the node of Pirovac.

The Skradin node with the highest average summer daily traffic and relatively small number of overnight stays, out of which a significant part is accounted for by the marina visitors, obviously attracts a large number of transiting guests, who have decided to visit the National Park Krka.

The Šibenik node is used by the guests destined for Tribunj, Vodice, Srma, the City of Šibenik, Solaris Hotels, Brodarica, Grebaštica and the island archipelago.

The Vrpolje node with a somewhat lower average summer daily traffic is used by the guests of Rogoznica, Primošten and Žaborić. A relatively large number of vehicles compared to a somewhat smaller number of the realised overnight stays indicates other trip origins. The Vrpolje node is at the same time interesting to the population of the County hinterland - Za-

gora: Perković, Sitni, Unešić and other places of the north-eastern part of the County, which is confirmed by a much lower average summer daily traffic on the state road D58 at Vrpolje.

There is a significant difference in the traffic on the state road D33 at Bilice, which additionally confirms the hypothesis that a large number of visitors to the National Park arrived by motorway instead the state road D33 as had been the case earlier.

The average summer daily traffic on the state road D27 decreased substantially compared to the year 2004, since the largest number of tourists uses the motorway and this relation is mainly used by the local population.

The average summer daily traffic of ca. 9800 vehicles on the state road D8 at Grebaštica is based on the local migrations and guests of Primošten and Rogoznica which still find the Adriatic main road as the most suitable itinerary to their destinations.

Summarising the overall data of the traffic of vehicles and the realised overnight stays leads to the conclusion that there is a cause-effect relation between the constructed infrastructure facility of high category and the improvement of the results of tourist economy, although it is impossible to determine exactly how much of the guest increment is the result of the motorway itself. The significance of the motorway is confirmed also by extremely well visited Skradin and National Park Krka, as well as the often praised motorway rest area above Skradin which offers a beautiful view of the river, the canyon and the Prokljansko Lake.

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SAŽETAK

UTJECAJ AUTOCESTE A1 NA RAZVOJ TURISTIČKOG GOSPODARSTVA ŠIBENSKO-KNINSKE ŽUPANIJE

U radu se istražuje utjecaj izmijenjenih prometnih tokova (autocesta A1) na razvoj turističkog gospodarstva Šibensko-kninske županije. Izabrano trogodišnje razdoblje (2003.-2005.) obuhvaća tri faze različitih stupnjeva izgrađenosti autoceste A1 Zagreb - Split na području Šibensko-kninske županije. Nameću se pitanja o uzročnoj posljedici vezi bolje prometne povezanosti i poboljšanja turističke djelatnosti te o kompatibilnosti nove cestovne mreže s težnjama restrukturiranja turističke ponude s posebnim osvrtom na neravnomjerni razvoj različitih destinacija.

KLJUČNE RIJEČI

turizam, prometna povezanost, autocesta A1

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