

JOSO VURDELJA, D.Sc.
Fakultet prometnih znanosti
Zagreb, Vukelićeva 4
ŠEMSO TANKOVIĆ, D.Sc.
NADA PLELI, D.Sc.
Ekonomski fakultet
Zagreb

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TOURIST ASSESSMENT OF CROATIAN ROADS

ABSTRACT

As environmentally clean industry and as the most significant world industry regarding the number of employees and the impact on the social and economic development of a country, tourism represents an extremely important social and economic branch for Croatia.

As a functional unit of the mutually interweaving social and economic relations, tourism is a complex phenomenon whose development depends on a number of compatible factors out of which the transport infrastructure is considered to be the most obvious and almost the most significant one, i.e. the first among the equal. This is primarily true for road traffic infrastructure, since road transportation of tourists by passenger cars, buses and motorcycles accounts for more than 90 percent of the overall tourist journeys in Croatia.

The topic of this paper is precisely, among other things, the tourist assessment of the Croatian road network by means of the so-called econometric model regarding the contribution of a certain road route to the overall tourist traffic.

Practical implementation of the elaborated problematic should result in the improvement of road infrastructure either by constructing new motorways and/or roads, or by reconstruction and/or modernisation of the existing traffic routes.

KEY WORDS

tourism, roads in Croatia, tourist assessment, economic model

1. INTRODUCTION

1.1. Interaction between tourism and traffic policy

Today, at times of globalisation, tourism has become the "world industry" number one, owing, among other things, primarily to the development of transport technologies and the ever greater and faster accessibility of the desired destination for every visitor from any part of the world. Naturally, tourism has added up to the already existing problems of transport and tourist mobility. The fact is that the influence of tourism on the traffic system of a certain area can be synthesised so that, on the one hand there are the

needs of tourists for fast and efficient transport service in order to reach the desired destination (accessibility), whereas on the other hand there are the facilities of integrated and flexible traffic supply within a certain destination (internal mobility).

In this context - optimising the use of traffic infrastructure and transport services, as well as the efficiency of meeting the requirements set by the motorised tourists - are becoming imperative in many European tourist countries.

The reason for this is that the expansion of automobile traffic and dramatic growth in the number of tourist journeys by passenger cars (for various reasons and lengths of stay), which have been stimulated per se by changes in the holidays structure (e.g. greater number of short so-called weekend holidays), have resulted in greater traffic load on the road network, especially during the summer tourist high season.

Taking into consideration the above situation, it is obvious that the functional interaction between tourism and traffic policy of managing tourist mobility is becoming increasingly important for this economic activity, and needs to be maximally elaborated as such since there is no doubt that traffic as function of tourism certainly has full return effect.

One should not forget the fact that the mentioned interaction lacks uniformity not only in the spatial sense, but also regarding time and mode (transport mode). Thus, the seasonal characteristic of tourism is very emphasised, i.e. the concentration of tourist traffic during only a few (mainly summer) months when the number of tourists, including traffic, increases several times compared to the off-season period. Furthermore, tourism does not generate any uniform increase of the traffic demand in all transport modes. Here also, there is an evident misbalance, since certain transport modes are more used than others. Thus, according to the description of the European Union office for statistics "Eurostat", one of several recognisable characteristics of a typical European tourist is the fact that they take their cars to go on holiday¹. In our country, the data from the Report by the Croatian Institute for Tourism for the year 1998 show, among

Table 1 - Share of transport modes used by the Croatian tourists in 1997

(%)

TRANSPORT MODE USED								
1	2	3	4	5	6	7	8	9
Passenger car	Car with caravan	Car home	Bus	Motorcycle	Train	Aircraft (charter)	Aircraft (regular flight)	Vessels
66.2	9.4	3.4	12.5	1.3	0.6	3.6	1.7	1.3

Source: Institut za turizam – Zagreb, survey "TOMAS '97", Tourists' attitudes and consumption in Croatia, (1977.), p. 29.

other things, that our seaside is visited mostly by people travelling in their own arrangement using in 80% of the cases their private cars.

Taking these facts into consideration, and being good hosts, we have the obligation and duty to provide our motorised guests with easy and safe driving on our roads. Otherwise, we will face the usual incredible traffic congestion and collapse, and kilometres long lines of vehicles resulting in many hours of misery and torture, which means more standstills than driving. The tourist who has to crawl in intolerable heat towards the desired destination at our seaside, and experiences such traffic chaos, becomes impatient and criticises the observed drawbacks and disadvantages and is certainly not ready to tolerate these. True, apart from natural occurrence of algae (water) bloom, there are many predictable and diagnosed problematic issues in our tourism², but the problematic (inadequate, and in some parts extremely poor) traffic infrastructure and traffic connections (mainly on the roads towards the Adriatic), certainly top the list. Our Government and the workers and entrepreneurs involved in tourism and catering are aware of this fact. Thus, e.g. N.Vidošević, president of the Croatian Chamber of Commerce, said in the opening speech at the 15th International Congress "Hotel 2000" (Opatija, October 2000), that "what we have are natural preconditions for high-quality tourism, but what we lack is the basic infrastructure and without it, mainly without real roads, we cannot even speak of high-quality tourism."

It is precisely at this level of tourist supply that our poor organisation comes to the fore as well as our failure to manage situations which are the result of our own bad preparations of the traffic system and the auxiliary services.

It is difficult to think, namely, of any previous tourist season which was not characterised by the so-called traffic problems which have by now become almost legendary. To reach, namely, our modern tourist paradise tentatively advertised on big travel posters with beautiful scenery showing sunsets and full sails, one has to travel long across poor roads, and this is something a modern tourist (not being a soft romantic) can do without. In other words, today's mass tourism in Croatia (mostly by motorised tourists) has been greatly depending on the situation in the traffic system and its functional relationship with the environment.

Regarding traffic assessment of the Croatian tourism, the previous research in our country has undoubtedly shown a certain dominance of the number of visitors who use road vehicles, i.e. passenger cars (without and/or with caravan), to a lesser extent buses and motorcycles to go on holiday to Croatia³. This category of tourists is then characterised by great mobility which raised the quality and attractiveness of their stay. Such tourists come e.g. from Germany, Italy, Slovenia, Austria, the Czech Republic, and Poland, whereas bus transport is mostly used by visitors from Hungary and Slovakia⁴.

The results of the latest research (Table 1) show great dominance (almost 93% of all tourist journeys) in road transport within the Croatian tourist traffic. A more complete insight in the structure of transport modes used by the Croatian tourists is provided by the periodical survey TOMAS, the last being carried out in 1997.

Table 2 - The number of tourists and the overnight stays as well as the foreign exchange earnings in Croatia for the time period between 1975 and 2000

Year	Tourists (millions)	Overnight stays (millions)	Revenue ⁴ (billions of dollars)
1975	6.2	42.4	-
1980	7.8	53.6	-
1985	10.0	67.6	-
1989	9.7	61.8	-
1990	8.5	52.5	-
1991	2.1	10.1	-
1992	2.0	10.7	-
1993	2.4	12.9	1.3
1994	3.4	20.0	1.8
1995	2.4	12.9	1.3
1996	3.9	21.4	2.0
1997	5.2	30.3	2.0
1998	5.4	31.3	2.7
1999	4.7	27.2	2.5
2000	6.5 (1.3)	38.4	3.5

Source: Statistical yearbook of Croatia for the relevant years Reports of Hrvatska narodna banka

1.2. Previous quantitative characteristics of tourism in Croatia

This section of the paper presents (for a certain interval of time) relevant physical indicators (number of tourists, number of overnight stays, and the foreign exchange earnings) of the Croatian tourism, realised and recorded during the several years of the analysed period (Table 2). Within the presented time interval special attention has been paid to the last decade of the last century in which war on the Croatian territory and the territories of the neighbouring countries of the former Yugoslavia stopped the development of tourism and had direct influence on a significant decline in the tourist traffic in our country. This resulted in very unbalanced changes in the tourist traffic in certain time cross sections of the considered period.

The presented data lead to the conclusion that (due to political changes), after some ten poor tourist seasons, the visitors simply rushed to the Adriatic. Thus, for example, the last year's tourist record amounted to 546 thousand foreign and domestic visitors registered just in one day. This was at the same time the best tourist visit realised and registered during the last ten years, and as such is included in the recent Croatian tourist history⁵.

Judging by the available data for the last tourist year (2000) regarding the number of foreign tourists in Croatia, the majority were Germans (17.7%), followed by Italians (17.0%), Slovenes (15.8%), Czechs (13.4%), Austrians (10.4%) and Poles, Hungarians, Slovaks, Dutch, Swedes, Swiss and guests from B&H with 25.7% in the total figure (5.2 million) of foreign visitors.

At the same time, the official statistics recorded also 1.3 million domestic tourists who, in spite of the fact that shortage of goods and obvious decline in the standards, as well as general lack of money have become parts of our everyday lives - have realised almost a third of the overall tourist traffic on our Adriatic⁶.

In order to get a more complete picture of the physical distribution of tourists in Croatia, it is logical that there is a requirement for presenting the tourist transport realised per types of tourist resorts⁷ during a certain period under consideration.

For the sake of illustration, Table 3 presents the data (absolute and relative) about the overnight stays of tourists in Croatia, realised during the period between 1989 and 1998.

The presented data show that the coastal resorts have the most important role in the Croatian tourism. Their share in the total number of realised overnight stays is much greater than the share of other tourist resorts in Croatia in any of the considered years.

1.3. Planned (expected) tourist traffic in Croatia in 2001

Lacking the exact data and relevant Projects and/or Studies based on the scientific and professional research methods, this chapter deals with forecast and desires of certain foreign and domestic institutions and persons whose work has direct influence on the tourist traffic of Croatia in a wider sense, primarily as a global guideline of the expected development of Croatian tourism. Thus, in the European Union documents, Croatia is treated as a country in which tourism is a dominant propulsive economic branch, since she

Table 3 - Overnight stays of tourists in Croatia per types of tourist resorts during the period between 1989 and 1998 (in thousands)

Year	Zagreb		Bathing places (Spas)		Coastal resorts		Mountain resorts		Other tourist resorts		Other non-tourist resorts		Total	
	number	%	number	%	number	%	number	%	number	%	number	%	number	%
1989	1366	2.21	977	1.58	57539	93.03	611	0.99	540	0.87	816	1.32	61849	100.00
1990	1328	2.53	937	1.78	48560	92.45	488	0.93	442	0.84	768	1.46	52526	100.00
1991	713	7.02	607	5.98	8194	80.67	51	0.50	258	2.54	335	3.30	10158	100.00
1992	648	6.04	390	3.64	9075	84.62	32	0.30	131	1.22	449	4.19	10725	100.00
1993	664	5.14	235	1.82	11427	88.53	27	0.21	126	0.98	429	3.32	12908	100.00
1994	731	3.66	250	1.25	18357	91.89	36	0.18	144	0.72	459	2.30	19977	100.00
1995	652	5.06	194	1.51	11443	88.81	42	0.33	126	0.98	428	3.32	12885	100.00
1996	701	3.27	238	1.11	19879	92.65	74	0.34	155	0.72	409	1.91	21456	100.00
1997	633	2.09	331	1.09	28526	94.10	94	0.31	174	0.57	556	1.83	30314	100.00
1998	603	1.93	280	0.89	29647	94.76	110	0.35	169	0.54	479	1.53	31288	100.00

Source: Statistical yearbook of Croatia for 1999, p. 383.

lies in the centre of emissive tourist markets. In this respect, Martin Brackenbury, the first man of the International Touroperator Federation IFTO, said, among other things, during his last year's visit to Croatia, that tourism in our country is God's gift.

This is also in accordance with the announcements made by the Tourist Council of the Croatian Tourist Association (HTZ) (November 2000), about certain significant changes in the future participation of HTZ at some forty international tourist and business fairs in Europe that should have less form and more charm. Moreover, eleven HTZ offices were opened in the meantime abroad⁸, and every launch had a special promotion and operative scenario prepared.

The previous bookings made by foreign tourists for summer holidays in Croatia have already sold the capacities on the market of organised tourism during the three peak months of the tourist season - June, July and August. This substantial increase in "booking has obviously resulted from the positive shifts in the preparation of the tourist season this year.

Considering the overall situation in the whole tourist region, and regarding all the relevant information collected on site (events on the European tourist and business fairs), as well as official data and indications of extreme interest shown by the foreigners for the Croatian tourism - our Government and the Ministry of Tourism are planning an increase in physical tourist traffic by eight to ten percent. Similar are also the forecasts at the Croatian Tourist Association Headquarters, according to which 7.3 million tourists are expected in 2001 (out of which 1.3 million domestic tourists⁹), which is about ten percent more than the previous year. The number of overnight stays should also increase by ten percent, i.e. it is estimated that almost 43 million are to be realised. At the same time, this year's revenue from tourism should amount to four billion dollars.

Special optimism regarding the success of this year's tourist season was expressed by the HTZ general manager, Niko Bulić, stating at this year's 32nd CBR (Caravan-Boot-Reise)¹⁰ International Tourist Fair, that his estimate of the Croatian tourism is ten million tourists, 60 million realised overnight stays and

six billion dollars annual revenue. How these figures will be actually realised, that is another question, especially taking into consideration all the unfavourable circumstances that have been accompanying our tourism for years, and emerged to the surface precisely last summer along with the tidal wave of tourists.

2. HOW TO DESIGN A MODEL OF TOURIST ASSESSMENT OF THE CROATIAN ROADS

Respecting on the one hand the fact that the terms "traveller" and "tourist" interweave and overlap to a great extent, and on the other hand the fact that the great majority of foreign and domestic visitors use their own passenger cars during their holidays in Croatia, the need arises, with the aim of designing and improving the overall quality of our tourism, to adapt it to the tourist market regarding all the elements that make it a compatible entity with the road infrastructure and the relevant equipment and facilities playing a significant role. Therefore, in our opinion, it would be wise and useful to elaborate the tourist evaluation of the Croatian roads from the aspect of relative tourist influence on the road traffic within the defined limits regarding space and time.

The starting point in the works of national authors¹¹, presenting for the first time the methodological framework for the tourist evaluation of the Croatian roads, was the fact that tourism is a mass phenomenon with strongly emphasised seasonal component of the dominating two summer months (July and August) and a little less emphasised June and September. Since 1971 the average annual daily traffic and the average summer daily road vehicle traffic have been monitored systematically in Croatia, which is a necessary statistical and documentation basis for determining the influence of tourism on the road traffic in our country. The work analyses data collected during a four-year period (from 1983 to 1986), and the obtained results have definitely shown the significant cause-effect relationship between the tourist activities and the increase in the average summer daily traffic

Table 4 - Proposal for the categorisation of roads according to their tourist significance for Croatia

Coefficient (PLDP/PGDP)	Rank of the road	Tourist significance of the road	
- 1.00	VI	NEGATIVE	tourist influence
1.01 - 1.10	V	VERY POOR	tourist influence
1.11 - 1.20	IV	POOR	tourist influence
1.21 - 1.40	III	HIGHER	tourist influence
1.41 - 1.70	II	VERY HIGH	tourist influence
1.71 -	I	EXTREMELY HIGH	tourist influence

Source: as in reference 11, page 3

compared to the average annual daily traffic for the respective year. In this respect, the authors have suggested categorisation of certain roads with regard to their tourist significance (Table 4).

Accepting the results of this research, it should be emphasised that the presented categorisation and the relevant tourist evaluation of the Croatian roads is still only a measure of relative tourist influence on the Croatian road traffic. This has to be mentioned, since the presented classification is based exclusively on the relative values, and the absolute values of PLDP, i.e. PGDP have not been taken into consideration. Aware of the mentioned fact, the paper has suggested a substantial extension of the model by including the additional variables relevant for the tourist road assessment. Anyway, the tourist road assessment in Croatia has its origin in the contribution by single roads that may be reflected in the use of the following variables:

Variable	Variable abbreviation
Average annual daily traffic	PGDP
Average summer daily traffic	PLDP
Coefficient	$\text{Kcoef} = \left(\frac{\text{PLDP}}{\text{PGDP}} \right)$
Average daily traffic	PDP
Section length	DIST
Ferry line coefficient	$\text{Kcoef}_{\text{tr}} = \text{TRAJEKT} \left(\frac{\text{PLDP}}{\text{PGDP}} \right)$

There are several models used to measure the tourist significance of single road routes. These models are:

$$\text{TVC}_i = \alpha + \beta_1 \text{PGDP}_i + \beta_2 \left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i + \varepsilon_i \quad (1)$$

$$\text{TVC}_i = \alpha + \beta_1 \left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i + \varepsilon_i \quad (2)$$

$$\text{TVC}_i = \alpha + \beta_1 \text{PGDP}_i + \beta_2 \text{PLDP}_i + \varepsilon_i \quad (3)$$

$$\text{TVC}_i = \alpha + \beta_1 \text{PGDP}_i + \beta_2 \text{DIST}_i + \varepsilon_i \quad (4)$$

$$\text{TVC}_i = \alpha + \beta_1 \text{TRAJEKT} \left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i + \varepsilon_i \quad (5)$$

$$\text{TVC}_i = \alpha + \beta_1 \text{PDP}_i + \varepsilon_i \quad (6)$$

Tourist road assessment using the model (1) is carried out based on two independent variables: the average summer annual traffic and the coefficient (PLDP/PGDP) where:

TVC_i = tourist road assessment,

PGDP_i = average annual daily traffic,

$\left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i$ = coefficient,

ε_i = random variable,

α, β_1, β_2 = model parameters.

In model (1) variable α is the model constant and represents the value of regression function if the values of independent variables equal zero. It should be noticed that the mentioned parameter in the economic research often has no concrete significance.

Parameters β_1 and β_2 are called regression coefficients. Regression coefficient β_1 indicates the linear change of the value of tourist road assessment if the value of the independent variable PGDP_i increases by one provided the second independent variable $\left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i$ remains unchanged. The second regression coefficient β_2 shows the linear change of the value of tourist road assessment if the value of the independent variable $\left(\frac{\text{PLDP}}{\text{PGDP}} \right)_i$ is increased by one provided

the first independent variable PGDP_i remains unchanged. It should be noted that the regression coefficients may be interpreted also as partial deviations of the regression function per regression (independent) variables.

Specifying the econometric model, a practical econometrician often finds himself in the situation when he has to include in the model certain *qualitative parameters* that need to be then quantitatively expressed. This is, for instance, the case with periods (of war and peace, period of strike and period without strike), conditions (of employment and unemployment, working capability and incapability), ownership and non-ownership (of cars, houses, etc.), seasonal impact on the sales (of ice-cream, fruit juice, smoked and cured meats, toys, camping equipment, ski equipment), environmental influence (urban and rural) and gender.

In such situations, the so-called dummy variables are introduced into the econometric model, and they are usually assigned the value "1" when the defined qualitative parameter is present, and value "0" if the parameter is absent. This is symbolically noted in the following manner:

$$D = \begin{cases} 1 & \text{(a qualitative parameter is present)} \\ 0 & \text{(a qualitative parameter is absent)} \end{cases}$$

In this work, the dummy variable was used in separating the seasonal component in the summer months during the considered year.

For the tourist road assessment it is good to use the concentration ratio which is calculated so that "k" sub-totals are summed up, and the sum is then divided by the total. It is assumed that the sub-totals are ordered according to their magnitude, i.e. in the descending order.

Thus, the concentration ratio is obtained by the expression:

$$C_r = \frac{x_1 + x_2 + \dots + x_n}{\sum_{i=1}^n x_i}, x_1 \geq x_2 \geq x_3 \geq \dots \geq x_n, \frac{r}{n} \leq C_r \leq 1 \quad (7)$$

where:

- C_r = concentration ratio of the order r ,
- x_i = value of the variable X in the descending order.

Along with the previous categorisation, the tourist road assessment in Croatia can be extended by ranking single road routes regarding the value of PGDP.

Table 5 - Ranking of the tourist significance of the Croatian roads according to PGDP

PGDP	Description	Rank
- 2000	Very low tourist significance	V
2001 – 4000	Low tourist significance	IV
4001 – 6000	Medium tourist significance	III
6001 – 8000	Higher tourist significance	II
8001 -	Very high tourist significance	I

Source: as in reference 11, p.4

3. TOURIST ASSESSMENT OF ROAD TRAFFIC IN 1997¹²

In this chapter the statistical data are analysed that have been published in the Brojenje prometa na cestama Republike Hrvatske (Traffic Count on the Roads of the Republic of Croatia) in 1997.

The analysis has encompassed the following variables:

- average annual daily traffic (PGDP)
- average summer daily traffic (PLDP)
- coefficient PLDP/PGDP

The basic group consists of 239 counting points for which complete data on PLDP, PGDP, and coefficient PLDP/PGDP are available. The counting points with incomplete data on traffic have been excluded from the analysis¹³. The work has not taken into consideration the differences that arise from different ways of measuring traffic expressed by the number of vehicles¹⁴.

In 1997 the average daily traffic at 239 counting points amounted to 4555.45 vehicles, average summer daily traffic amounted to 6050.72 vehicles, whereas the average value of coefficient PLDP/PGDP was 1.32.

The registered PLDP in 1997 ranged between the minimum 239 and maximum 26,652 vehicles, whereas PGDP ranged between a minimum of 152 vehicles and a maximum of 20,784 vehicles. At the same time, the

coefficient PLDP/PGDP varied in the range from 0.79 to 2.56.

Road route No. 1 (Slovenian border - Krapina - Zagreb - Jastrebarsko - Karlovac - Udbina - Knin - Solin), excluding the counting point Mutilić (Udbina), the registered PLDP exceeds significantly the volume of 8,001 vehicles and in accordance with the suggested categorisation has been classified as a road route of extremely high tourist significance. The average PLDP/PGDP coefficient value amounts to 1.56 which corresponds to rank IV, i.e. road route of very high tourist significance. It should be noted that the counting points Karlovac, Slunj, Slušnica and Jošan have been ranked into the category of road routes of extremely high tourist significance.

Road route No. 2 (Vratno – Varaždin – Koprivnica – Virovitica – Našice – Klisa – Vukovar – Sotin), is characterised by relatively high value of PLDP and very low value of PLDP/PGDP coefficient which amounts to only 1.02. The highest PLDP was recorded at the counting point Osijek ringroad (9131 vehicles), and the lowest (2687 vehicles), at the counting point Čačinci. This road route, obviously, has not special significance for the Croatian tourism.

On the road route No. 3 (Nedelišće – Varaždin – N. Marof – Zagreb – Karlovac – Delnice – Matulji – T: Učka – Lupoglav – Žminj), there is a greater number of counting points that confirm the fact that this is a road which determines to a great extent the tourist flows towards the Adriatic destinations. Almost all the counting points record PLDP that substantially exceeds the number of 8,001 vehicles. Some counting points (Zagreb ringroad, Lučko, Rijeka ringroad, Sesevski Kobiljak) have PLDP that exceeds 20,000 vehicles per day. If we add also the high coefficient of PLDP/PGDP, that for the road route No. 3 amounted to 1.41 in 1997 – it may be concluded that it is a road route which is in direct correlation with the tourist development of Croatia.

Road routes No. 4, 5, 6 and 7 only at certain sections (counting points Ivanić Grad, Brezje, Popovača, Nova Gradiška, Brodski Stupnik, Čepin) record high PLDPs with coefficients of PLDP/PGDP ranging between 1 and 1.40.

Road route No. 8 (Slovenian border – Rijeka – Zadar – Makarska – Opuzen – Gruda) can be called the artery of the Croatian tourism in the true meaning of the word. The yearly events on this road route are completely subjected to tourist activities. Extremely high PLDP values are recorded at the counting points Mučići, Kostrena, Crikvenica, Zadar, Šibenik, Kaštel Stari, Jesenice and Kravice. At the same time the coefficient PLDP/PGDP is very high and it amounts on the average to 1.59. The highest coefficient (2.13) was recorded in 1997 at the counting point Sveti Juraj. Equally, the counting points at Karlobag (1.95),

Crikvenica (1.90), Marina (1.92), Gradac (1.89) and Pirovac (1.86) can be added.

Road route No. 9 (B&H border – Metković – Opuzen) is characterised by high value of PLDP and a little increased PLDP/PGDP coefficient, which amounted to 1.23 for the year 1997. These parameters lead to the conclusion that apart from tourism the road traffic is also significantly influenced by some other activities.

Road route No. 21 (Slovenian border – Buje – Pula – Opatija), with coefficient PLDP/PGDP of 1.54 and PLDP which in 1997 ranged between 7,373 vehicles (Labin) and 17,930 vehicles (Ičići) is classified as a road route with high tourist significance.

4. TOURIST ASSESSMENT OF ROAD TRAFFIC IN 1998

In 1998 the average annual daily traffic at 239 counting points amounted to 5178.87 vehicles, and the average summer daily traffic was 6869.87 vehicles, whereas the average value of the PLDP/PGDP coefficient was 1.35. Compared with the year 1997 the average annual daily traffic was higher by 13.69%, the average summer daily traffic increased by 13.54%, and the PLDP/PGDP coefficient increased slightly (by only 2.27%).

The registered PLDP in the year 1998 ranged between the minimum of 182 and maximum of 32,456 vehicles, whereas PGDP ranged between the minimum of 147 and maximum of 34,046 vehicles. At the same time the PLDP/PGDP coefficient diverged between 0.55 to 2.75.

Thus, the main tendencies noted in the year 1997 continued through the year 1998. On the road route No. 1 (Slovenian border – Krapina – Zagreb – Jastrebarsko – Karlovac – Udbina – Knin – Solin) the lowest PLDP was recorded at the counting points Polača and Vrlika (slightly above 6000 vehicles), whereas PLDP for other counting points reached even up to 27,376 vehicles (Karlovac) and 28,625 (Lučko). A significant rise regarding the previous year was recorded by the counting point Mutilić (Udbina) which was 13,391 vehicles. The greatest number of counting points on road 1 significantly exceeded the figure of 8001 vehicles and in accordance with the suggested categorisation, they have been classified as a road route with extremely high tourist significance. The average PLDP/PGDP coefficient is 1.64, which is a slight rise compared to the previous year. The results for this road route are incomplete - since the data for counting points Slušnica and Prijeboj are missing.

Compared to the previous year, the data for the road route No. 2 (Vratno – Varaždin – Koprivnica – Virovitica – Našice – Klisa – Vukovar – Sotin) do not

show special changes. In 1998 there was also a relatively high PLDP and a very low PLDP/PGDP coefficient which amounted to only 1.02. The highest PLDP (8876 vehicles) was recorded at the counting point Osijek ringroad, and the lowest (2498 vehicles) at the counting point Sotin. Low PLDP/PGDP coefficient confirms previously stated assessment that this road route at the moment has no special role in the Croatian tourism.

On the road route No. 3 (Nedelišće – Varaždin – N. Marof – Zagreb – Karlovac – Delnice – Matulji – T. Učka – Lupoglav – Žminj) there was further positive shift in 1998 of the PLDP/PGDP coefficient which amounted to 1.44. This data, as well as high PLDP, confirm without any doubt the special role of this road route in the development of tourism in the coastal area of Croatia. It should be emphasised that as many as five counting points (Zagreb ringroad, Lučko, Karlovac, Duga Resa and Rijeka ringroad) have PLDP that substantially exceeds the figure of 20,000 vehicles.

Road routes No. 4, 5, 6 and 7 recorded minimum changes compared to the previous year. The PLDP/PGDP remained unchanged and amounted to 1.25. The counting points Ivanić-Grad, Brezje, Popovača, Nova Gradiška, Brodski Stupnik, Čepin and further, record high PLDPs with the tendency of gradual increase. Obviously, only after the completion of the motorway towards SRJ and its full integration into the European road system, will this road route acquire a more significant role in the Croatian tourism.

On the road route No. 8 (Slovenian border – Rijeka – Zadar – Makarska – Opuzen – Gruda) the PLDP/PGDP coefficient in 1998 amounted to 1.64 which confirms the previously stated assessment that it is one of the most significant road routes regarding Croatian tourism. High PLDP together with high PLDP/PGDP coefficients confirm the stated assessment according to which this road route has been called the artery of the Croatian tourism. In 1998 extremely high PLDPs were recorded at the counting points Mučići, Kostrena, Crikvenica, Zadar, Šibenik, Kaštel Stari, Jesenice and Kravice. The highest coefficient (2.29) was recorded in the year 1998 at the counting point Sveti Juraj. High coefficients have also been recorded at the counting points Karlobag (2.25), Starigrad (2.09), Pirovac (2.05), Crikvenica (1.97), Marina (1.92), Živogošće/Drvenik (1.90) etc.

On the road route No. 9 (B&H border – Metković – Opuzen) there was a substantial fall both in PLDP and of coefficient PLDP/PGDP. Thus, PLDP for the counting point Kula Norinska it fell remarkably from 10,292 vehicles in the year 1997 to 5536 vehicles in the year 1998. This fall had an influence on the reduction of the PLDP/PGDP coefficient from 1.23 in the year

1997 to 0.98 in 1998. It should be emphasised that such serious changes are not the usual characteristic of the economic phenomena. Rather, they can be explained by the presence of exogenous factors.

Road route No. 21 (Slovenian border – Buje – Pula – Opatija) with high coefficient PLDP/PGDP of 1.58 and high PLDP that in 1998 ranged from 5085 vehicles (Bale) and 18,896 vehicles (Ičići) was classified among the road routes with greater tourist significance.

5. CONCLUDING CONSIDERATIONS

Tourism in Croatia was in the past, is at the moment, and most likely will be in the future one of those economic activities that enable stable and balanced development of Croatia and prosperity of her citizens. There is little argument about this statement since all the basic documents of the Croatian development emphasise her Adriatic orientation in which tourism plays an inevitable role.

One thing is certain - tourism is one of the rare chances that our country has in order to keep pace with Europe. Tourism could (along with agriculture) pull us out one day from the economic sludge in which we are stuck at the moment.

The world tourist organisation has forecast one of the highest growth rates in the Croatian tourism in the period until 2020. An annual growth rate greater than eight percent has been mentioned, whereas the forecast world growth is somewhat greater than four percent.

The attitude of the Croatian Government towards the significance of tourism as branch number one in our economy is best reflected in a statement by our Prime Minister Ivica Račan¹⁵ about further long-term tourist orientation, saying that "... the Croatian Government considers tourism as one of her strategic orientations". And he added: "... that the prospects of the Croatian tourism look excellent if only we knew how to use our advantages and if the government, at the same time, realised true incentives for the development of tourist economy".

Unfortunately, the assurances and promises of the new Government about understanding the needs for tourism and its multiple economic effect expressed through financial support - fell through the moment the cold budget shower followed. From the government treasury, namely, tourism was this year allotted more than moderate 0.4 percent of the total budget or only 203 million kunas. The situation is no better in the Croatian Roads Construction (Hrvatska cestogradnja) which, due to its direct activities in the field of solving the problems of traffic connections or inadequate infrastructure (especially on the routes to the Adriatic), represents an inevitable link in the tourist chain in the absence of which it would be useless to

speak about the proclaimed priority of developing tourism in Croatia. Faced, namely, with the previous almost hopeless road future of Croatia, the Government has accepted the Proposition of the Frame Long-term Program of constructing motorways and roads with a new model of financing offered by the Ministry of Public Works, Reconstruction and Construction. The reality of this, according to some (sic!) the most feasible and most comprehensive plan and proposition ever, lies in providing the source of money for construction and maintenance of motorways outside the overburdened budget. Thus, this year and in the following three years, the budget will not participate in the construction and maintenance of the Croatian roads and motorways. Starting from April 1, 2001, this will be entrusted to new companies and / or firms¹⁶ that will acquire funds not only from fuel taxes (currently 40 lipas per litre), but also through loans, which means that the foreign investors will play an important role in the future in this doubtlessly strategic guideline of the Croatian economy.

With things as they are today, it seems that only those directly and existentially involved in tourism, either by their own choice or by fate, care for it. The rest, including the decision-makers in the government who are responsible for the future of this economic branch, start to talk about it only when passengers and vehicles at border crossings start to be counted.

It seems that it has been forgotten that sensations do not happen two years in a row. It would be wrong to "rest on the laurels" and hope for this year's new pleasant surprise and new surge of Croatian tourism. It would be even worse (and catastrophic) to continue with the previous practice of various improvisations and poor preparation of the tourist seasons. Because of the flash of one tourist season and the tourist rise (that may be explained more by political than market reasons), it would be dangerous to forget the fact that all factors are needed for success, and only one is sufficient for failure.

A significant, if not the greatest operative problem or drawback of every year's tourism in Croatia is considered to be (apart from carrying out construction works in public areas of the coastal tourist region)¹⁷ inadequate, and in some places, insupportably bad road infrastructure which has been for many years now the main reason for starting tourist seasons every year anew with traffic complaints.

Therefore improvements of traffic (road) infrastructure, primarily on the routes towards the sea, either through:

- a) construction of new motorways and toll-free roads, either through
- b) modernisation and / or reconstruction of the existing roads
 - by constructing the third lane at inclines,

- by constructing ringroads around the cities (e.g. Karlovac, Knin, Rijeka, Bjelovar, Slunj, Korenica, Udbine etc.),
- grade separation of conflicting intersections,
- reconstruction of the so-called black points,
- speeding up and increasing of the traffic throughput at critical locations (border crossings, ferry ports)
- are a causal imperative of our country regarding the treatment of tourism as an economic branch increasingly worth investing in, and stop singing any declarative "songs".

Otherwise, there is namely, the danger that we might be speaking only (maybe) of temporary return of tourists to our country, since millions of motorised visitors, unfortunately, will not be satisfied with what they experienced here. This leads to a conclusion that every motorised guest will visit our country, as we sometimes say "**three times in one**" - for the first, the last and the only time - instead of motivating them to keep coming year after year.

Having this in mind, the potential tourist should get an inventive message such as the following:

"All these years the only thing that stood between us were these kilometres and what kept us together were the common interests. The kilometres will continue to separate us, but we will try to reduce them as much as possible and to make them more qualitative so that each tourist season would be better than the previous one. Whether you want to be in our company or in the company of our competitors - it is for you to decide."

SAŽETAK

TURISTIČKA VALORIZACIJA HRVATSKIH CESTA

Turizam kao ekološki čista industrija te kao najznačajnija industrija svijeta po broju zaposlenika i utjecaju na socijalno - ekonomski razvitak zemlje predstavlja izuzetno važnu društveno - gospodarsku granu za Hrvatsku.

Kao funkcionalna cjelina međusobno isprepletenih društveno - ekonomskih odnosa turizam je složena pojava čiji razvitak ovisi o nizu kompatibilnih čimbenika od kojih se prometna infrastruktura smatra najvidljivijim i gotovo najznačajnijim, odnosno prvim među jednakim. Ovo vrijedi poglavito za cestovnu prometnu infrastrukturu, jer cestovni prijevoz turista osobnim automobilima, autobusima i motociklima čini više od 90 posto ukupnih turističkih putovanja u Hrvatskoj.

Upravo se, između ostalog, o turističkom vrednovanju mreže hrvatskih cesta primjenom tzv. ekonometrijskog modela glede doprinosa pojedinog cestovnog pravca u ukupnom prometu turista govori u ovom radu.

Praktična primjena elaborirane problematike trebala bi rezultirati poboljšanjem cestovne infrastrukture bilo izgradnjom novih autocesta i/ili cesta, bilo rekonstrukcijom i/ili modernizacijom već postojećih prometnica.

REFERENCES

1. Other relevant characteristics of the European tourist stereotype are: arriving from the northern European countries, taking holiday in August for more than two weeks, travelling with a partner, preferring sea over the mountains or nature, staying at hotels and/or holiday resorts, spending about 2000 Euros and most often making all the arrangements for the holiday on their own.
2. These are primarily, among others, the following topics: organisation of tourist agencies and privatisation of tourist sector through public tenders and related to this stormy quarrels and disagreements as well as backroom deals and seeming breakups due to the conflict of interests of the leading persons in the Government and the Fund for Privatisation regarding lobbying of interests and privatisation models, reprogramming of loans to over-indebted tourist companies, categorisation of tourist facilities, the issue of reducing the V.A.T. for tourism (zero rate due to the acknowledgement of the export status), financial recovery of insolvency of the mainly state-owned tourist agencies, moving of displaced persons from the hotel facilities, (not)settling of debts to tour-operators for subsidies and promotion, poor quality and increase in the fuel price, increase in excise taxes for some products, reduction of budget intended for tourism, (not)good behaviour of kuna compared to convertible currencies important to us, unregistered work without a working permit, anti-tourist opening hours, sudden postponement (for the time being) of the privatisation of the state-owned company ACI-marina, party staffing (managing positions and NO) and dismissing (un)successful managers of the tourist companies, delayed preparations of the public professional fire-brigade units in coastal counties for the new fire season regarding concrete agreements about the organisation of activities and exact planning of the level and scope of responsibilities, and the related lack of money for material costs (insurance of firemen and vehicles, registration and repair of vehicles, foam and powder fire extinguishers, protective equipment) of firebrigade units, relentless fight for the most attractive big tourist companies and the respective lands (mostly neighbouring areas) with special status that excludes them from the institution of public tenders and thus the selected future owner, public scandals and shady affairs regarding quick-move "sales" of some strategic hotel capacities supported by fierce lobbying by the interest-divided flows of the world "snobs" and with good political connections, and avoiding of the previous practice of overbooking by double-selling of the available capacities and subsequent reduction of the planned tourist contingents contracted between the foreign tour-operators and their Croatian partners.
3. Regarding frequency of use, the second place belongs to the aircraft (primarily charter flights), followed by bus, whereas train and vessels (ship, ferry, yachts) are much less used as transportation means for tourist travelling to our country. Unlike the mentioned ones, the British tourists (whose number is almost negligible compared to

- the number of other tourists in Croatia) travel from their island almost exclusively by planes.
4. Foreign exchange earnings are collected mostly, of course, during the tourist season from the tourists with paid-for accommodation. However, there are also substantial earnings during the year from our people who work abroad who stay with their relatives or in their holiday houses, then from their friends from abroad staying in our country as their guests, then the Slovenes staying at their holiday houses, guests who stay at their friends', and foreigners staying in Croatia for just one day - but spent substantial sums of money. However, regardless of the figure reached, regarding income from tourism, Croatia has never belonged to the top 20 European tourist countries.
 5. The mentioned day will be remembered by guests at some destinations having slept in their cars on the parking lots, in parks or in the port areas, fortunately with almost ideal weather conditions.
 6. The fact that the official tourist policy ignores these figures creates a tricky impression about the actual standard of our citizens who can afford to go on summer holidays. This reflects prompt ingenuity of our travel agencies which are unsurpassable and highly inventive in creating possibilities of deferred payment and organised summer holidays offering several months' loans.
 7. The official Croatian statistics of tourism defines a tourist resort as a place which fulfils the following basic conditions of being: *attractive* (natural beauties, mineral springs, cultural and historic monuments and various cultural, sport and entertainment events); *communicative* (accessibility and traffic connections); *receptive* (accommodation facilities and accompanying service facilities, parks, bathing and walking possibilities). In accordance with this, the tourist resorts in Croatia are classified in six groups and these are: the Zagreb metropolis, Coastal resorts, Mountain resorts, Bathing resorts (spas), Other tourist resorts and Other non-tourist resorts.
 8. These are the following offices (representation bureaus) of HTZ: in Germany with headquarters in Frankfurt; in the Czech Republic with the seat in Prague; in the Republic of Italy with the seat in Milan; in the Kingdom of Belgium with the seat in Brussels; in the Republic of France with the seat in Paris; in the Republic of Austria with the seat in Vienna; in Germany with the seat in Munich; in the Kingdom of the Netherlands with the seat in Amsterdam; in the Republic of Italy with the seat in Rome; in the Republic of Poland with the seat in Warsaw; and in the Kingdom of Sweden (for the Scandinavian countries) with the seat in Stockholm.
 9. It is interesting to note that the planned increase in the number of domestic guests and their overnight stays is only two percent, meaning that the Croatian Tourist Association (HTZ) had made a good estimate that the Croatian citizens are threatened once again by having to deny themselves the basic superstructure of living (travelling and holidays), and will have to think instead of their basic existential needs.
 10. At this year's CBR, held in Munich from 18 to 25 February 2001, there were 1903 exhibitors from 53 countries.
 11. Š. Tanković, M. Veselinović: *Novi koncept turističke valorizacije cesta u SRH*, Ceste i mostovi, No. 1/1989.
 12. The analysis is based on the statistical data published by the HRVATSKA UPRAVA ZA CESTE (Croatian Road Administration): *Brojenje prometa na cestama Republike Hrvatske godine 1997* (Traffic count on the Croatian roads in 1997)
 13. Thirty-three counting points were left out for the year 1997 due to the absence or incompleteness of data.
 14. Data on vehicle traffic are gathered in the following ways: (1) manual counting; (2) stationary automatic counting; (3) portable automatic counting, and (4) toll counting.
 15. This statement was published in the latest edition of our estimated professional journal "Ugostiteljstvo i Turizam" (Catering and Tourism) published by the Institut za turizam (Institute for Tourism) from Zagreb.
 16. The accepted new model of financing road construction includes amendments to the Act on Public Roads in order to realise the division of the current Hrvatske uprave za ceste - HUC (Croatian Road Administration) into two separate 100% state-owned companies - Hrvatske ceste - HC (Croatian Roads) and Hrvatske autoceste - HAC (Croatian Motorways), that have to divide equally the current assets and obligations, as well as the staff.
 17. The mentioned non-tourist and non-cultural phenomenon "compressor against tourism" is a kind of a specific feature present more or less in all the coastal regions during high season causing very often numerous dissatisfied tourists to protest, and even leave the resort destinations irritated by the unsupportable noise, dust, traffic congestion and other phenomena related to open construction works.

LITERATURE

- [1] Božičević, J. (1992). *Prometna valorizacija Hrvatske*, HAZU - ZNANSTVENI SAVJET ZA PROMET, Zagreb: "Varteks" DP Tiskara
- [2] Horak, S. (1999). *Cestovna mreža - preduvjet bržeg razvitka turizma u Hrvatskoj*. Zbornik radova Drugog hrvatskog kongresa o cestama, Cavtat 24-27. 10.1999., Knjiga I, pp. 126-133
- [3] Matoš, S. & J. Vurdelja (1989). *Organiziranost izletničko-turističkih putovanja u funkciji razvoja jugoslavenskog turizma*, Promet, Vol. 1, No 4-5, Zagreb
- [4] Tanković, Š. (1993). *On the application of the gravitation model in the analysis of the tourist market*, Acta turistica No 2, Vol. 5.: Ekonomski fakultet Zagreb
- [5] Tanković, Š. & M. Veselinović (1989). *Novi koncept turističke valorizacije cesta u SR Hrvatskoj*, Ceste i mostovi, No 1, Vol. 35., Zagreb
- [6] ***, Hrvatska uprava za ceste (1998). *Brojenje prometa na cestama Republike Hrvatske godine 1997.*, Zagreb
- [7] ***, Hrvatska uprava za ceste (1999). *Brojenje prometa na cestama Republike Hrvatske godine 1998.*, Zagreb
- [8] ***, Državni zavod za statistiku (1998). *Pojmovnik za statistiku prometa*, Zagreb