ECONOMETRIC ANALYSIS ON THE EVOLUTION OF THE DEMAND AND OFFER OF ACCOMMODATION IN CAMPS FOR CHILDREN UNDER AND OF SCHOOL AGE

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Abstract
This work analyzes the main valuation indices of the evolution of demand and offer of accommodation in camps for children under and of school age.

In the first part of the study we approach the offer of accommodation in camps for children under and of school age based on the indices: the number of camps, the existing accommodation capacity and the accommodation capacity in operation. All the indices indicate a strong decrease of the offer of accommodation accentuated in the last part of the analyzed period.

The evolution of the demand of accommodation is valuated from the point of view of the number of tourists arrived and accommodated in camps for children under and of school age, of the number of overnight stays, of the average duration of the stay, of the number of school population and of the average salary output. The evolution trend of the demand shows significant decreases, yet not outrunning the decrease rhythm of the demand. This is why the net utilization index of the accommodation capacity shows some growing values.

In the last part of the study we analyze a possible dependence between the demand of accommodation expressed in the number of arrivals in the camps for children under and of school age and two quantitative factors: the number of school population and the average salary output. The results indicate the existence of a dependence relation between the number of arrivals and the number of school population, the salary output not representing a relevant factor of influence.

The conclusions of the analysis show the need to carry out some ample and constant activities of promoting this tourism company among the school and pre-school population as well as their families, taking into account the educative and training role that the activities organized in the camps of children under and of school age can and must have on the young generation's training and education.

Key words: *correlation, regression, price index, accommodation capacity, net utilization index of the accommodation capacity.*

JEL classification: *N10*

1. INTRODUCTION

During the last decades we have witnessed an especially rapid growth of tourism; this evolution practically determined the entry in another dimension, that of the industry of hospitality. This new industry keeps on growing, determining the development of the traditional tourist services in parallel with the appearance of new tourist services as well as complementary services.

Among the tourist services, an important place is held by the accommodation services supplied by accommodation facilities that are, in their turn, continuously adapting to their consumers' requirements. The quality of the offer of tourist services, as well as the dimensions of the offer are determined by the characteristics of the specific material base, by their typology and equipments so as to ensure the best accommodation conditions for a price-quality ratio in accordance to the national and international standards.

The tourist reception capacity cannot be separated from the tourist accommodation capacity; there is a tight relation between them in establishing the conditions necessary for the customers' accommodation and rest in the tourist reception facilities, whatever their type.

A component of the tourist reception facilities, the camps for children under and of school age also supply important educational services, besides the accommodation services, inspiring children both with the love for the beauty and usefulness of creation, and for the protection and preservation of the environment they live in. This includes school and artistic creation camps where, by activating some specific elements, new talents are discovered, new cultural and artistic values are created, talented children develop their skills and enrich their knowledge in various fields: painting, sculpting, moulding, carving stone etc.

Although the number of camps for children under and of school age among the total number of tourist reception facilities is relatively small, their role

in the training and education of the young generation legitimates the fact that special attention is paid to them.

2. ANALYSIS ON THE EVOLUTION OF THE NUMBER OF CAMPS FOR CHILDREN AND OF THE ACCOMMODATION CAPACITY IN OPERATION

The analysis of the number of accommodating facilities like camps for children under and of school age as well as the accommodating facilities existing and in operation is presented in Table 1.
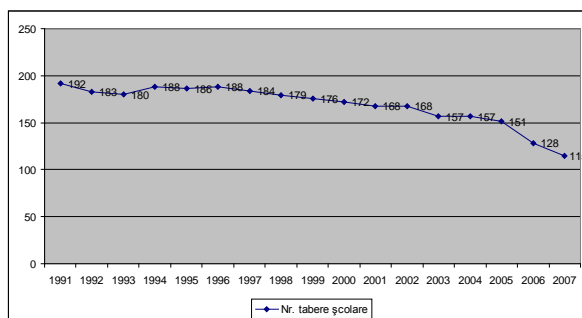
Table 1 - The evolution of the number of camps for children and of the accommodation capacity in the period 1991-2007

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of camps for children	192	183	180	188	186	188	184	179	176
Existing accommodation capacity	50770	47285	44665	45668	44678	44075	43333	42719	41400
Accommodation capacity (in operation)	5298	5046	5584	5429	5821	5780	5525	5578	5241
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	
Number of camps for children	172	168	168	157	157	151	128	115	
Existing accommodation capacity	40149	38398	34964	32821	30198	28916	23227	20320	
Accommodation capacity in operation	5523	6029	5124	4553	4388	3592	2988	2277	

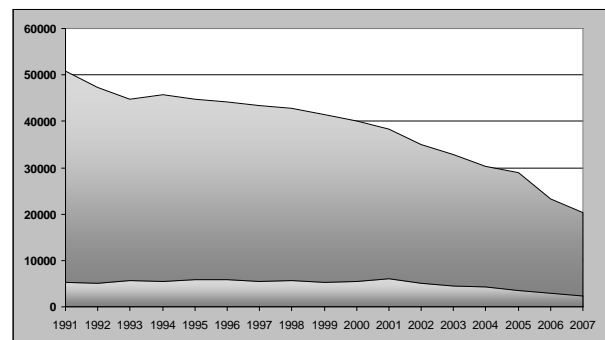*Source: Statistic Directory of Romania 2007*

A brief analysis of the data shows an almost continuous decrease of the number of camps for children under and of school age in the analyzed period, from 192 camps existing in 1991 to 115 camps in 2007, which represents 59.89% as compared to the year of reference.

Yet, during the analyzed period (Figure 1), there was a moment of resurrection, in 1994, when the number of camps grew as compared to the previous year (1995) by 4.5%. Yet this recovery was short, after 1997 the trend going down again. We must also notice that the most significant decreases are recorded during the last years by 15% in 2006 and 11% in 2007.

Figure 1 - Evolution of the number of camps for children under and of school age in the period 1991-2007

As far as the existing accommodation capacity is concerned, this year it has, as expected, similar trends (Figure 2). If this remark can be considered redundant in relation to the number of camps, yet we notice the enormous difference between the existing accommodation capacity and the accommodation capacity in operation.

Figure 2 - The evolution of the accommodation capacity existing and in operation of the camps for children under and of school age

The importance of the accommodation capacity in operation in the existing accommodation capacity evolves between a minimum of 10.43% in 1991 and a maximum of 15.70% recorded in the year 2001. But if we refer to its absolute evolution we notice (table 1) that it has evolved from a volume of 5298 places in 1991 to an absolute minimum of the analyzed period, of 2277 places in 2007, recording a strong decrease in the period 2005 and 2007 of 21.1%, 16.9% and 23.8% respectively in 2007, practically reducing by half as compared to 2004, the accommodation capacity in operation in 2007 represents 51.89% from the accommodation capacity in operation in 2004.

Taking into consideration that in the mentioned period (2004-2007) no significant events took place that would affect so much the accommodation capacities in operation existing in 2004, we believe that the especially severe reduction recorded is caused by the lack of interest of the competent factors and the policies of the ministry of education referring to the use of camps for children under and of school age as training, cultivating and educating instruments for the young generation.

2.1 The analysis of the evolution of the number of tourists and of the index of accommodation capacity in operation

The evolutions of the number of tourists, of overnight stays and of the utilization index of the accommodation capacity in operation in camps for children under and of school age in the period 1991-2007 are presented in Table 2.

Table 2 - The evolution of arrivals and overnight stays in the camps for children

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Arrivals (thousands of tourists)	301	293	275	255	294	358	289	192	192
Overnight stays (thousands)	2906	2742	2378	2110	2404	2397	2011	1340	1209
Utilization index	54,8	54,3	42,6	38,9	41,3	41,5	36,4	24,0	23,1

	2000	2001	2002	2003	2004	2005	2006	2007
Arrivals (thousands of tourists)	254	249	224	194	186	129	118	106
Overnight stays (thousands)	1155	1222	1021	851	858	533	508	437
Utilization index	20,9	20,3	19,9	18,7	19,5	14,8	17,0	19,2

Unlike the evolution of the number of camps for children under and of school age and of the accommodation capacity in operation, the number of tourists arrived and accommodated in camps for children under and of school age has recorded significant trends, both growing and decreasing.

After a slight decrease of the number of arrivals in the period 1991-1994, from 301,000 to 255,000 in the years 2005 and 2006 significant growths have been recorded, by 15.29% in 2005 and by 21.76% respectively in 2006, when they reach the highest value recorded in the analyzed period, of 358,000 tourists accommodated in camps for children under and of school age. After a strong decrease that took place in the years 1997 and 1998 a new recovery is recorded with a maximum of 254,000 tourists in 2000, but after started the irreversible decrease of the arrivals of tourists in camps for children under and of school age. The year 2007 records the absolute minimum of the analyzed period, 106,000 arrivals that are only 35.21% as compared to 1991 and only 29.60% as compared to 1996.
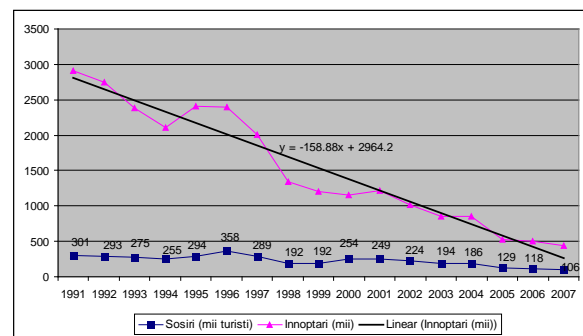
As far as the evolution of the overnight stays is concerned, as it can be noticed in Figure 3, their trend (Y) is strongly descendent.

$$Y = 2946,2 - 158,88 \cdot t \qquad (1)$$

The strong decrease of the number of overnight stays is given on the one hand by the descendent trend of arrivals but also by the drastic reduction of the average duration of the stay, from an average of 9.65 days in 1991 to 4.12 days in 2007, which represents 42.69% as compared to the maximum value recorded at the beginning of the analyzed period.

As a consequence of the decrease of the number of tourists arrived and accommodated in camps for children under and of school age, as well as of the average duration of the stay (presented in figure 2), the net utilization index of the accommodation capacity has recorded especially big decreases too, from 54.8% in 1991 to a minimum of 14.8% in the year 2005. But unlike the indices analyzed above, it
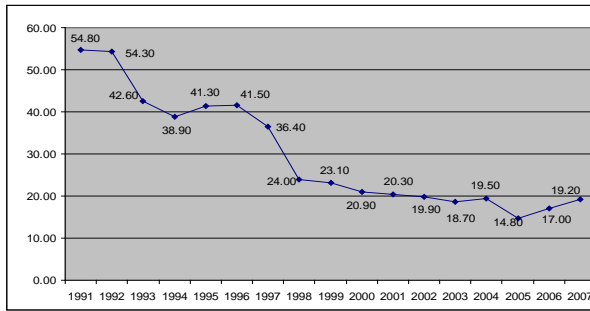
records in the period 2006-2007 a slight growth (from the absolute minimum of the period, of 14.8% recorded in 2005, to 19.20% in 2007).

Figure 3 - The evolution of arrivals and of overnight stays in camps for children under and of school age

The growth of the net utilization index of the accommodation capacity in operation, recorded over the last 2 years, must be regarded with reserve. Taking into consideration the drastic decreasing trend of the values of the tourist circulation in camps for children under and of school age, we believe that the said growth is only apparent, and it is determined in fact by the decreasing rhythms of the accommodation capacity in operation from the years 2006 and 2007 of 16.9% and of 23.8% respectively, that overruns the decreasing rhythms of the arrivals in these accommodating facilities, which in the years 2006 and 2007 have been 8.63% and 10.27% respectively.

A conclusion that can be drawn from here is that as long as both the number of tourists arrived and accommodated in camps for children under and of school age, and the accommodation capacity are not stabilized, the values recorded by the net utilization index of the accommodation capacity can be whatever, their exclusive use in an analysis being hazardous.

Figure 4 - The evolution of the net utilization index of the accommodation capacity.
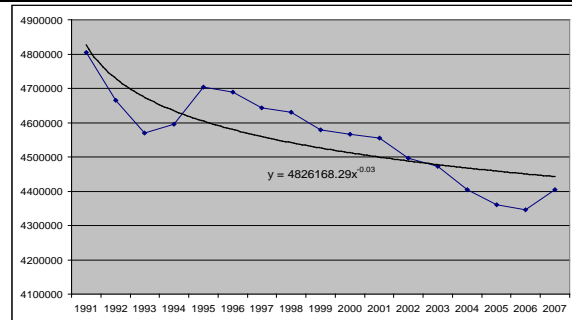
Aspects on the correlation between the number of arrivals in camps for children under and of school age, the evolution of the school population and the average salary output In this part of our study we have evaluated the influence exerted by factors as the evolution of the school population and of the average salary output of the population on the number of tourists' arrivals in camps for children under and of school age. The evolution of the school population in the period 1991-2007 is presented in Table 3 and illustrated in Figure 4.

Table 3 - The evolution of the school population in the period 1991-2007

	1991	1992	1993	1994	1995	1996	1997	1998	1999
School children (thousands)	4805367	4664860	4569285	4594513	4703277	4688311	4643351	4631164	4578383

	2000	2001	2002	2003	2004	2005	2006	2007
School children (thousands)	4565279	4554466	4496786	4472493	4403880	4360831	4345581	4404581

As it can be noticed, with small exceptions, in the period 1993-1995 the general trend is of reducing its number and it is expected that the decrease should continue, mainly because of the low level of the birth rate. The trend of the school population (variable Y) may be described by the model:

$$Y = 4826168,29 \cdot t^{-0,03} \qquad (2)$$

Figure 5 - The evolution of the school population in the period 1991-2007

Regarding the real salary income evolution during 2001 and 2007, these have been determined based on the consumption price index with base in 1991 (1991 = 100%) and are presented in the Table 4 and 5.

Table 4 - Consumption price index 1991=100

	1991	1992	1993	1994	1995	1996	1997	1998	1999
(%)	**100**	310	1105	2617	3461	4805	12241	19476	28396

	2000	2001	2002	2003	2004	2005	2006	2007
(%)	41364	55622	68157	78568	87899	95822	102109	107051

Table 5 - The evolution of the real salary output in the period 1991-2007 in relation to the salary output in 2007

	1991	1992	1993	1994	1995	1996	1997	1998	1999
RON	692	604	479	489	547	590	531	528	559

	2000	2001	2002	2003	2004	2005	2006	2007
RON	537	561	581	633	693	786	862	1004

The use of the multiple regression method presupposes an estimate of the regression function parameters, made by applying the smallest squares method.

The value of the correlation ratio $R = 0,888$ reflects the existence of a strong connection between the analyzed indices, 78.925% representing the joint influence of both factors (salary output and school

population) on the number of tourists' arrivals in camps for children under and of school age.

The application of the Fisher test, through the result obtained $F = 26,215$, outlined by the result Significance F which is smaller than 0.05, indicates the fact that the chosen model, of the linear type, expresses well the established correlation.

From the linear adjustment equation which is presented in the following form:

$$\hat{y}_i = -1403{,}9952 - 0{,}1437 \cdot x_{i1} + 0{,}000378 \cdot x_{i2} \qquad (3)$$

We infer that, on changing the salary output by 1 RON, the number of the tourists' arrivals in camps for children under and of school age is reduced by 0.1437 tourists, while the growing variation of the population determines a growth of the number of tourists' arrivals by 0.000378 tourists.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.88839
R Square	0.78925
Adjusted R Square	0.75914
Standard Error	34.88322
Observations	17

	df	SS	MS	F	Significance F
Regression	2	63799.1865	31899.59325	26.21511	1.84644E-05
Residual	14	17035.75467	1216.83962		
Total	16	80834.94118			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-1403.9952	413.1676586	-3.39812	0.00432	-2290.151732	-517.8387492
Salary output	-0.1437	0.076879748	-1.86944	0.08262	-0.308612941	0.02116838
School population	0.000378	8.39257E-05	4.50748	0.00049	0.000198291	0.000558296

The results of the last table, both through the values of the Student test (t), and through the values of the variation intervals, reflect that:

- the salary output does not represent a significant factor because the P-value is 0.08, therefore bigger than 0.05, and the limits of the variation interval have different signs;

- the factor school population is significant, which is reflected by the P-value which is 0.00049, smaller than 0.05, and the interval limits have the same positive sign.

The acceptance of the model as being valid is considered a step that creates the possibility of making managerial decisions concerning the future of the activity in the camps for children under and of school age.

3. CONCLUSIONS

Further to the results obtained, that characterize the present situation on the demand and the offer of accommodation in camps for children under and of school age, the conclusion is that, at least for the present, their condition is at least alarming. We are taking into consideration, in supporting this statement, the huge difference between the existing accommodation capacity in 2007 of 20320 places and the one in operation, in the same year, of only 2277 (that is only 11.21%), and on the other hand the net utilization index of the accommodation capacity in operation which in 2007 was 19.20%, meaning that

from the total of the existing accommodation places, only 2.51% was occupied in 2007. Likewise, as we have underlined, we believe that the extremely severe reduction recorded by the accommodation capacity in operation is caused by the lack of interest of the competent factors and of the policies of the ministry of education concerning the use of the camps for children under and of school age as instruments of training, cultivating and educating young generations.

On the other hand in the analyzed period we also notice a significant reduction of the demand, outlined through the reduction of the number of tourists arrived and accommodated in camps for children under and of school age at 35.21% as compared to 1991 and of only 29.60% as compared to 1996 constitutes a reorientation of the school population to other forms of spending the holidays. What could determine such an attitude?

Hoping to find an answer besides the one already inferred from the analysis of the evolution of the accommodation capacity in operation, we have analyzed the dependence between the number of arrivals on the one hand and the number of school population and of average salary output on the other hand.

The results obtained with respect to the utilization index of the accommodation capacity in the tourist accommodation facilities like "camps for children under and of school age", as well as the fact that the demand for these accommodation services does not significantly depend on the salary output require that some measures be taken with respect to

the growth of the demand, so much the more so, since the number of school and pre-school population is continuously decreasing.

In supporting the camps of children under and of school age, we must start both from the educational formation and from the material equipments. The participation of the camp in educational programmes and training programmes shall lead to its rapid awakening, to the preparation from the qualitative point of view and to the development of the offer.

We believe that an important direction of action in this sense is represented by the preparation of the activities in camps in order to reach the stage of a bearer of commercial offer. In this sense, a proper managerial structure in parallel with identifying and developing some channels of communication that supply an efficient and direct connection both with the education institutions of all levels and with the families with children under and of school age.

On the other hand the offer must be completed with complementary services as well as trips in the environs, practicing various forms of entertainment, equestrian tourism, mountain climbing, activities in the historical – cultural plan (knowing the local works of art, churches, handicraft and local folklore), as well as participation in local sports competitions.

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