Factual and Mathematical Analysis of Impacts of the Economic Crisis on Tourism in the Czech Republic

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Abstract— The Czech Republic is a showcase example of a very open and essentially very liberal economy, especially in terms of its relations with other countries. While industrial production, with manufacturing in particular, remains the key economic segment, tourism and services associated with it have their significance as well. As a state outside the Euro Area, the Czech Republic is faced with currency (CZK) fluctuations vis-à-vis the major foreign currencies, including the euro and U.S. dollar, with the importance of the euro being by far the highest in tourism. Using statistical time series, the present work analyses the development of tourism in the Czech Republic, uprooting the general belief that the crisis in the tourism industry came as a result of the global economic crisis (2008-2010). Based on mathematical analysis and identification of correlations between statistical time series, it has become apparent that the crisis had hit the travel industry before the global economic recession and came as the direct result of the strengthening of the CZK compared to the major foreign currencies, particularly the euro and U.S. dollar. A factual and mathematical analysis is performed, examining the relationship between the key data on consumption concerning local and foreign visitors. It has become apparent that the crisis curve applying to local visitors lags behind the curve applying to foreign visitors, with the time shift being equal to difference in the period where the strengthening of the Czech currency adversely affected the spending of foreign tourists and the period where the income of local residents was negatively impacted by the global crisis.

Keywords—gross domestic product, mathematical analysis, recession, statistical time series, tourism.

I. INTRODUCTION

GENERATING approximately three percent of GDP, tourism is not the key Czech industry. As much as 65% of the industry's output originates in the capital city of Prague. The explanation is simple: Prague offers a quite unique collection of historically and artistically significant structures that have been to a large degree preserved in their original appearance, while also having been saved from extreme destruction or modern renovations. Incoming tourism from rich developed countries, which generates the most significant part of the industry's output, targets almost exclusively Prague.

Besides the capital city, the Czech Republic offers a number of other destinations that are undoubtedly interesting from the tourist perspective but whose importance is significantly lower, e.g. the spa town of Karlovy Vary (Carlsbad), the architectonic gem of Český Krumlov, the unique chateau complex of Lednice and Valtice as well as other castles and chateaux (e.g. Karlštejn just outside Prague). The country has a longstanding tradition of hiking with a unique and elaborate system of marked paths and facilities for biking have been developed as well; however, taking a critical stance it is fair to say that the Czech Republic does not offer much in terms of exclusive natural wonders that would set it apart from other areas.

II. IMPORTANCE OF TOURISM FOR THE CZECH ECONOMY

Economically speaking, tourism presents a relatively important economic component (see Table I.) as it contributes approximately 3 percent to the country's GDP (although the value continues decreasing). In this respect, it is more important than agriculture or fishing. Over the recent years, the contribution of individual industries to total GDP has become approximately stabilized as follows:

- industrial production: 33 percent,
- trade and hospitality (including tourism): 24 percent,
- other services: 17 percent,
- financial and commercial services: 17 percent,
- construction industry: 6 percent,
- agriculture, forestry, fishing: 3 percent.

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Table I. Main indicators of the national economy and tourism in the Czech Republic in 2003-2009 [1]

Indicator	2003[1]	2004[1]	2005[1]	2006[1]	2007[1]	2008[2]	2009[3]
Total output (bp)	6 392 815	7 052 693	7 441 528	8 323 461	9 238 420	9 677 283	8 786 554
Total intermediate consumption (pp)	4 032 970	4 517 567	4 763 005	5 412 466	6 056 936	6 352 285	5 524 956
Total gross value added (bc)	2 359 845	2 535 126	2 678 523	2 910 995	3 181 484	3 324 998	3 261 598
Taxes less subsidies	236 249	279 033	308 602	314 709	357 449	367 624	367 913
Gross domestic product	2 596 094	2 814 159	2 987 125	3 225 704	3 538 933	3 692 622	3 629 511
Tourism output (bc)	216 773	232 994	226 932	241 595	250 407	251 543	238 257
Tourism intermediate consumption (pp)	136 753	149 243	145 250	157 101	164 173	165 116	149 815
Tourism ratio on gross value added (%)	3.4	3.3	3.0	2.9	2.7	2.6	2.7
Tourism gross value added (bc)	80 020	83 751	81 683	84 494	86 234	86 427	88 442
TGVA - Characteristic industries	56 379	58 459	55 386	58 581	61 086	61 117	63 940
TGVA - Connected industries	19 941	21 706	23 290	23 230	21 844	22 257	21 395
TGVA - Non specific industries	3 700	3 585	3 007	2 683	3 304	3 054	3 107
TGVA - Characteristic industries (%)	70.5	69.8	67.8	69.3	70.8	70.7	72.3
TGVA - Connected industries (%)	24.9	25.9	28.5	27.5	25.3	25.8	24.2
TGVA - Non specific industries (%)	4.6	4.3	3.7	3.2	3.8	3.5	3.5
Tourism taxes	10 772	18 565	17 396	15 462	16 845	17 024	15 851
Tourism gross domestic product	90 792	102 316	99 079	99 956	103 079	103 451	104 293
Tourism ratio on gross domestic product (%)	3.5	3.6	3.3	3.1	2.9	2.8	2.9

CZK mil. / %
1) Revised data
2) Semi-definitive data
3) Preliminary data
(bp) Basic prices
(pp) Purchaser prices

With industrial production and the construction industry making up to 40 percent of gross domestic product, the Czech Republic belongs among countries with significant influence of production industries. Whereas the importance of tourism is not negligible, it is far from taking a dominant share. In terms of the influence of tourism on the overall economy, the mostly negative development of individual indicators over the recent years is worth noting. For example, the parameter "number of overnight stays" posted a mild y-o-y growth only in 2010, after having gone through several years of decline.

I. CZECH TOURISM WAS NOT AFFECTED BY THE ECONOMIC CRISIS; IT WAS ALREADY IN DECLINE WHEN THE RECESSION HIT

It is popular belief that the Czech tourism industry suffered as a result of the economic crisis and the global reduction in demand for travel products. As the statistical data reveal, however, tourism in the Czech Republic had been for a while among industries that had been unable to keep the pace of the dynamic development, lagging behind the overall economy as the time progressed.

What is even more important, however, is that with the exception of 2004 the only years where tourism posted better results than the rest of the national economy were the years of stagnation or recession (2009 and 2010). On average, GDP (expressed in current prices) grew 3 percentage points faster than GDP generated by tourism.

Table II. Comparison of gross domestic product of the Czech Republic and tourism industry output (indices, current prices) [2]

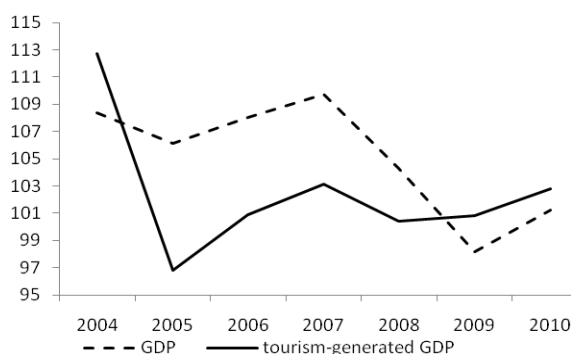| Index	GDP	Tourism-generated GDP
2004/2003	109.2	112.7
2005/2004	106.0	96.8
2006/2005	108.0	100.9
2007/2006	109.7	103.1
2008/2007	104.4	100.4
2009/2008	98.3	100.8
2010/2009	101.2	102.8[1]
Average	105.3	102.5

Fig. 1 Comparison of Czech Republic's GDP and tourism-generated GDP (%)

If we applied GDP deflators, which the Czech Statistical Office used to measure nominal gross domestic product in order to net it of price variations, to the individual years we would arrive at the conclusion that throughout the post-2005 period, the performance of tourism has been actually declining. Some real growth may be apparent in the 2010 results once they become available (the data for 2010 are a calculation based on the estimated level of GDP generated in tourism). The deflators for the respective years have been set as follows:

Table III. Gross domestic product deflator [1], authors' calculations

Year	2004	2005	2006	2007	2008	2009	2010
Deflator [1]	4.5	-0.3	1.1	3.4	1.8	2.5	-1.1
Real GDP[2]	8.3	-2.8	-0.3	-0.4	-1.5	-2.7	2.9

1) A value provided by the Czech Statistical Office; however, for the purposes of calculating real GDP generated by tourism, a slightly adjusted parameter has been used that has been modified to reflect the development of prices in areas related to tourism in order to provide a more accurate picture of the industry; however the differences are negligible.
2) Tourism-generated GDP.

As far as the Czech Republic is concerned, the situation in the tourism industry has not been due to the global economic crisis but, rather, has been the result of a chronic condition prevalent within the Czech economy for a number of years, one that is unlikely to change substantially in the near future.

A. Probable causes of permanent stagnation in the Czech Republic

Looking for causes of the long-term stagnation or decline of tourism in the Czech Republic, we may attempt to identify potential issues in several following areas:

1) security
2) environment
3) legislation
4) economy (and prices)
5) consumer psychology
6) service standards

As far as the situation in the Czech Republic is concerned, there are currently no security reasons behind the stagnation or decline of tourism in the Czech Republic. The country is free from war conflicts, is not prime target for terrorists, so far there have been no terrorist attacks within the country or against the country's property abroad (e.g. embassies). Whereas the crime rate is relatively high for petty theft, its levels do not surpass those in other European countries.

The Czech Republic has recently enjoyed a period without any major natural disasters. The last major one took place in 2002 when Prague and extensive areas in the western part of

the country were affected by unprecedented flooding. By the way, the rather significant growth in tourism in 2003 and 2004 was due to the fact that the 2002 levels had been adversely affected by the natural disaster. The impact of floods on the Czech economy was substantial and came as a shock that compares to the effects of epidemics accounts of which are presented in literature [3].

The country no longer suffers from the impacts of the "Balkans events", following a period in the early and mid 1990s where many people were unable to make a distinction among the countries of Central Europe and the Balkans (e.g. due to the closeness of the names such as Slovenia and Slovakia), with the situation thus harming tourism in both the Czech Republic and Slovakia.

In terms of environment, the Czech Republic is on par with the majority of European countries. There is no campaign against the country targeting its environmental policy nor is the country "scolded" by influential environmental organizations. One event had a marginal impact on tourism in the Czech Republic: the disputes between the Czech government and Austria (and the regional government of Upper Austria in particular) concerning the use of atomic energy and the operation of the Temelín nuclear power plant; however, this issue was of strictly local importance and had no global implications.

In terms of legislative obstacles, these are almost non-existent and there are definitely no limitations affecting tourism itself. The Czech Republic is a part of the Schengen Area and citizens of other developed countries are only rarely subjected to visa requirements. Whereas there are some restrictions imposed on visitors from Eastern Europe, tourist visas are granted almost automatically.

In terms of economic limits to the development of tourism, the situation becomes somewhat more interesting. In this respect the issues of pricing and competitiveness come to the fore, with the situation of the Czech Republic being rather complicated. The Czech koruna (CZK) exchange rate is undoubtedly the main source of trouble. As the Czech Republic is not part of the euro area, the strengthening of the local currency affects incoming tourism. Since the local provision of services and sale of goods to foreign nationals equals to export of these items, the strengthening of the currency has the same effects on tourism as on any other type of export.
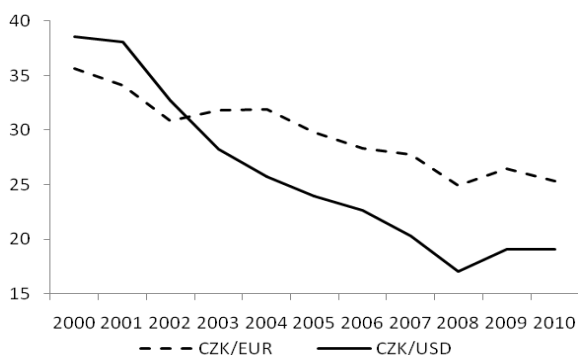

Fig. 2 Czech koruna exchange rate development compared to key world currencies [5]

Fig. 2 shows that from the perspective of foreign tourists, visits to the Czech Republic become increasingly more expensive due to the strengthening of CZK. For example, tourists from Germany who visited the Czech Republic in 2004 for the first time found their purchasing power reduced by almost 26% in 2010 and all this disregarding inflation that had somewhat increased prices in the meantime.

Visitors using dollars found their purchasing power reduced even more significantly. Compared to the year 2000, the current purchasing power of the USD is approximately 50 percent lower (although this is in part due to the precarious position of the USD, not the strengthening of the CZK alone). However, from the perspective of incoming visitors their stay in the Czech Republic becomes increasingly more expensive due to the strengthening of the CZK exchange rate, even though this happens in a somewhat unpredictable and erratic way.

Yet foreign visitors represent a share of clients as substantial for Czech tourism as the local ones. Looking at the accommodation statistics, we see that the importance of non-residents for tourism has been increasing.

Table IV. Number of resident and non-resident guests in accommodation facilities in the Czech Republic (thousand) [1]

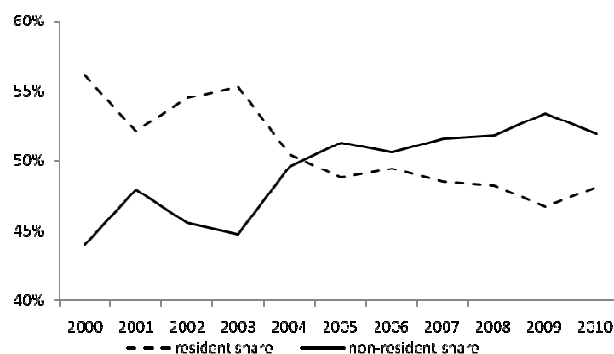| Year	2000	2001	2002	2003	2004	2005
Residents	6,091	5,878	5,672	6,271	6,158	6,026
Non-residents	4,773	5,405	4,743	5,076	6,061	6,336
Total	10,864	11,283	10,415	11,346	12,220	12,362
Year	2006	2007	2008	2009	2010	
Residents	6,289	6,281	6,186	5,593	5,873	
Non-residents	6,435	6,680	6,649	6,392	6,336	
Total	12,725	12,961	12,836	11,985	12,209	

Fig. 3 Resident to non-resident guests

In 2000, 43.9 percent of tourists were recruited from among

non-residents, whereas in 2010 the number was up at 51.9 percent. Both groups spent an average of three nights, with the indicator steadily decreasing or stagnating, at best. The total number of overnight stays decreased from 44.2 million in 2000 to 39.3 million in 2008, with further decrease to 36.7 million in 2009.

A mild growing trend occurred in 2010 with 36.8 million overnight stays. Whereas the share of both residents and non-residents stood at fifty percent (2010), the profitability associated with non-residents was higher given their higher standard requirements.

Table V. Number of overnight stays [4]

| Year	Total	Non-residents	Residents
2000	44,199,616	15,597,087	28,602,529
2001	39,122,187	17,254,881	21,867,306
2002	37,109,835	15,569,156	21,540,679
2003	39,343,250	16,510,618	22,832,632
2004	40,780,708	18,980,462	21,800,246
2005	40,320,477	19,595,035	20,725,442
2006	41,447,797	20,090,348	21,357,449
2007	40,831,072	20,610,186	20,220,886
2008	39,283,474	19,987,022	19,296,452
2009	36,662,192	17,746,893	18,915,299
2010	36,807,958	18,363,817	18,444,141
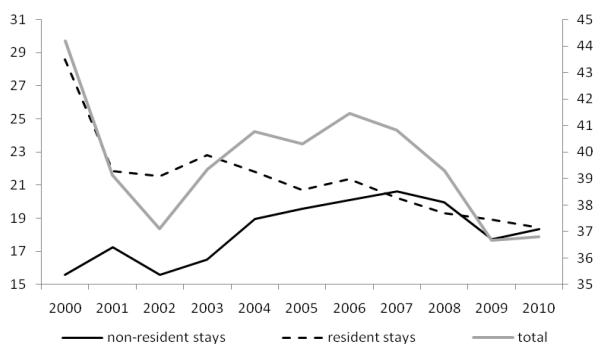
Fig. 4 Number of overnight stays for residents and non-residents (million) [4]
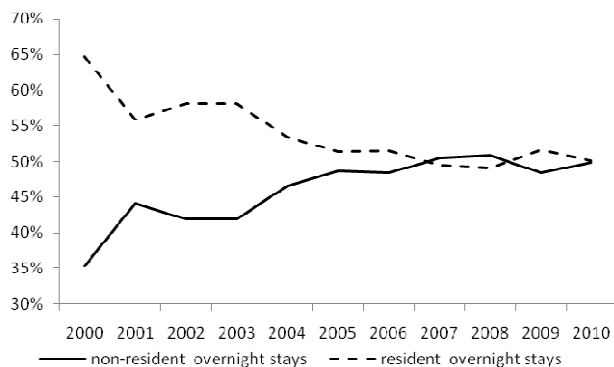

Fig. 5 Share of residents to non-residents for overnight stays [4]

As Fig. 4 and Fig. 5 reveal, the phenomenon that has been referred to in the Czech Republic as the tourism crisis is a long-term event caused by internal, as opposed to external, events. Whereas the number of overnight stays of foreign visitors somewhat decreased as a result of the global economic crisis, it had generally showed a growing trend throughout the first decade of the 2000s – despite the fact that due to the CZK exchange rate development, their stays had become increasingly more expensive. On the other hand, the number of resident visitors had decreased steadily over the period (Fig. 6 (a), (b)).

Fig. 6 (a) Number of overnight stays and the number of non-residents (b) Number of overnight stays and the number of residents (million) [4]

The importance of CZK-EUR/USD exchange rate development for the length of stays of foreign visitors (expressed as the number of their overnight stays) is apparent from time series data analysis. We realize that the results are of an illustrative nature since the time series cover a very limited time period.
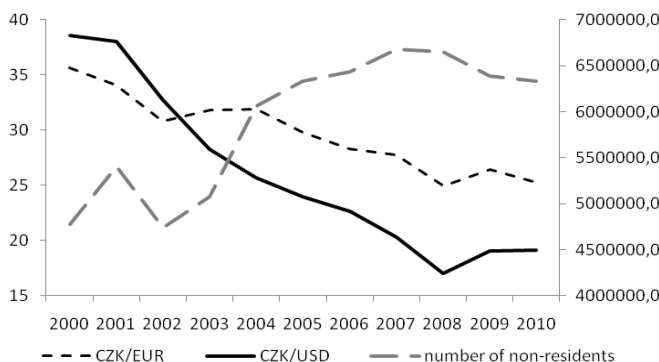
Fig. 7 Number of overnight stays for non-residents and the CZK/EUR and CZK/USD exchange rates [5]

A simple linear regression has been used for this analysis, which is in line with [5], as unit root tests [6] showed (Table VI.) that all applied time series are non-stationary, whereas their linear combinations are stationary (Table VII.).

Table VI. Unit root tests

	t_{ADF}	significance level
PPN	-1.55	0.4706
CZK/EUR	-1.27	0.5978
CZK/USD	-1.91	0.3149

The influence of the CZK/EUR exchange rate on the number of overnight stays of non-residents (PPN) may be modelled as

$$PPN_t = 10\,922\,518 - 169\,089.6\;CZK/EUR_t + a1_t$$

and the influence of the CZK/USD exchange rate on the number of overnight stays of non-residents (PPN) as

$$PPN_t = 8\,147\,878 - 86\,700.12\;CZK/USD_t + a2_t.$$

Diagnostic verification of both models (for details see [8]) indicates that the non-systematic components $a1_t$ and $a2_t$ have the qualities of white noise (see Table VII.).

Table VII. Diagnostic model verification

Diagnostic tests	PPN_t and CZK/EUR_t		PPN_t and CZK/USD_t	
	TK	significance level	TK	significance level
Portmanteau	0.38	0.6924	0.72	0.5210
ARCH	0.01	0.9711	1.45	0.2621
Jarque-Bera	0.97	0.6153	0.52	0.7707
t_{ADF}	-2.22	0.2124	-2.54	0.1347

The models reveal a strong relationship between the length of stays of foreign visitors and the CZK/EUR (USD) exchange rate development. Any strengthening of the CZK by 1 CZK vis-à-vis EUR reduces the number of overnight stays by 169 thousand, whereas for USD the reduction is 87 thousand nights. The correlation between time series PPNt and CZK/EURt is 78.7 %, whereas for PPNt and CZK/USD it is as much as 87.7%.

This development is undoubtedly in part due to the last two areas presenting potential issues: consumer psychology and service standards. Whereas it is impossible to exactly identify all psychological implications, it seems that only a limited number of visitors come back to the Czech Republic repeatedly, perceiving it as a suitable holiday destination. In this respect, the Czech Republic has lagged behind Austria, Switzerland, Italy or France and, to a certain extent, Germany or other countries that offer a greater variety of the sights (natural and historical) and leisure activities, which makes them a more interesting target in the eyes of the discerning traveler.

We may equally only assume that the average standard of services in the Czech Republic, which has been below that prevalent in major travel destinations, has played its part as well. To a certain degree, visitors from developed and traditional democracies expect their stay in the Czech Republic to be "adventurous" (not in a positive sense, but more in a sense that they think that, with a high likelihood, they might be taken advantage of by a taxi driver who "drives them around", they expect to be overcharged in a restaurant etc.).

B. Potential for changes in the tourism industry in the Czech Republic

An analysis of the potential reasons behind the unsatisfactory development of the tourism industry in the Czech Republic marked with stagnation and long-term issues, leads us to the following conclusions:

1) The long-term stagnation of the industry is mostly attributable to the fact that resident travelers choose foreign destinations as opposed to taking advantage of the local offering. This is in part due to the growing standard of living in the country as well as a greater abundance of foreign travel opportunities.

2) At the same time, the number of foreign visitors has not grown as fast, partly because of the growing CZK exchange rate which makes stays in the Czech Republic more costly and partly because the resulting increase in price has not been offset with an increased attractiveness of offering nor with an improved quality of service.

This is undoubtedly also due to the Czech tour operators and other tourism-related businesses relying on "automatic attractiveness" of the country for visitors. Additionally, there has been very little discussion on the application of modern and highly effective management methods, something in which the Czech Republic has lagged behind even the states that are not as developed in terms of their economy, security and other characteristics [9].

As far as the future development is concerned, it is likely

that thanks to EU operational programs for the tourism industry, which have been implemented for a number of years now although their results are only becoming apparent, the service offering as well as the service quality may be expected to be improved. In this respect, a number of regions in the Czech Republic have attempted to transpose the experience from German, Austrian or other regions in attracting visitors. The average quality of accommodation and restaurant services and leisure activities has been undoubtedly increasing.

Other areas within the hospitality industry may equally be expected to improve, as seen from the significant focus on the organization of conferences and other international events. Whereas in 2006, there were 3,230 events organized at public accommodation facilities, with a total attendance of 655.2 thousand people, in 2010 there were 10,093 events attended by 1.29 million participants. This particular hospitality segment did not stop growing even at the times when the depression was at its worst and it also appears a viable direction that the Czech travel industry may pursue in order to offset the lower number of natural and historical points of interest compared to some other destinations within the EU.

It is probable (provided the natural hazards do not change the course of events similarly to 2002) that tourism in the Czech Republic will post satisfactory growth rates and, by 2014, the limit of 40 million overnight stays in public accommodation facilities (including hotels, bed and breakfasts, campgrounds, hostels and other similar establishment such as holiday apartments rented via travel agencies) will have been re-conquered.

This estimate is based on the assumption that in 2011 and following years the number of overnight stays by non-residents in accommodation facilities will grow at the rate of approximately seven percent p.a., while the number of overnight stays by residents continues stagnating or shows mild decrease. The data that have already become available for the 2010/2011 winter season seem to confirm this assumption as well grounded.

Let's now revert to the second of our conclusions that we have arrived at concerning the ways of improving Czech tourism and reestablishing its dynamic growth. We have said that: "At the same time, the number of foreign visitors has not grown as fast, partly because of the growing CZK exchange rate which makes stays in the Czech Republic more costly and partly because the resulting increase in price has not been offset with an increased attractiveness of offering nor with an improved quality of service." The second part of the statement is key: "the resulting increase in price has not been offset with an increased attractiveness of offering nor with an improved quality of service". In other words we may say that the Czech tourism industry is currently incapable of creating an environment that would be appealing to foreign investors, especially those targeting small and middle-sized businesses.

This, however, is not in conflict with our knowledge of the prime investment targets of foreign investors in the Czech Republic so far. If we disregard manufacturing and other traditional industries, we see important investments in real estate development, which also includes hotels and, in particular, restaurants. Over the recent years, there has been a significant growth in accommodation facilities of varying quality, operated by foreign companies or those located in the Czech Republic with non-resident ownership. But the fact is that small and middle-sized businesses, which are the key component of the tourism industry given their number and diversity, are in no way an appealing target of foreign investments and, as the industry's results suggest, they are equally unlikely to become one in the near future.

With high likelihood, it is this fact that has caused the number of foreign visitors to the Czech Republic over the recent years not posting the levels that would be desirable from the perspective of individual businesses as well as the nation's economy. It has become apparent that without additional investments, the tourism in the Czech Republic will be incapable of offering foreign visitors impetuses that would result in an increase in the number of overnight stays or in another key indicator for the industry.

While the Czech state and individual regions have financed advertising campaigns in foreign media, which should increase attractiveness of the country for visitors, there are less costly and more systematic ways of boosting the entire industry. However unlikely this may sound, substantially increasing investors' awareness of this particular sector within the Czech economy is one of the possibilities. Again, this would not involve promoting the Czech Republic as a destination attractive to visitors, but would rather mean spending money purposefully on improving the industry's ability to attract visitors; this, in fact, translates into the necessity to support the innovative ability of the tourism industry.

The new capital for small and middle-sized businesses would also bring along new know-how that is currently dated and uninspiring and does little to improve the dynamics of the tourism industry. This is also linked to the issue of accounting and financial standards as there still is a widespread belief among foreign investors, especially those who focus on smaller businesses as opposed to the major ones, that the Czech Republic continues representing a risky investment with just a limited law enforcement options.

The truth is that the amount of information available for small companies is limited, with this adversely impacting investors' trust and feeling of security: "As investors are providers of risk capital to the entity, the provision of financial statements that meet their needs will also meet most of the needs of other users that financial statements can satisfy. The conceptual framework of IFRS is based on the fact that the objective of financial statements is to provide information about the financial position, performance and changes in financial position of an entity that is useful to a wide range of users in making economic decisions."[10]

This is indeed an interesting observation; the lack of innovative capital linked to know-how may be considered the key cause of the tourism industry's continuous stagnation.

With an influx of capital that would boost the abilities of small and middle-sized businesses, these entities could be increasingly prepared to boost the market in a way common abroad.

For the sake of completeness, we may also mention the issue of state management of listed buildings, including some of the most important ones such as castles and chateaux. For example, the current system of funding discourages the property managers (castle caretakers) from organizing supporting activities such as knights' battle reenactments, theater performances, festivals etc. While these events do provide the heritage sites with additional income, state subsidies, i.e. government support, are reduced proportionately to the extra income for the next period. This absurd strategy only provides for conserving the heritage sites as mere illustrations of the past.

II. CONCLUSION

The future of the Czech tourism industry is likely to depend primarily on its ability to take advantage of the Czech Republic's strategic position in the centre of Europe, which makes it a suitable destination for conferences and other events, and on its ability to improve the standard of services without this having further adverse effects on the price development, i.e. how the Czech Republic will compete against the neighboring countries while being immune to the strengthening of the local currency. There has been a substantial debate in the Czech political and business circles on how the government should step into this process by e.g. promoting the Czech Republic in international media or via authorized support of the travel industry (incentives for agro tourism and other modern travel concepts).

It is important to note that unlike in other countries, there has been significant opposition to the government's greater involvement in the support of tourism in the Czech Republic. The majority of advertising campaigns and promotion-related expenses are criticized as redundant, with this not being so much the result of the liberal ideals opposing state interventions, but, was due to the previous events of the kind being viewed as of little effect and of very limited benefit, given the expenses involved. However, there has been a serious debate even at the government level on supporting congress events. The Czech Republic has shown little interest in the public-private partnership, unlike other countries:

"Under the impact of globalization, the development of tourism in each country in the world is possible only in the conditions of an optimal public-private partnership" [12] or: "The instruments of economic policy of the sector aim at those measures that are applied in tourism and use budgetary, monetary and fiscal instruments. The funding from the state of the tourist activities (especially those relating to promotion) is intended to encourage the development of certain areas or components of tourist offer (e.g. granting of credits with low interest rates to encourage the investments in tourism)" [13].

In this respect, environmentalists and business owners have been debating the extent to which natural resources could be exploited for the sake of tourism, for example whether to extend or restrict areas available for the development of new ski slopes etc.

There are nevertheless obvious signs that the Czech tourism industry is likely to get out of the vicious circle in which it has been turning over the last decade, thus overcoming its current limitations.

REFERENCES

[1] Czech Statistical Office. (2011, February 2). *Main indicators of the national economy and tourism in the Czech Republic in 2003-2009* [Online]. Available: http://www.czso.cz/csu/redakce.nsf/i/tsa_hlavni_ ukazatele_narodniho_hospodarstvi_a_cestovniho_ruchu_v_cr

[2] Czech Statistical Office. (2011, February 10). *Number of visitors to the Czech Republic no longer fell in 2010* [Online]. Available: http://www.czso.cz/csu/csu.nsf/informace/ccru021011.doc

[3] Asia-Pacific Economic Cooperation, "The impact of SARS on the Singapore economy and action taken in response", *Asia Pacific Biotech News (APBN)*, vol. 8, no. 12, 2004, pp. 672–679.

[4] Czech Statistical Office. (2011, February 10). *Tourism – number of overnight stays in the Czech Republic* [Online]. Available: http://www.czso.cz/csu/redakce.nsf/i/cru_cr

[5] Czech Statistical Office. (2011, April 19). *Main macroeconomic indicators* [Online]. Available: http://www.czso.cz/csu/redakce.nsf/ i/home

[6] J. Arlt and M. Arltová, *Ekonomické časové řady (Economic Time Series)*. Prague: Professional Publishing, 2009, ch. 3.

[7] D.A. Dickey and W.A. Fuller, "Distribution of the estimators for autoregressive time series with a unit root", *Journal of the American Stat. Association*, vol. 74, 1979, pp. 427–431.

[8] W.W.S. Wei, *Time Series Analysis – Univariate and Multivariate Methods*, 2nd ed., Pearson/Addison-Wesley, 2006.

[9] H. Suraya, H. Ahmad, "Knowledge management in tourism industry: KMS for tourist information counter in Malaysia", *Journal of Information & Knowledge Management*, vol. 7, no. 3, 2008, pp. 159–172.

[10] J. Strouhal, D. Dvorakova, M. Pasekova, "European Harmonization of SMEs' Financial Reporting", in *Harmonization of SME's Financial Reporting in Emerging CEE Countries*, J. Strouhal, Ed., WSEAS Press, Stevens Point, Wisconsin, USA, 2011, p. 19.

[11] Eurostat, "Key Figures on European Business: With a Special Feature on Recession", Luxembourg: Eurostat Pocketbooks, 2010.

[12] D. Simion, M. Mazilu, M. Pătrulescu, R. Ispas, "Multiple interconditioning: Tourism and sustainable development", *International Journal of Energy and Environment*, vol. 5, no. 1, 2011, pp. 142–153.

[13] M. Candea, F.A. Stancioiu, M. Mazilu, R.C. Marinescu, "The competitiveness of the tourist destination on the future tourism market" in *WSEAS Transactions On Business And Economics*, vol. 6, no. 7, 2009, pp. 374–384.

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