UDC 338.48 **JEL Classification: L83, O52**

Kiráľová Alžbeta,
PhD, Associate Professor of the Department of Management and Marketing, Prorector, University College of Business in Prague (Prague, Czech Republic);
Malec Lukáš,
PhD, Head of the Department of Information Technology and Analytical Methods, University College of Business in Prague (Prague, Czech Republic)

TOURISM DEVELOPMENT IN THE SLOVAK REPUBLIC AFTER THE GLOBAL FINANCIAL CRISIS

This paper aims to find consequences and relations between the economy and tourism industry in post-crisis tourism development in the Slovak Republic. The smooth partial least squares approach dependent on a parameter was applied, with the economy lagged situation in the data. In some sense, different conclusions are identified on the original variables and first differences. The share of the multivariate linear trend in the individual parameters was also quantified.

Keywords: tourism, global financial crisis, post-crisis development, smooth partial least squares, principal component analysis, Slovak Republic.

Formulation of the problem generally. Tourism is an essential part of modern society, a dynamically evolving phenomenon that affects the economic and social sphere of most countries. The beginning of the 21st century was not overly optimistic for tourism due to the bursting of the technology bubble, especially in the United States, which represented the strongest source market for international tourism. This period was also greatly influenced by the terrorist attack on the World Trade Centre in New York on September 11, 2001, which caused a significant decline in demand for international tourism. Two years later, the demand for international tourism fell again due to health and safety reasons with the outbreak of SARS. Both demand declines were steep, but the market recovered quite quickly.

Tensions and crises are part of globalization processes that restructure the world's economic, political and cultural systems [1]. Globalization has intensified the competition among destinations and has influenced both production processes and consumption patterns [2; 3].

There has been much research conducted on the impact of the financial crisis on tourism development, e.g. [4-9] confirming that the crisis decreased tourism demand, reduced available income and hence affected the local economy especially when the host destination was greatly dependent on tourism. The year 2009 was an example of the adverse impact of the global financial crisis on tourism, when there was a significant fall in both in international arrivals (4,2%) and also income from international tourism (5,7%).

Though it started in the USA, the global financial crisis has had a variety of economic, social, and political effects in most countries in the world. It had a significant economic influence on the volume of domestic and international tourism traffic. The impact of the global financial crisis on the tourism sector confirms the interconnectedness of the world economy and tourism. This international connectivity gave the crisis the opportunity to expand quickly throughout the whole world [10]. The most affected economies were those heavily dependent on tourism and the countries whose only source markets were the United States and Europe [11].

The crisis brought changes in consumer behavior of tourists – the demand for remote destinations dropped, visitors started to prefer intra-regional and national destinations, they searched for the best price and shortened the average length of stay [12].

In 2008, the crisis hit several global economies, including Slovakia. The success of Slovakia, based on its booming growth up until 2008, disappeared due to the coming crisis and brought a decline in arrivals and receipts from international tourism. From the tourism perspective, the crisis culminated in 2009. Results from that year meant a return to 2005 levels. Also, Slovakia introduced the Euro, with a conversion rate of 30,126 SKK /EUR. Even at the beginning of 2009, the conversion rate was 36 SKK /EUR. Consequently, tourism packages in Slovakia became more expensive by 20%. It was too much for the sensible price markets [13].

The global financial crisis erupted at a time when the Slovak economy was at the peak of the business cycle, which had a significant impact on gross domestic product (GDP) growth. The stability of the domestic banking sector allowed Slovakia to overcome the pressure of the first phase of the crisis.

The decline of the economies in Slovakia's major tourism source markets raised external demand shock that hit the Slovak economy in the second phase.

The sharp fall in foreign demand for Slovakia as a tourism destination was still a serious problem in 2014; hence, the expected results for 2015 seem to be optimistic. The Slovak tourism sector shows a considerable degree of dependence on the world tourism market development. Slovakia's economy is affected by following activating and dampening factors. Activating factors include a focus on markets affected by the crisis, dampening household demand, and an open pro-export economy heavily dependent on the external environment. The dampening factors include Slovakia's entry into the Eurozone in 2009, an active government policy, engagement in global action, and use of EU funds.

The impact of the crisis on tourism businesses was reflected, on the one hand, in a fall in demand and the deterioration of sales, resulting in lower sales and a decline in the profitability of investment. On the contrary, the crisis manifested in demanding access to corporate lending, as banks tightened lending possibilities. The result of the second pressure on companies created solvency problems, as well as bankruptcies.

Tourism expenditure is a significant source of economic activity, employment, tax revenue, and foreign currency generation [14]. In Slovakia, there was a decrease in revenues from inbound tourism, a downturn in visitor numbers and a decline in the share of tourism in GDP. The share of Slovak visitors compared to European visitors was steadily under 0,3% [15; 16].

From the set of works particularly based on cointegration approaches or vector autoregression models, the multivariate smooth partial least squares technique dependent on a time parameter was applied in this study to reveal the temporal relations between the economy and tourism sector in the period after the global financial crisis [17]. Malec and Abrhám [18] examined the influence of the global financial crisis on Central European countries. The deeper mathematical background is introduced therein. However, the first differenced data are presented in this study, as well as the score paths at selected points, as the additional topic to the preliminary works regarding the theoretical part. The economy lagged situation was revealed in original data and first differences with various relational directions between the parameters gathered by country.

Inequality within the Slovak regions was also studied, and the share of average linear trend examined to reveal simple basic processes in tourism development within the area considered.

The place of tourism in the Slovak economy. The position of individual countries in international tourism since the beginning of the new millennium is constantly changing. The World Economic Forum evaluates the competitiveness of various countries through the Travel and Tourism Competitiveness Index (TTCI), which is published in The Travel and Tourism Competitiveness Reports. The report is published every two years and analyzes 141 economies. It explores how the sector has responded to economic, security and health shocks over recent decades and is a strategic tool for both business and governments. It can be used for cross-country comparison of the drivers of tourism competitiveness, for benchmarking countries' policy progress and for making investment decisions related to business and tourism development. It is important to understand the nature and extent of the sector's resilience to shocks, as a strong tourism sector is critical to job creation, economic growth and development [19; 20]. Table 1 compares the overall ranking of the Top 10 destinations by TTCI between 2007 and 2015, extended to the classification of Slovakia.

According to the TTCI, Europe retains its leading position in tourism competitiveness. Slovakia's position within global destinations is not stable, falling from 37th place in 2007 to the 61st place in 2015 (Table 1).

Table 1 – **Top 10 destinations** (developed by the authors basing on [19; 20])

Rank	2007	2009	2011	2013	2015
1	Switzerland	Switzerland	Switzerland	Switzerland	Spain
2	Austria	Austria	Germany	Germany	France
3	Germany	Germany	France	Austria	Germany
4	Iceland	France	Austria	Spain	USA
5	USA	Canada	Sweden	UK	UK
6	Hong Kong	Spain	USA	USA	Switzerland
7	Canada	Sweden	UK	France	Australia
8	Singapore	USA	Spain	Canada	Italy
9	Luxembourg	Australia	Canada	Sweden	Japan
10	UK	Singapore	Singapore	Singapore	Canada
Slovakia	37	46	54	54	61

Tourism can stimulate the economic development of destinations, such as access to international markets, strengthening ties across sectors, creating jobs and investment in public and private infrastructure. Tourism contributes to the GDP of the country, bringing revenue to the state budget, and its development supports investment activities. Negative impacts of tourism development in the economic sphere are, e.g., hidden costs, particularly for infrastructure and the invisible import, rising prices, capital outflows, the seasonal nature of work and the economic crisis [21].

The World Travel and Tourism Council (WTTC) publish annually the Travel & Tourism Economic Impact Report, which assesses the share of tourism in GDP and employment, as well as visitor spending and capital investment for tourism development. The economic impact of tourism on the global economy based on the WTTC [15] and Slovak economy [22] is shown in Table 2.

Basing on the table above, it can be stated that tourism plays an increasingly important role in the world economy. The GDP indicator, a financial statement represented by the total value of goods and services produced by residents and non-residents in a given territory, is used to determine economic performance. Tourism is a strategic business in the European Union, but in Slovakia, this sector has not been used effectively. Tourism in Slovakia accounts for an overall average of 2,5% of GDP. The share of tourism to GDP in Slovakia was in an average of 2,6% for 2009-2014. This value is below the European average, where this proportion is 5% and continues to grow. The share of tourism to GDP was 2,76% in 2009 and dropped to 2,56% in 2010. In 2012-2014 brought a slight decline again to 2,6%. The Tourism Development Strategy until 2020 envisages increasing the share of tourism to GDP to 2,8% in 2016 and 3,2% in 2020.

Table 2 – **Tourism contribution to GDP 2009-2014 (in %)**
(developed by authors basing on [15; 22])

Year	2009	2010	2011	2012	2013	2014
World	6,08	6,24	6,44	6,63	9,50	9,80
Slovakia	2,76	2,56	2,53	2,50	2,70	2,60

The balance of payments is one of the macroeconomic objectives of each country as its long-term imbalance has adverse effects on the national economy. The persistent deficit of the balance of payments and *vice versa* fixed asset of the balance of payments can be addressed by devaluation and currency revaluation, which have an impact on tourism. The share of tourism in the balance of payments and the exports of goods and services do not develop positively, particularly in comparison to countries with often less potential for its development. The performance of Slovak tourism compared to neighboring countries lags significantly behind. In particular, considering that inbound tourism in most countries is a much higher source of foreign exchange earnings than in the Slovak Republic.

The level of income from tourism and its share in GDP and exports of services show that the tourism promotion and marketing at the state level is still unable to realize Slovakia´s potential for development of this sector. Moreover, this is despite the fact that it has especially excellent natural and also cultural-historical conditions for the development of tourism and the influx of foreign visitors, due to a lower standard of service. Tourism development is inadequate, and, consequently, its potential impact on job creation, elimination of regional disparities, and in the overall economy of Slovakia is not sufficient.

Table 3 shows the development of revenues and expenditure of tourism 2009-2014 in millions of EUR, according to the Slovak Statistical Office [23].

Table 3 shows that the balance of payment has the fluctuating trend; it shows some improvement after 2009, but the decrease in 2014 by more than by 50% is significant (in comparison to 2009).

The economic importance of tourism in the national economy can be further measured by its share of direct and total employment in the tourism sector. Employment (direct and total) in the tourism industry is currently lower than before the crisis. The number of employees directly employed in the tourism sector dropped from 65,400 in 2009 to 56,800 in 2014. The

same trend can be observed in the total employment in the tourism industry, where the number of jobs dropped from 159,900 in 2009 to 129,600 in 2013. A positive tendency can be seen in 2014, but the numbers from 2009 are still not reached [15].

Table 3 **– Development of revenues and expenditure in tourism (in millions of €)**
(developed by authors basing on [23])

Year	2009	2010	2011	2012	2013	2014
Revenues	1,674.5	1,684.7	1,744.7	1,789.0	1,924.5	1,940.6
Expenditure	1,504.1	1,470.7	1,566.8	1,666.3	1,782.0	1,859.9
Balance of payment	170.4	214.0	177.9	122.7	142.5	80.8

The impact of the crisis on domestic tourism can be seen in 2009 and 2010 when the number of accommodated visitors was the lowest in the analyzed period. In 2011, the number of domestic visitors began to rise, but in 2014 a slight decrease can again be seen [22].

Significantly disproportional development is apparent when comparing eight administrative regions for overnight stays parameter. In 2009-2014, only the Bratislava region achieved significant growth. The lowest level of growth was in the regions of Trnava and Nitra [13; 22].

The number of overnight stays from selected countries shows that the Czech, Polish, and domestic market development was particularly successful during the examined period. The success of these markets compensated for the failures of the German and Hungarian markets. The German market had begun to crumble long before 2009, and in 2005, it reached 68% of the number of visitors and 52% of overnight stays [22; 24].

The changing structure of visitors should also be noted in the development of tourism during the financial and economic crisis. Table 4 depicts the number of overnight stays by domestic and foreign visitors between 2009 and 2014 [25].

Table 4 **– The average length of overnight stays 2009-2014**
(developed by authors basing on [25])

Year / Visitors	2009	2010	2011	2012	2013	2014
Residents	3,2	3,2	3,1	3,0	3,0	3,1
Non-residents	2,9	2,9	2,8	2,7	2,6	2,6
Total	3,1	3,1	2,9	2,9	2,8	2,9

Despite the increasing number of non-residents, their average length of overnight stays is short and tends to stagnate. Table 4 shows that the average overnight stays for residents were slightly over three nights, while the average overnight stays for foreign visitors in Slovakia did not reach this number.

Analysis of recent researches and publications. There are a variety of methods in tourism modeling and forecasting which especially consider econometric approaches, time series models and many parametric and non-parametric techniques. Presently, the most promising approaches are the cointegration and vector autoregression methods. Various directional causalities were revealed, but the connection between tourism and some economic parameters was confirmed [26-28]. A variety of lags were identified in the economy industry

parameters and tourism relations where the economy lag (also evaluated as a delay in tourism influence or delay in indicators encompassing tourism) is prevalent throughout the Europe, see also [18]. Considering overnights spent data in hotels between 1985 and 2004, business (economy) cycles are proven lagged to tourism in Italy using the stepwise dynamic regression approach [29].

Two multivariate statistical approaches are used in this study. The first multivariate method is principal component analysis with an extension based on inserting a linear trend. This arrangement gives us information about the average growth of individual input variables, as well as a representation of the whole data linear trend within the given time interval. The other method applied is partial least squares, rest. Its particular form called robust canonical analysis, intercorrelations analysis or canonical covariance. General information about this method is given by De Bie et al. [30], Wegelin [31] and Lorber et al. [32]. While principal component analysis searches for relations within one set of data, the partial least squares method investigates between-set relations. The reason to apply such a method opposed more common canonical correlation analysis [33] is often the rank-deficiency and collinearity or near collinearity within sets of data. Strong within-set relations disrupt numerical computation and the interpretation of results not only in canonical correlation analysis but also considering the other well-known regression methods. Malec [34] outlined the mutual comparison of canonical correlation analysis and partial least squares. In economics, the sample size is often small, the number of variables large, and the variables is often correlated within-sets. Multinormality is an important task when considering statistical inference.

Time series of the economy and tourism industry are expected to be causally connected with a strong correlation within the considered sets. A multilevel data topic is studied in the descriptive sense of similarity between individual profiles. The relationships between sets are examined by smooth partial least squares in the singular values points of zero lag, as well as in the lag close to the maximum association, considering the interval excluding the local minimum values in the convex path of individual output.

Aims of the article. In connection with the stated, this study aims to analyze tourism development in Slovakia after the global financial crisis to find the consequences of the global financial crisis on post-crisis tourism development.

Basic material. A stable interval for economic parameters is used in this study considering 2011-2014 annual data, taking the boundary year halves as target cut-off points. On the other hand, tourism variables are considered as gradually shifting. The 3-year moving window is based on an interval from the 2009 middle item, and considering a maximum of 5.3 years in total. The economic variables input to the smooth partial least squares approach consists of GDP at current prices in Euro, the conversion rate as US Dollar vs. Euro, mean equalized net income for non-financial transactions of households and non-profit institutions serving households in Euro, and the annual average harmonized indices of consumer prices. The tourism parameters are the number of overnights spent at hotels and similar accommodation establishments, non-resident and resident ratio on overnight stays and length of stay, computed as the quotient of overnights spent variable and arrivals at a hotel and similar accommodation establishments. Data processed in partial least squares and principal component analysis approaches was gathered from the European Statistical Office [35].

The annual input data are first of all processed by a cubic spline interpolant, and the corresponding formulas were used for the next extrapolation to the year 2015. In the case of

first differences, year-on-year annual differences were first produced, on which cubic spline data interpolations, as well as forecasts, were performed afterward. Because the extrapolated values are outlying due to the time series marking a possible significant change in 2015, the data were analyzed only into the part of this year. Although detailed data on individual economy parameters are difficult to extract for the more detailed scale than the country base, Figure 1 consists of subplots corresponding to the processes of population gini coefficients, see, e.g. [36] over the Slovak regions as total overnights spent, non-resident overnights spent, and absolute values of first differences. Diversification phenomenon is a significant topic which initiates the issue of studying the economy and tourism mutual relations for a more detailed regional base. It can be seen that the total overnights spent the degree of inequality rather decreases; this is not the case in overnights spent by non-residents where the gini coefficient achieved an increase in the last displayed time interval from 2012, despite the fact that as opposed to total visitors, the shifts are by order lower in magnitude. Such a situation is crucial because the tourism balance is highly connected to foreign tourists. It is important to note that 2011-2012 mutual shifts demonstrate close maximum inequality.

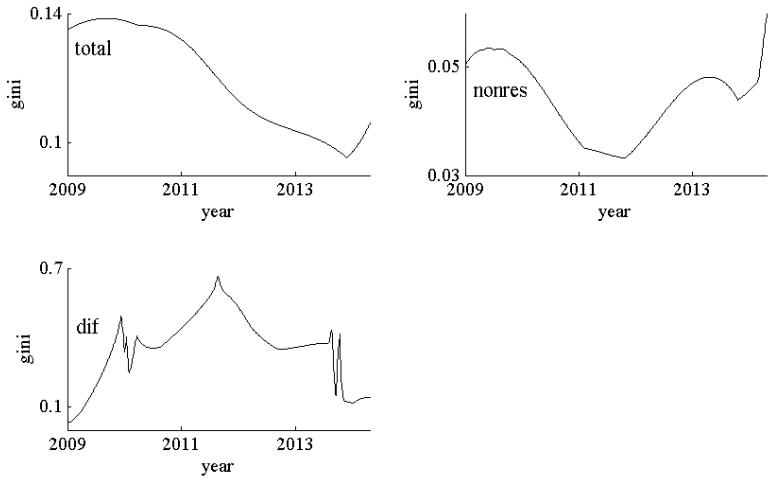

Figure 1 **– Gini coefficient processes**

Principal component analysis is the fundamental method of multivariate analysis [33]. In the following, the other variable is incorporated into the analysis as a linear growing trend for a multivariate evaluation of the degree of covering such a trend in the data. On the other hand, the smooth partial least squares method depending on a parameter is relatively novel, and will be shortly described below. Both multivariate methods used a search for latent variables (first scores) as linear combinations of original ones satisfying the desired maximization property. Principal component analysis searches for combinations of original variables covering variance, while the partial least squares method finds covariance between two sets of variables. Solely the sample correlation matrices are considered in this study. The analyses were performed using MATLAB 7.1 (Mathworks, Natick, MA, USA) software platform.

A time parameter $\delta \in \langle \delta_0, \delta_1 \rangle$ is introduced which considers the time lag of selected moving window tourism variables. Data matrices X and $Y(\delta)$ of types (k, p) and (k, q), respectively, are comprised in the standard form as variables arranged in individual columns and observations (years) in rows. Further, the only case is considered, where $k \geq \max(p, q)$, $rank(X) = p$ and $rank(Y(\delta)) = q$.

The smooth partial least squares algorithm dependent on a parameter δ is solved as the following optimization problem:

$$\begin{aligned} &\max_{\mathbf{0} \neq \mathbf{u}(\delta) \in R^p, \mathbf{0} \neq \mathbf{v}(\delta) \in R^q} \mathbf{u}'(\delta) X' Y(\delta) \mathbf{v}(\delta) \\ &s.t. \mathbf{u}'(\delta)\mathbf{u}(\delta) = \mathbf{v}'(\delta)\mathbf{v}(\delta) = 1. \end{aligned} \tag{1}$$

According to the Kuhn-Tucker theorem [37], the algebraic solution of task (1) is determined by the leading singular value $\sigma_1(\delta)$ and corresponding singular vectors $\boldsymbol{u}_1(\delta)$ and $\boldsymbol{v}_1(\delta)$. This corresponds to symmetric standard eigenvalue problem:

$$\begin{aligned} X' Y(\delta) Y'(\delta) X \boldsymbol{u}(\delta) &= \sigma^2(\delta) \boldsymbol{u}(\delta) \\ Y'(\delta) X X' Y(\delta) \boldsymbol{v}(\delta) &= \sigma^2(\delta) \boldsymbol{v}(\delta) \end{aligned} \tag{2}$$

or singular value decomposition of matrix $X' Y(\delta)$ according to [38, 31].

The leading singular value gives the latent variable significance, while the corresponding singular vectors are the coefficients of linear combinations.

As a consequence of the implicit function theorem, the solution vector can be demonstrated as follows:

$$\left(\sigma_1(\delta), \boldsymbol{u}_1(\delta), \boldsymbol{v}_1(\delta)\right) \tag{3}$$

and is the smooth function of parameter δ. If the leading singular value $\sigma_1(\delta)$ of (2) is simple (with multiplicity 1), then the corresponding singular vectors $\boldsymbol{u}_1(\delta)$ and $\boldsymbol{v}_1(\delta)$ can be chosen in the way that the function $\left(\sigma_1(\delta), \boldsymbol{u}_1(\delta), \boldsymbol{v}_1(\delta)\right)$ is smooth on $\langle \delta_0, \delta_1 \rangle$ [39].

If the solution for any $\bar{\delta}$ within the given interval gains the selected values (if interpolating the initial condition) then such a solution is unique.

Results and data analysis. Singular value paths on the original data and first differences processed by a cubic spline interpolant proved the economy lagged situation (see Figure 2), although they reveal different behavior. However, neither type of lag reached the global financial crisis. Note that according to Figure 2 and Table 5, the economy delay is approximate -0.28 year considering the original data. The arrangement of first differences input enables a study of similarities of year-on-year mutual shifts without an influence of the distance from the mean as in the preliminary case. In Slovakia, the zero lag first differenced data corresponds to almost a minimum singular value and also to a minimum mutual economy and tourism industry relations, while the original data are more related to such a point. The greatest similarity in annual shifts is highly economy lagged. It corresponds to the situation that in such a case the preliminary shifts in tourism conditions indicate the change in the

economy is closely related to them with -0.82-year lag which is slower than the fast reacting original data. Although the point of maximum relations can be disputed because the zero lag is close to the minimum in a process, the corresponding singular value discussed is higher than the one in the tourism lag.

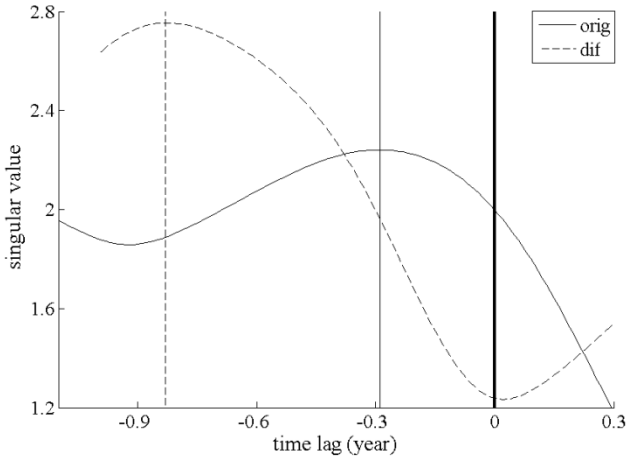

Figure 2 **– Singular values path**

Table 5 **– Smooth partial least squares results**

	Original data		Differences	
Time lag (year)	0	-0.28	0	-0.82
Sing. value /share (%)	2.00 /80.6	2.24 /80.5	1.24 /52.9	2.75 /86.7
	Coefficients		Coefficients	
Gross domestic product	0.670	0.705	0.572	0.494
Conversion rate	0.161	0.084	0.206	0.408
Income	0.115	0.062	0.334	0.534
Consumer prices	0.716	0.702	0.720	0.552
Overnights spent	0.612	0.575	0.030	-0.609
Non-resident and resident ratio	-0.553	-0.555	0.240	0.542
Length of stay	-0.566	-0.601	-0.970	-0.579

While the relations considering no lag and lagged maximum associations are relatively close in the original data, this is not the case in first differences. Considering the results for the Slovakia original data, a positive relation between GDP and consumer prices with the number of overnights spent was revealed. Those variables negatively relate the non-resident share and length of stay. The non-residents and length of stay parameters seem to be negatively positioned to the increased level of consumer prices. On the other hand, the overnights spent, predominantly represented by residents, are increased by the wealth of the country, roughly given here by GDP. Due to a close interconnection of consumer prices with GDP, those are both positively related to overnight stays. Conversion rate and income are the low-impact variables.

In annual shifts considering no lag, GDP and increased consumer prices vigorously and negatively relate the length of stay parameter by the original data. Year-to-year changes in economy parameters are more related to the length of stay and not to overnights or non-resident ratio in zero lag data whose influences are highly suppressed. In an economy delayed situation of annual shifts, the interpretation is reversed as less influenced by consumer prices, and all the economy parameters are almost equally significant with negative relations to some overnights spent, resident share and length of stay.

The selected annual centers considering score plots processed on original data are four steady economic interval years: 2011, 2012, 2013 and 2014.

The observational relations are more spread, in particular considering the tourism parameters at lag be taller than -0.2. With the increasing lagged pattern reaching the extrapolated cubic spline values, the differences between economic and tourism conditions are highly pronounced. The significant shift, especially considering the positive tourism lag of 2014, marks the future for potential tourism transition in Slovakia.

The average pattern of linear growth in tourism parameters and during the period from and to the half boundary points for 2009-2014 is studied using the principal component analysis applied to a correlation matrix, revealing the relations within one set of data. One additional variable, the linear trend, is now considered. The sign and magnitude of the first-order coefficients, as well as a share of the corresponding latent variable on total variance, were ordinarily examined for the interpretation of results. The first eigenvalue (singular value) was 2.75, with a corresponding percentage share of 68.8. It was found that the relational pattern is almost not connected to the linear trend (coefficient value 0.150) as the number of overnights spent (-0.583), and the non-resident share (-0.573) are both negatively related to the length of stay (0.555). It seems that in Slovakia, the total overnights and number of non-residents, are at their increased levels, roughly more like to shorten the length of stay without any pattern of temporal linear course.

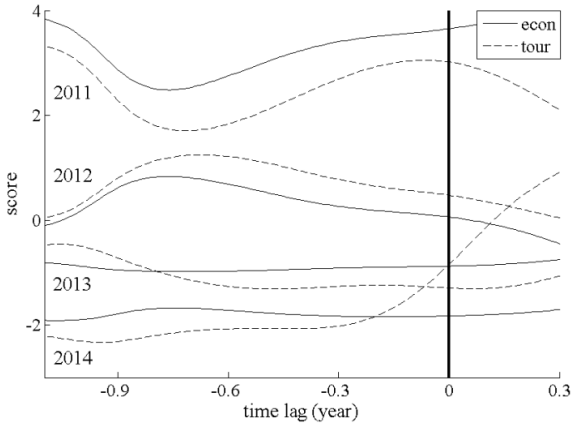

Figure 3 **– Score processes**

Conclusions and perspectives for futher researches. An increased number of non-residents and length of stay are negatively related to consumer prices in the original data, also considering the distance of individual values from mean and processed by smooth partial least

squares. Given by the parameter considering the non-resident share, overnight stays seem to be supported by GDP, as predominantly supplied by Slovak residents. For the first differenced data, the opposite association of consumer prices to the length of stay property survives in both zero lag and delayed tourism data. It is important to note that the economy year-to-year changes are more related to the length of stay and not to overnights or the non-resident ratio in the zero lag data.

In the score processes, the significant changes, especially considering the tourism lagged data of 2014, outlined the potential for a future tourism shift in Slovakia, where the corresponding tourism parameters are more spread than economy ones.

No significant multivariate linear trend was identified encompassing the tourism data. Rather, it was found that at increased levels of overnights and non-resident share, the pattern of relations is revealed to shorten the length of stay in such a situation.

Development of the Slovak tourism market is connected with the progress of the domestic markets, the tourism strategy, tourism policy and the use of efficient methods for the management of tourism growth. Tourism in Slovakia is suffering from the lack of a long-term and sustainable policy. The result of this process is an uneven development of the domestic and foreign tourism markets.

Tourism in the Slovak Republic has recorded dynamic changes since the split of Czechoslovakia in 1993. In the structure of markets and their redistribution within the country, the Czech Republic is still one of the most important source markets for Slovakia, and vice versa. Opportunities for future research can be seen in a comparison of post-crisis tourism development in Slovakia and the Czech Republic.

1. Stiglitz, J.E. (2003). *Globalization and its Discontents.* London: W.W. Norton &Company[in English].

2. Ioannides, D. & Debbage, K. (1997). Post-Fordism and Flexibility: The Travel Industry Polyglot.*Tourism Management* 18(4), 229-241[in English].

3. Meethan, K. (2001). *Tourism in Global Society: Place, Culture, Consumption.* New York: Palgrave [in English].

4. Prideaux, B. & Witt, S.F. (2000). The Impact of the Asian Financial Crisis on Australian Tourism.*Asia Pacific Journal of Tourism Research* 5(1), 1-7 [in English].

5. Ritchie, J.R.B., Molinar, C.M.A. & Frechtling, D.C. (2010). Impacts of the World Recession and Economic Crisis on Tourism: North America. *Journal of Travel Research* 49 (1), 5-15 [in English].

6. Song, H. & Lin, S. (2010). Impacts of the Financial and Economic Crisis on Tourism in Asia.*Journal of Travel Research* 49(1), 16-30 [in English].

7. McElroy, J.L. (2003). Tourism Development in Small Islands across the World. *GeografiskaAnnaler* 85(4), 231-242 [in English].

8. Tsartas, P. (2003). Tourism Development in Greek Insular and Coastal Areas: Sociocultural Changes and Crucial Policy Issues.*Journal of Sustainable Tourism* 11(2&3), 116-132 [in English].

9. Henderson, J.C. (2007). *Tourism Crises: Causes, Consequences & Management.* Oxford: Elsevier [in English].

10. Tribe, J. (2011). *The Economics of Recreation, Leisure and Tourism.* Oxford: Butterworth-Heinemann [in English].

11. World Tourism Organization and International Labour Organization (2013). Economic Crisis, International Tourism Decline and its Impact on the Poor. Madrid: UNWTO [in English].

12. Guduraš, D. (2014). Economic Crisis and Tourism: Case of the Greek Tourism Sector. Retrieved from: htpp://www.hrcak.srce.hr/file/193328 (referred on 15/02/2016) [in English].

13. Kiráľová, A. & Malachovský, A. (2016). Innovating the Czech and Slovak Tourism through Creative Tourism.*Skyline Business Journal* 11(1), 101-117 [in English].

14. Eadington, W. & Redman, M. (1991). Economics and Tourism.*Annals of Tourism Research* 18(1), 41-56 [in English].

15. WTTC (2009-2014). Travel & Tourism Economic Impact World. London: WTTC [in English].

16. WTTC (2015). Economic Impact of Travel and Tourism 2015 Annual Update. London: WTTC [in English].

17. Malec, L. (2014). Studying Economics and Tourism Industry Relations by Smooth Partial Least Squares Method Depending on Parameter, In Ostasiewicz, W. & Rusnak, Z. (Eds.). 17th Applications of Mathematics and Statistics in Economics, 173-179, Jerzmanowice, Wroclaw University of Economics[in English].

18. Malec, L. & Abrhám, J. (2016). Determinants of Tourism Industry in Selected European Countries: A Smooth Partial Least Squares Approach.*Economic Research-EkonomskaIstraživanja* 26 (1), 66-84 [in English].

19. Blanke, J. & Chiesa, T. (2007, 2009, 2011, 2013). The Travel & Tourism Competitiveness Report. Geneva: WEF [in English].

20. Crotti, R. & Misrahi, T. (2015). Mobility Industries, The Travel & Tourism Competitiveness Report 2015 Growth through Shocks. Geneva: WEF [in English].

21. Kiráľová, A. & Straka, I. (2013). *Vlivglobalizacena marketing destinacecestovníhoruchu.* Praha: Ekopress [in Czech].

22. ŠÚ SR (2014). Retrieved from: https://slovak.statistics.sk/wps/portal/ext/themes/ [in Slovak].

23. ŠÚ SR (2016). Príjmy, výdavky a podielcestovnéhoruchuna HDP a exporte. Retrieved from: http://www1.enviroportal.sk/indikatory/detail.php?kategoria=123&id_indikator=3389 (referred on 01/03/2016) [in Slovak].

24. Malachovský, A. & Kiráľová, A. (2015). Invigorating the Destination's Marketing Strategy? (The Case of Slovakia), Procedia – Social Behavioral Sciences. Proceedings of the 3rd International Conference on Strategic Innovative Marketing (IC-SIM 2014), 393-400, Elsevier [in English].

25. MDSVRR SR (2015). Ubytovaciaštatistika. Retrieved from: http://www.telecom.gov.sk/index/index.php?ids=112728 (referred on 01/02/2016) [in Slovak].

26. Dritsakis, N. (2004). Tourism as a Long-run Economic Growth Factor: An Empirical Investigation for Greece Using Causality Analysis.*Tourism Economics* 10(3), 305-316 [in English].

27. Savas, B., Beskaya, A. &Samiloglu, F. (2010). Analyzing the Impact of International Tourism on Economic Growth in Turkey.*ZKU Journal of Social Sciences* 6(12),121-136 [in English].

28. Mello-Sampayo, F.D. & Sousa-Vale, S.D. (2012). Tourism and Growth in European Countries: An Application of Likelihood-Based Panel Cointegration. Working Paper No. 17, Technical University Lisbon: School of Economics and Management. Retrieved from: http://pascal.iseg.utl.pt/~depeco/wp/wp172012.pdf (referred on 01/02/2016)[in English].

29. Guizzardi, A. & Mazzocchi, M. (2010). Tourism Demand for Italy and the Business Cycle.*Tourism Management* 31(3), 367-377 [in English].

30. De Bie, T., Cristianini, N. &Rosipal, R. (2005). Eigenproblems in Pattern Recognition, In Bayro-Corrochano, E. (Ed.). Handbook of Geometric Computing: Applications in Pattern Recognition, Computer Vision, Neuralcomputing, and Robotics, 129-170, Heidelberg: Springer-Verlag[in English].

31. Wegelin, J.A. (2000). A Survey of Partial Least Squares (PLS) Methods, with Emphasis on Two-Block Case. Technical Report No. 371, Seattle: University of Washington. Retrieved from: https://www.stat.washington.edu/research/reports/2000/tr371.pdf (referred on 15/02/2016)[in English].

32. Lorber, A., Wangen, L. & Kowalski, B. (1987). A Theoretical Foundation for the PLS Algorithm. *Journal of Chemometrics* 1(9), 19-31 [in English].

33. Krzanowski, W.J. (2000). *Principles of Multivariate Analysis: A User's Perspective (2nd ed.).* New York: Oxford University Press [in English].

34. Malec, L. (2013). On the Multivariate Processing of Rank-Deficient Tourism Data. *European Journal of Tourism, Hospitality and Recreation* 4 (3), 181-203 [in English].

35. Eurostat database (2016). European Statistical Office. Retrieved from: http://ec.europa.eu/eurostat/data/database (referred on 07/01/2016) [in English].

36. Malec, M., Malec, L. & Tomeš, R. (2012). Kvantitativnípopisdiverzifikace.*Business & IT* 2, 13-25 [in Czech].

37. Kuhn, H.W. & Tucker, A.W. (1951). Nonlinear Programming, In Neyman, J. (Ed.). Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability, 481-492, Berkeley, University of California Press [in English].

38. Golub, G.H. & Van Loan, C.F. (1996). *Matrix computations (3rd ed.).* Baltimore: The Johns Hopkins University Press [in English].

39. Harville, D.A. (1997). *Matrix Algebra from a Statistician's Perspective.* New York: Springer-Verlag [in English].

А. Кіралова, PhD, доцент кафедри менеджменту та маркетингу, проректор, Університет бізнес-коледжу в Празі (м. Прага, Чехія);

Л. Малець, PhD, завідувач кафедри інформаційних технологій та аналітичних методів, Університет бізнес-коледжу в Празі (м. Прага, Чехія)

Розвиток туризму в Словаччині після глобальної фінансової кризи

У статті досліджені особливості розвитку туризму в Словаччині у кризовий та післякризовий періоди. Зроблено висновок про те, що розвиток туристичного ринку в Словаччині значною мірою залежить від прогресу внутрішнього ринку та правильно обраної стратегії управління. Для аналізу даних був використаний метод найменших квадратів.

Ключові слова: туризм, глобальна фінансова криза, розвиток після кризи, метод найменших квадратів, аналіз основних компонентів, Словаччина.

А. Киралова, PhD, доцент кафедры менеджмента и маркетинга, проректор, Университет бизнес-колледжа в Праге (г. Прага, Чехия);

Л. Малец, PhD, заведующий кафедрой информационных технологий и аналитических методов, Университет бизнес-колледжа в Праге (г. Прага, Чехия)

Развитие туризма в Словакии после глобального финансового кризиса

В статье исследованы особенности развития туризма в Словакии в кризовый и послекризовый периоды. Сделан вывод о том, что развитие туристического рынка в Словакии в значительной мере зависит от прогресса внутреннего рынка и правильно выбранной стратеги управления. Для анализа даннях был использован метод наименьших квадратов.

Ключевые слова: туризм, глобальный финансовый кризис, развитие после кризиса, метод наименьших квадратов, анализ основных компонентов, Словакия.

Отримано 13.04.2016 р.