Abstract: Tourism contributes significantly, both directly and indirectly, to the increase of the employment. The aim of this paper is to test a relationship between tourism and employment in Croatia based on quarterly data for the period 2000-2012. The relationships are examined using Granger causality test and Johansen co-integration approach. The empirical research indicates that tourism has a positive effect on employment while co-integration test indicates that there is a long-term correlation between the two variables.

Key-Words: Tourist arrivals, Employment, VAR, Granger causality test, co-integration, Croatia

1 Introduction
Increasing tourism flows can bring many positive economic consequences to the host countries, particularly on GDP, employment and foreign trade. Tourism importance in the economy is often limited at the level of its direct effects within the tourism sector: hospitality industry (hotels, restaurants and cafes), outbound and inbound travel agencies and carriers. But it yields effects in all industries directly supported by tourists (e.g. cultural, sports and recreational services). The direct contribution of Travel & Tourism (T&T) to GDP in Croatia was 11.9% of total GDP in 2012 [1]. However, the economic impact of tourism is much greater if indirect and induced effects are taken into consideration. The total contribution of T&T includes its ‘wider impacts’ on the economy, identified as indirect and induced impacts. Indirect contribution of T&T to GDP and jobs has been realized through: the capital investment spending by all sectors directly involved in the T & T industry; general government spending in support of general tourism activity; and supply-chain effects – purchases of domestic goods and services directly by different sectors of the T &T industry as inputs to their final tourism output. Induced contribution of T&T comprises the broader contribution to GDP and employment through spending by those who are directly or indirectly employed by the tourism industry.

Tourism is a labour intensive and tourism workers are very important for the guests’ impression of the host country. Therefore, it is of extreme importance to employ skilled workers. The International Labour Organization (ILO) estimated that tourism generated 253 million jobs worldwide in 2010. Tourist arrivals create jobs directly in the hospitality industry, but through its indirect effects it also induces secondary employment in many tourism supportive sectors. The total economic impact of tourism is greater where the tourism sector is encouraged to procure domestic goods and services. The majority of the employees in the hospitality industry are young people, under 25, and in addition most of them are women [2]. In 2012 Travel & Tourism directly supported 138.500 jobs in Croatia, which is 13.1% of total employment. According to WTTC report [1] its total contribution in Croatia comprised 27.8% of GDP in 2012 and generated over 319.000 jobs (30.2% of total employment). But a large proportion of these jobs are seasonal jobs (Figure 1). In order to preserve jobs and enhance the quality of tourism services, the Ministry of Labour and Pension System, in cooperation with...
the Croatian Employment Service and the Ministry of Tourism, has prepared two special measures called "Permanent seasonal workers" and "Work and after the summer". As such, tourism certainly represents an excellent tool for alleviation of unemployment problems in Croatia.

The paper is organized as follows. Section 2 summarizes the theoretical and empirical findings related to the topics. Section 3 clarifies the model to be estimated, employed data and the obtained empirical results. Section 4 offers the concluding remarks.

2 Literature Review

Tourism is an internationally expanding phenomenon and it is also experiencing rapid growth. International tourism contributes approximately US$ 1,030 billion in 2011 in overall worldwide international tourism receipts. Global tourism market as a special market of products and services has never shown such a dynamic progress as in the period from mid-20th century until today. In 1950 the number of international tourist arrivals was 25.2 million and in 2011 this number rose to 983 million, having increased by more than 39 times, i.e. 6.19% per annum. Revenue from international tourism has increased from 1950 until today by approximately 490 times at an average growth rate of 10.69% [3].

Theoretical and empirical studies have attempted to clarify the impact of tourism on the national economy. Predominant approach of the evaluation the economic impact of tourism has been Input-Output analysis [4, 5, 6]. Dwyer, Forsyth and Spurr [7] pointed out many serious limitations and disadvantages of such models. They pointed that these models had emphasized only positive and had ignored the negative economic impacts, so they suggested Computable General Equilibrium models (CGE) as an alternative technique to solve these limitations. CGE have been rapidly developed over the past three decades.

There are two main aspects of analysing economic impact of tourism. The first one is called Export-Led Growth (ELG) hypothesis based on the hypothesis that economic growth can be achieved via increases in the volume of inputs. This economic relationship is known as Tourism Capital Imports to Growth (TKIG). The TKIG hypothesis confirmed that economic development and industrialization were achieved since the early sixties through imports of capital goods mainly financed by tourism receipts [8]. Durbarry [9] applied a production function and economic growth was explained by physical capital, human capital and exports, compatible with the "new" growth theory. He disaggregated export in the model and denoted international tourism as one form of export. He tested causality between total exports and economic growth. The other aspect is the Tourism-Led Growth (TLG) hypothesis based on the hypothesis that the economic growth could be generated through expanding international tourism as a non-traditional export. Applying the Tourism-led growth hypothesis, tourism is considered to be a major factor of overall long run economic growth.

This theory is effective when tourism stimulates impacts over the whole economy in the form of overflows and other externalities [10]. Hazari and Sgro [11] suggested a dynamic growth model of trade in which an auspicious effect of an international tourism demand and revenues would have a positive impact on the long-run small open economy growth. Balaguer and Cantavella-Jorda [12] pointed out that tourism-led growth hypothesis was not characteristic for the developing countries. Gunduz and Hatemi [13] confirmed suitability of tourism-led growth hypothesis with the empirical research in the case of Turkey.

To determine the impact of tourism on the national economy, the scientists applied a different methodology. The most widely used and the most popular methodology is co-integration and Granger causality test [9; 12; 14; 15; 16; 17; 18; 19; 20; 21; 22 etc.].

Tourist consumption can contribute to the balance of payments, production and employment through foreign exchange earnings and can also represent an important income source for the whole national economy. Balaguer and Cantavella-Jorda [12] determined a steady long-run relationship between tourism development and economic growth in Spain.

Oh [15] disagreed with this theory explaining that this theory was applicable only in the case of the top recipients of world international tourist revenues, such as France and Spain. He used this model on the case of South Korea and found out that in such case economic growth had impact on tourism expansion and not inversely. Kim et al. [16] examined causal relationship between tourism expansion and economic development in Taiwan and they found out a long-run equilibrium relationship and further bi-directional causality among the two factors. The conclusion was that tourism and economic development fortified each other.

Carrera et al. [18] found out that tourism receipts initially had caused economy shortfall, but then a significant positive effects on economic development were achieved. Lee and Chang [19] applied a heterogeneous panel co-integration technique to reinvestigate the long run co-movements and causal
relationship among tourism development and economic growth in OECD and non OECD countries. They determined the existence of a long-run causality between tourism and real GDP related at least in one direction.

Cortes-Jimenez, et al. [20] expanded the existing research of the economic impact of tourism by considering both exports and tourism as potential influencing factors for economic growth in Italy and Spain. Their findings reveal the significance of both exports and tourism towards long-term growth. Brida et al. [21] found the causality between tourism growth, relative prices and economic expansion. They found out one co-integrated vector among real GDP, tourism and relative prices where the corresponding elasticity was positive and that the tourism and relative prices were weakly exogenous to real GDP.

Akkemik [23] analysed the contribution of international tourism to Turkey economy, applying two social accounting matrix (SAM) modelling approach. He used two analyses: sectorial comparison of GDP and impact analysis of international tourism on output, value added and employment. He found out that the GDP elasticity of international tourism was relatively low and impacts of foreign tourist consumption on domestic production, value added and employment were modest.

The empirical studies that researched the impact of the tourism demand on employment indicated that tourism had a significant impact on employment [12; 24; 25; 26]. According Vanhove [27] and Methieson and Wall [28] tourism creates direct, indirect and induced employment. Wellas and Beecherel [29] pointed out difficulties to assess the influence of tourism on employment. Also Burkart and Medlik [30] emphasized the difficulty to determine the tourism influence on employment precisely. Holloway [31] determined that employment effect increased according to the tourism intensity and he concluded that tourism created employment as much as the income. Bahar and Kozak [32] found out that high employment rate in tourism was characterized existence of low-payed, part-time and temporary jobs and seasonal intensity.

3 A VAR Model Test for Croatia

3.1 Data
This study made for the determination of the causality relationship between tourism and employment covers the period from 2000q1 to 2012q3. The starting point of the study is 2000q1 because in 1999 tourist activity was low due to the war in Kosovo, and including that year would distort the real picture of relations between variables. Furthermore, during the years before 1999 the post-war reconstruction of tourist capacities was still in a progress.

The data for tourist arrivals and employment have been obtained from Croatian Bureau of Statistics. After the usual procedure of data transformation by natural logarithms and seasonal adjustment, the obtained time series are shown in Figure 1.

Figure 1: Movement of seasonal adjusted logarithm of variables

Source: Authors’ calculation based on data from Croatian Bureau of Statistics

3.2 Co-integration analysis
Co-integration analysis is a more recent econometric tool and it is becoming one of the key concepts in modern economic science. Two or more processes are said to be co-integrated if they stay close to each other even if they occasionally drift apart as individual processes. Co-integrated series contain a common stochastic trend.

To perform co-integration analysis the most popular method is Johansen technique which is based on the concept of covariance stationarity. In order to test the stationarity of series, augmented Dickey-Fuller test (ADF) and Phillips-Perron (PP) were applied. Table 1 shows the results of the ADF stationary test. Null hypothesis of the test is that series is nonstationary (has a unit root). If calculated ADF value is greater than the critical value we cannot
reject the null at conventional test sizes. As shown in the table, the ADF test with lags specified by Schwarz Information Criterion (SIC) suggest that for both variables we should accept the null hypothesis with a significance level of 1%. After differentiation all variables became stationary.

Table 1: ADF and PP tests of variables in levels and in first differences

<table>
<thead>
<tr>
<th>ADF test</th>
<th>In levels</th>
<th>First differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Var.</td>
<td>Lag</td>
<td>ADF 10% level</td>
</tr>
<tr>
<td>ARRIV</td>
<td>-2.292*</td>
<td>-3.571</td>
</tr>
<tr>
<td>EMP</td>
<td>-1.685*</td>
<td>-3.574</td>
</tr>
<tr>
<td>PP test</td>
<td>In levels</td>
<td>First differences</td>
</tr>
<tr>
<td>Variab</td>
<td>Ban dw.</td>
<td>PP 10% level</td>
</tr>
<tr>
<td>ARRIV</td>
<td>-2.416*</td>
<td>-3.568</td>
</tr>
<tr>
<td>EMP</td>
<td>-1.139*</td>
<td>-3.568</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation using software package EViews 5.0

Notes: 1) H0 – series is nonstationary – has a unit root, 2) * - we cannot reject H0 at level 1%

Table 1 clearly shows that both stationary tests indicate that the first differences of all indices are stationary, i.e. that they are I(1). These test results are a very important precondition for further modelling of multivariate time series models.

In order to detect a long run relationship between series, VAR model is set up, on which the Johansen co-integration method is applied. VAR model is model of vectors of variables as autoregressive processes, where each variable depends linearly on its own lagged values and those of the other variables in the vector. Johansen [33] and Johansen and Juselius [34] used maximum eigenvalue and trace statistics to test whether there is a long term relationship between the variables. The lagging number has a crucial role in VAR modelling. There are numerous methods for the determination of the lagging length and the most commonly used is Schwarz criterion because it has been scientifically proved [36] that Schwarz critical values are more unbiased relative to other criterion. Because of that it was decided to determine the lagging length based on Schwarz critical values.

The results of the co-integration test are in Table 2.

Table 2: Testing the co-integration between variables

| Series: ARRIV EMP, Lags interval (in first differences): 2 to 2 |
| Unrestricted Cointegration Rank Test (Trace) |
| Hypothesized No. of CE(s) | Eigenval. Statistic | Trace Statistic | 0.05 Critic. Value | Prob.** |
| None * | 0.278202 | 18.40844 | 15.4947 | 0.0177 |
| At most 1 | 0.055877 | 2.759943 | 3.84146 | 0.0966 |

| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) |
| Hypothesized No. of CE(s) | Eigenval. Statistic | Max-Eigen Statistic | 0.05 Critic. Value | Prob.** |
| None * | 0.278202 | 15.64849 | 14.2646 | 0.0300 |
| At most 1 | 0.055877 | 2.759943 | 3.84146 | 0.0966 |

Source: Authors’ calculation using software package EViews 5.0

Notes: * - rejection of the hypothesis at the 0.05 level, ** - MacKinnon-Haug-Michelis p-values

Table 3: Pairwise granger causality tests

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMP does not Granger Cause ARRIV</td>
<td>0.580000</td>
<td>0.6789</td>
</tr>
<tr>
<td>ARRIV does not Granger Cause EMP</td>
<td>2.82713</td>
<td>0.0380</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation using software package EViews 5.0

Notes: * we can reject the hypothesis that the first variable does not Granger causes the second variable

These results must be treated with caution because they are based on a time series with only 49 observations after adjustments. However, the results are very interesting. Granger Causality tests [35] suggest that variable ARRIV affects the variable EMP. That means that the increase in tourist arrivals is a factor that increases employment. Obtained results are in line with general view of tourism importance for Croatian economy.

4 Conclusion
Tourism is a driving force of Croatian economy. Increasing tourism flows can bring many positive economic consequences to host countries, particularly in terms of GDP, employment opportunities, revenues and foreign exchange earnings.

Theoretical and empirical studies on this subject have revealed that tourism has a positive effect on employment. Besides its direct impact in travel and tourism sector it can generate additional employment through its indirect and induced effects in many tourism supportive sectors. The total economic impact of tourism is greater where the tourism sector is

encouraged to procure domestic goods and services. The majority of the employees in the hospitality industry are young people, under 25, and in addition most of them are women.

According to our expectations the results of the co-integration analysis and Granger causality tests suggest the existence of the relationship between tourist arrivals and employment in Croatia.

Further research could be based on sector driven approach in order to distinguish the direct and indirect impacts of tourism on employment.

References:


