

Statistical Analysis of Correlations among Regional Tourism Indicators in Romania

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Abstract

In the EU the regions have gained increasing importance especially due to the policy of regional development, and tourism is a field that has experienced an explosive development in recent decades. Hence the need to analyze tourism in regional profile. The purpose of this paper is to verify the existence of possible correlations among tourism indicators at regional level in Romania. These can be used in developing future programs aimed at developing tourism in those areas with potential and where in this way the local development can be stimulated. After highlighting correlations at regional level, we can say that an increase in investments volume can cause an increase in tourist activity, which will lead to an increase in turnover. This can help to increase the amount of wage and average number of employees in Hotels and Restaurants branch.

Keywords: *tourism; correlation; regional; regional development; Romania*

JEL Classification: *R10; L83; Z83*

Introduction

The regions get a growing importance in the EU, especially after Eurostat created Nomenclature of Territorial Units for Statistics (NUTS) in order to standardize regional statistics and to be able to apply effectively EU regional policies. A state (NUTS 0) includes one or several macroregions (NUTS 1), each macroregion is composed of one or several NUTS 2 regions. Similarly NUTS 2 regions comprise units NUTS 3.

In the last decades tourism has taken great amplitude and contributed to decrease of development interregional imbalances and to use of natural and human resources at the local level. The need of tourism analysis in regional view derives from here, but also from the fact that in the European Union development regions were created, which led to the increase of the importance of the Structural Funds that follow the lines of the European policies of economic and social cohesion.

We consider that it is necessary that plans and strategies related to the stimulation of tourism activity in Romania should take into account the existence of some correlations among tourism indicators, correlations which can be direct or indirect, more exactly, they can determine each other, can be influenced by common factors or they can be in causal relations. The importance of correlations among the indicators of tourism activity derives from the fact that, based on

information obtained from the statistical analysis one can deduce further evolutions of these indicators. These correlations can also be used in elaboration of some future strategies of tourism development.

Presentation of Statistical Tool Used for the Analysis of the Correlations

Economic phenomena can also be analysed using the study of correlations, which is a useful tool, as it indicates a predictive relationship that can be exploited in practice. Specifically, the correlation measures the statistical link between two random variables that are not independent of probabilistic point of view. In this case, there may be both a causal relation between the two variables and a common dependence of a third variable (unknown) or even a more complex relation. The presence of correlation is not enough to determine whether the variables analysed are in one of the situations above, being necessary further information. Studying the correlation between two variables can provide us the information that the two sets of corresponding statistical data vary simultaneously, without the clear presence of any causality.

In our paper, we will use *the Spearman correlation coefficient*, as it is appropriate for the analysis of variables without normal distribution and with nonlinear variation, such as those considered here.

The sign of the correlation coefficient shows that there is a link of direct proportionality type, if the sign is positive or there is a link of indirect proportionality type, if it is negative.

The absolute size of the correlation coefficient provides information on the intensity of the link that exists between variables and this link can be: *strong*, if the correlation coefficient is greater than 0.5, *average*, if the correlation coefficient is between 0.3 and 0.5, *low*, if the correlation coefficient is less than 0.3. A value of zero indicates that there is no link between the two variables.

The significance threshold shows peccability when we say that there is some correlation, meaning that a lower significance threshold indicates a low probability of error. It indicates whether a correlation found in a sample analysed can be generalized (i.e. the extent to which this result is due to chance). For example, a threshold of 0.001 indicates that peccability is 0.1%. If threshold is small enough, then it is considered that a correlation is *significant*.

The Analysis of Correlations among Tourism Indicators

Next we will check for potential correlations among indicators of tourism, at regional level, helping us to find the intensity of some existing causal relations among them. Given that we do not have a normal distribution of data to be analyzed, we use the formula of Spearman. To calculate the correlation coefficient and for the check of the significance of it, we will use the SPSS program. The correlations will be calculated for data series from the eight regions of the Romania, taking into account the years 2000-2014. Exceptions are correlations *accommodation capacity - number of arrivals*, *accommodation capacity - number of overnight stays*, where the data used are from the period 1991-2014 (as data before 2000 are also available).

1. Correlation gross investments in tangible goods HR - turnover HR, correlation gross investments in tangible goods HR - average number of employees HR and correlation gross investments in tangible goods HR - average gross nominal monthly earnings HR

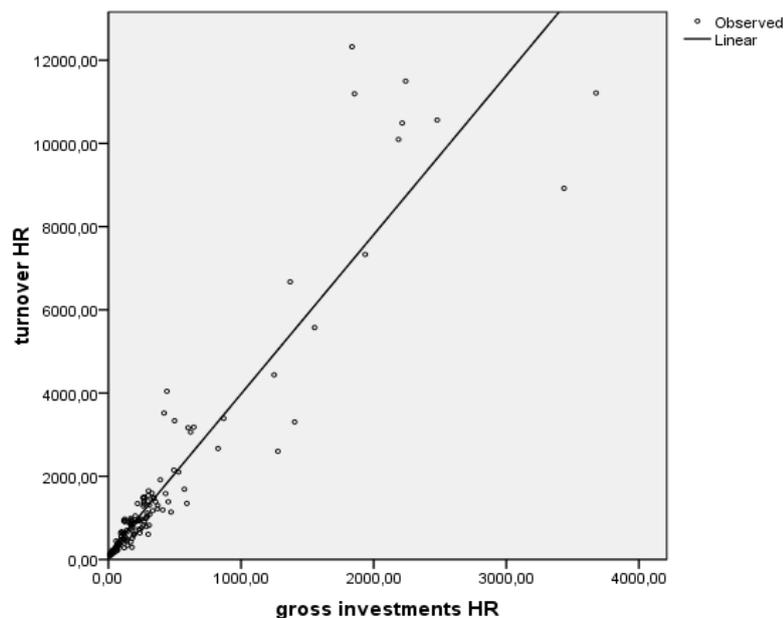
The first link analysed is the one between *gross investment in tangible goods HR* and *turnover HR*. As it can be seen, between the two indicators, there is a significant correlation, positive and of high intensity (0.934) (Annex, Table no. 1). One possible explanation is that investments

made have also as result an increase in turnover in the sense that investments made generate the increase of receipts, which will allow their recovery and future boost of the activity in the field. The link between gross investment in tangible goods HR and turnover HR occurs indirectly through increasing the number of arrivals and overnight stays. Relation *gross investment in tangible goods HR - number of arrivals - turnover HR* will be analysed further and through some correlations of high intensity (*gross investment in tangible goods HR - number of arrivals and the number of arrivals - turnover HR*). The other link, *gross investment in tangible goods HR - overnights - turnover HR* decomposes also in two correlations, but their intensity is lower (*gross investment in tangible goods HR - overnight stays*, 0.579 and *overnight stays - turnover HR*, 0.481). Of course, turnover increases not only due to investment, but they play an obvious role in this increase.

From another perspective, we can also consider the hypothesis that an increase in turnover determines raising investments, leading to the possibility of extending the tourist activity.

The correlation between *gross investments in tangible goods HR* and *number of employees HR* is positive, of high intensity (0.834), as shown in the table no. 2 from the Annex. This link is a significant one, the correlation having according to the test made as a low probability of error. So, at regional level, with increasing gross investment HR, the average number of employees HR also increases. This suggests that investments were directed to the purpose of increasing the accommodation capacity, as well as of putting again in the circulation of some capabilities output from the tourist circuit, which helped to increase the number of employees in the field. On the other hand, we can conclude that only a small part of the investments were designed to increase service quality. It is also possible that the value volume of financial resources necessary for creating / restoring accommodation units to be higher than the one designed for improving the quality of services. That would be the explanation for the difference in value between the two destinations of financial resources.

These positive correlations are graphically represented by linking investments values with the X-axis, and values of turnover with the Y-axis. The points represented are related to pairs (X, Y). We note that low values of X are associated with small values of Y, and high values of two variables correspond, which means a positive correlation (Fig. 1).



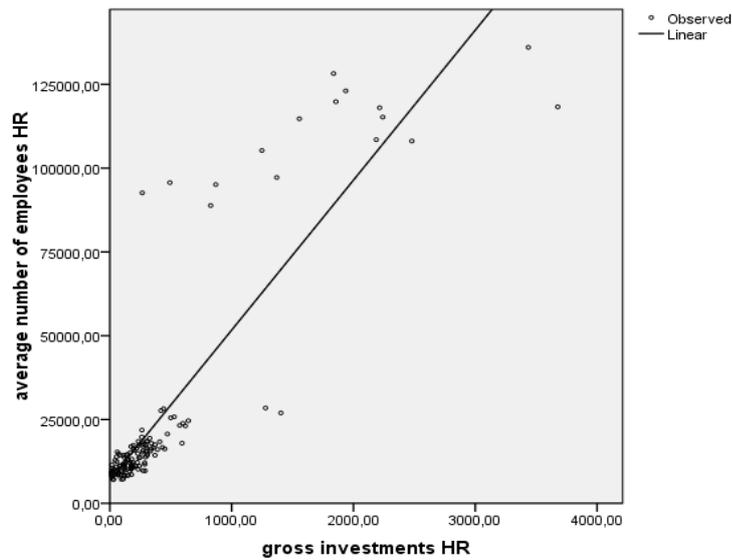


Fig. 1. Graphical representation of the correlations *gross investments in tangible goods HR - turnover HR* at regional level and *gross investments in tangible goods HR - average number of employees HR* at regional level

Source: own elaboration using data from www.insse.ro

The analysis of the possible link between *gross investment in tangible goods HR* and *monthly gross average nominal earnings HR* reveals that, between these two variables, exists, at regional level, a positive correlation, of high intensity (0.630), being in the same time significant (Annex, Table no. 3). With the increase of investments, there is an increase of average earning HR. A possible explanation is that as the investments grow, the intensity of tourism activity (visitor arrivals) also increases, taking place even an efficiency of capacity use, which also causes an increase in wages. On the other hand, the level of average earning HR also depends on the general evolution of the economy, which has some influence over the quantum of retribution.

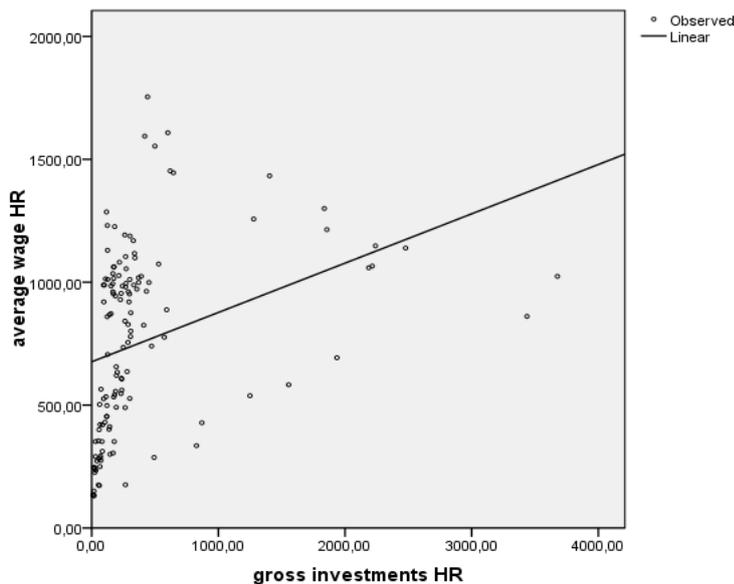


Fig. 2 Graphical representation of the correlation *gross investments in tangible goods HR - average gross nominal monthly earnings HR* at regional level

Source: own elaboration using data from www.insse.ro

In terms of graphics, this positive correlation can be represented as in Fig. 2, by a rising cloud of points - from bottom left to top right.

2. Correlation gross investments in tangible goods HR - accommodation capacity, correlation gross investments in tangible goods HR - tourist arrivals and correlation gross investments in tangible goods HR - overnight stays in tourist units

Next, we consider necessary to check a possible correlation between *gross investment in tangible goods HR* and *existing tourism accommodation capacity* (at regional level). This is also related to the fact that previously we mentioned the possibility that, in terms of value, investments are targeted mainly for the purposes of increasing the accommodation capacity, rather than for increasing the services quality.

From the analysis made, we observe the existence of the correlation significant of medium intensity (0.491) between the two indicators (Annex, Table no. 4). So, in some cases, an increasing gross investments HR will match an increase in the accommodation capacity. This means that investments were partially directed towards increasing the accommodation capacity, and a significant part of financial resources also had as destination qualitative increases.

Graphically, this correlation of medium intensity is shown in Fig. 3, where one can see the associations between the high values of the two indicators and, respectively, between the small values.

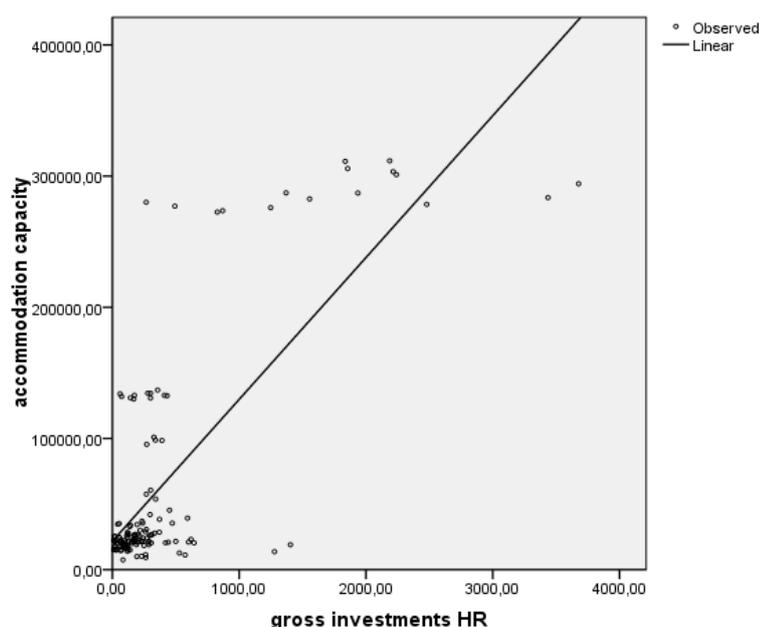


Fig. 3. Graphical representation of the correlation *gross investments in tangible goods HR - accommodation capacity* at regional level

Source: own elaboration using data from www.insse.ro

The study of possible link between *the gross investments in tangible goods HR* and *arrivals of tourists* reveals that, between these two variables, there is, at regional level, a positive correlation, of high intensity (0.810) and at the same time significant (Annex, Table no. 5). As a result, an increase of investments corresponds to an increase in tourist arrivals. This means that investments, materialized in modernizing the accommodation capacities, in creating new ones and in increasing the quality of services, have a predictable finality, namely, that of increasing the number of tourist arrivals.

The increase of investments HR may also lead to an increase in the number of overnight stays. Following the calculation, it was evidenced the existence of a link between *gross investment in tangible goods HR* and *overnight stays in tourist units*, this correlation being significant, positive and of high intensity (0.579) (Annex, Table no. 6). So, at an amplification of gross investments in tangible goods HR, which will cause an increase in terms of quantity and quality of existing tourist capacities, an increase in the number of overnight stays in tourist units will also occur.

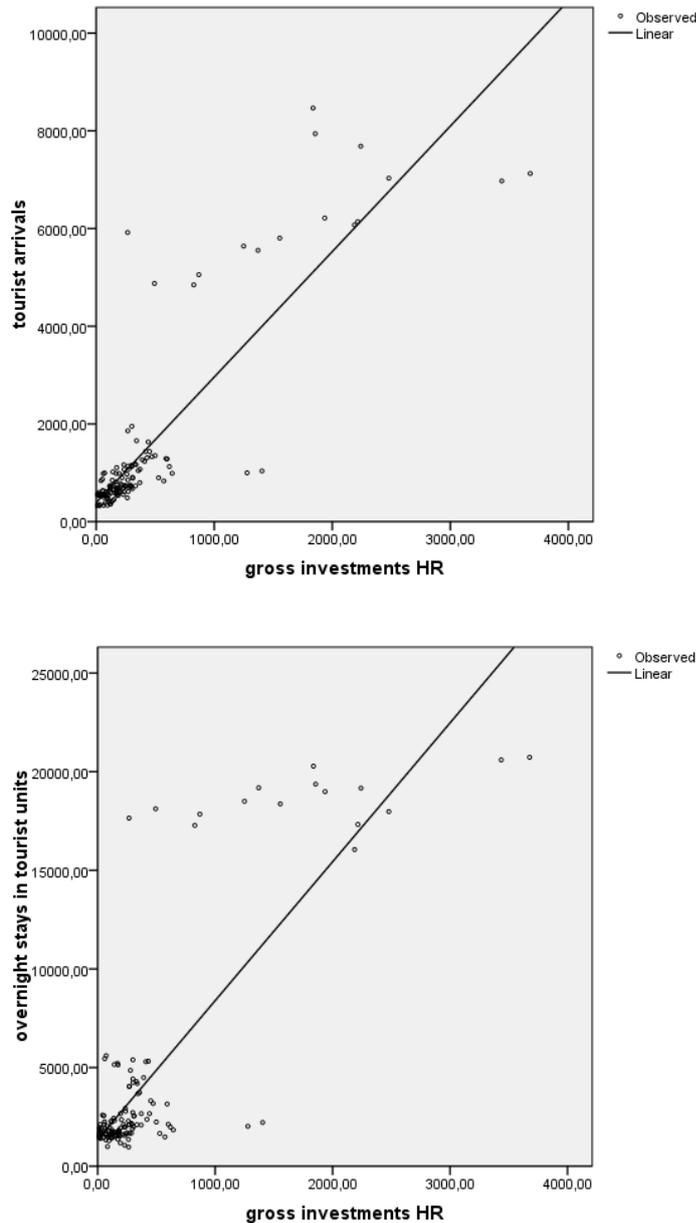


Fig. 4. Graphical representation of the correlations *gross investments in tangible goods HR* - *tourist arrivals* at regional level and *gross investments in tangible goods HR* - *overnight stays in tourist units* at regional level

Source: own elaboration using data from www.insse.ro

Graphically, these positive links, of high intensity, are shown in Fig. 4, where it is observed that high levels of an indicator correspond to high values of the other indicator and similarly for small values.

3. Correlation gross investments in tangible goods HR – average length of stay at regional level

We will study further the link between other indicators, namely, *gross investment in tangible goods HR* and *average length of stay*. The analysis made show that between these two variables there is only a negative correlation, of average intensity (-0.368), having the property to be significant (Annex, Table no. 7). Thus, in a relatively small number of cases, an increase in investments corresponds to a decrease in average length of stay. From our point of view, we consider that there are other elements that influence the evolution of these two indicators (e.g. the decrease of average length of stay is explained by the preference for short stays and by the tendency to visit several places).

This relation between *gross investments in tangible goods HR* and *average length of stay* is illustrated graphically in Fig. 5, where there is a less ordered distribution with high values of a variable corresponding, only a certain extent, to small values of the other variable. One possible explanation for this could be that the units in which investments have been made are preferred by the weekend tourists and for the businessmen (whose stay is usually brief).

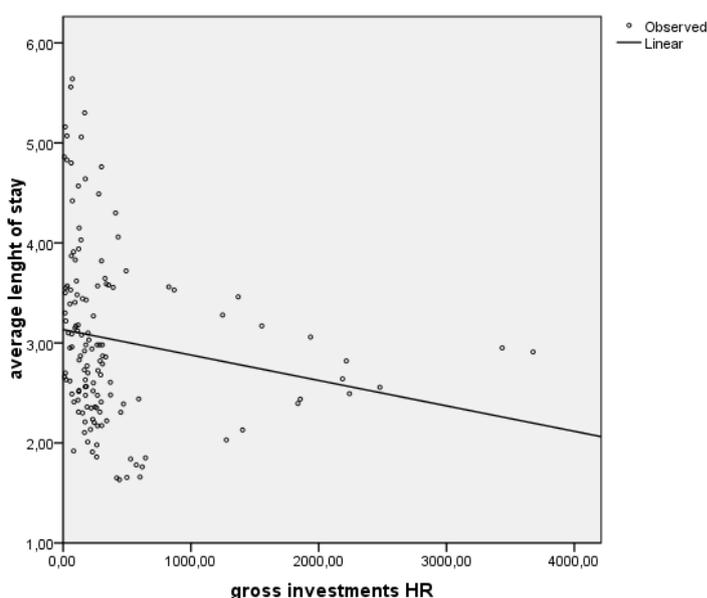


Fig. 5. Graphical representation of the correlation *gross investments in tangible goods HR - average length of stay* at regional level

Source: own elaboration using data from www.insse.ro

4. Correlation accommodation capacity - tourist arrivals and correlation accommodation capacity - overnight stays in tourist units

Even if there is no relevant connection between the accommodation capacity and utilization index, we can see that with increasing *accommodation capacity*, it has also increased *the number of tourist arrivals*. From the analysis made, it appears that between them there is a positive correlation of high intensity (0.767) and at the same time significant (Annex, Table no. 8). This means that increasing the number of accommodation places came to meet the existing demand of tourism products.

Between *existing tourist accommodation capacity* and *number of overnight stays in tourist accommodation units* is highlighted a significant and positive link of high intensity (0.858) (Annex, Table no. 9). With increasing accommodation capacity, the number of overnight stays

also increases, which, in our opinion, does not mean that between them is a causal link, but rather they are influenced by a number of common factors.

In Fig. 6 the graphic representation of these correlations is to be found, where one can see that, usually, high values of one of the indicators correspond to high values of the other indicator, and similarly for low values.

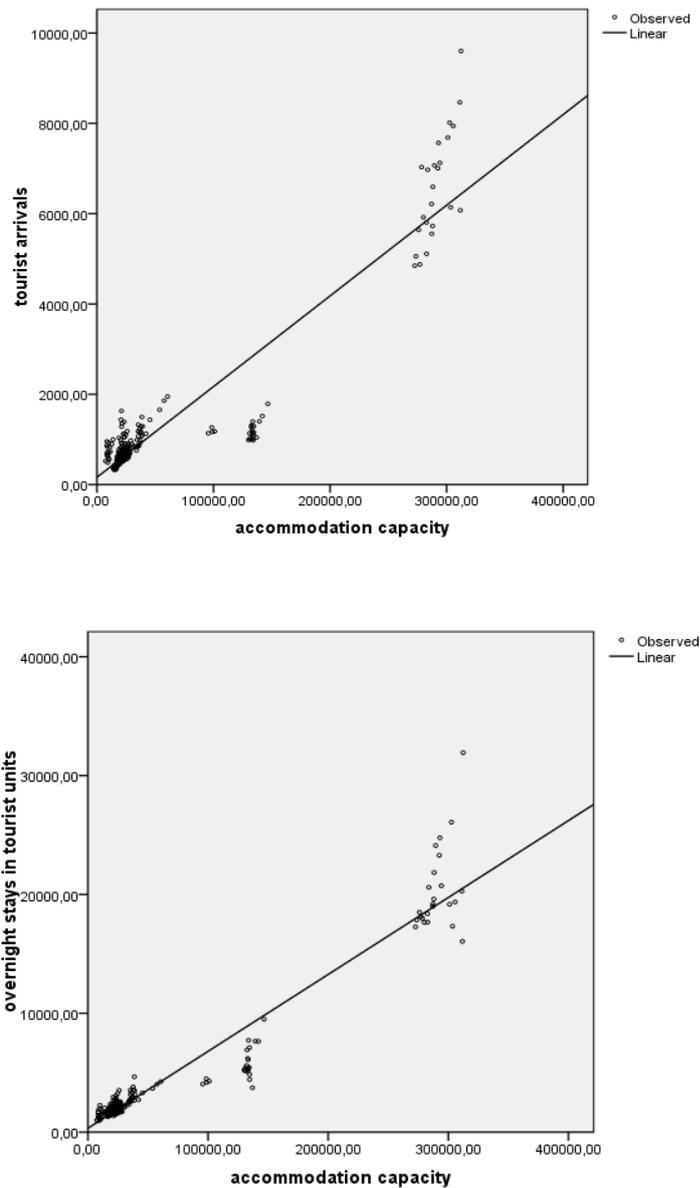


Fig. 6. Graphical representation of the correlations *accommodation capacity* - *tourist arrivals* at regional level and *accommodation capacity* - *overnight stays in tourist units* at regional level

Source: own elaboration using data from www.insse.ro

5. Correlation tourist arrivals - turnover HR and correlation tourist arrivals - average number of employees HR

Another link that we checked is the one between *number of tourist arrivals* and *turnover HR*. The analysis shows that, between these two variables, there is, at regional level, a positive correlation, of high intensity (0.805), having also the property of being significant (Annex, Table no. 10). So, an increase in the number of tourist arrivals corresponds usually to an increase in turnover.

The number of employees depends on the tourist activity intensity. In this sense, a possible link is the one between *average number of employees HR* and *the number of tourist arrivals*. The analysis shows that this correlation is significant, positive and of high intensity (0.891) (Annex, Table no. 11). An increase of the tourist arrivals number will require a greater volume of work, so by default the number of employees in the field will increase. As a result, average number of employees HR will increase accordingly.

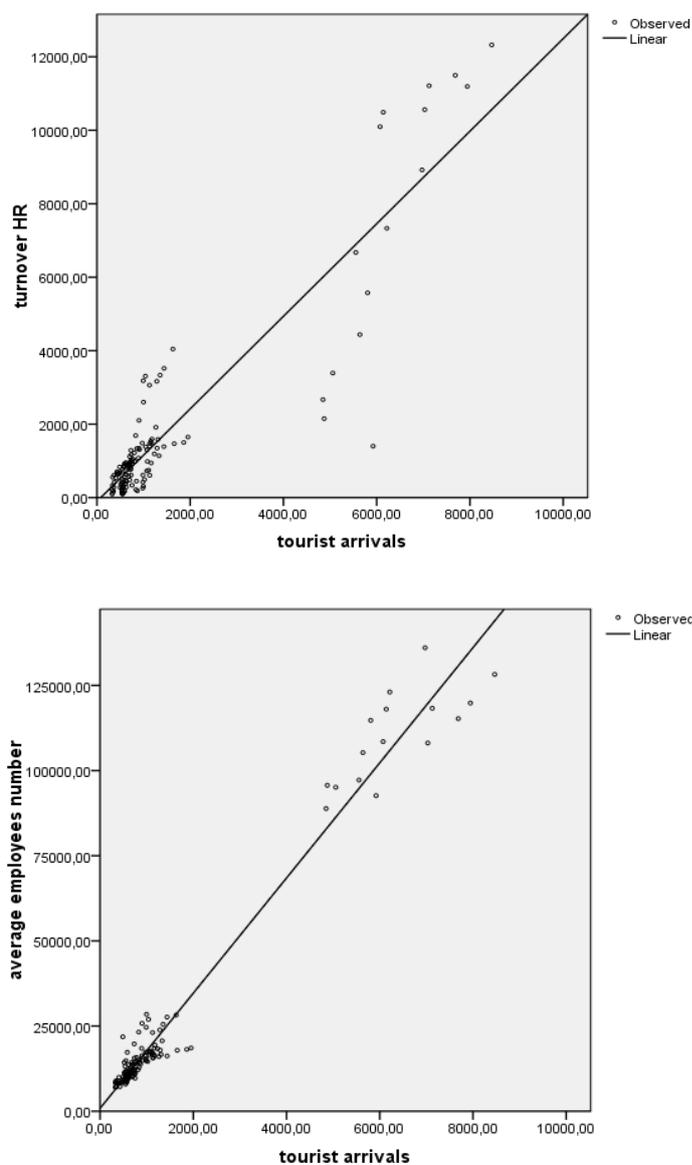


Fig. 7. Graphical representation of the correlations *tourist arrivals - turnover HR* at regional level and *tourist arrivals - average number of employees HR* at regional level

Source: own elaboration using data from www.insse.ro

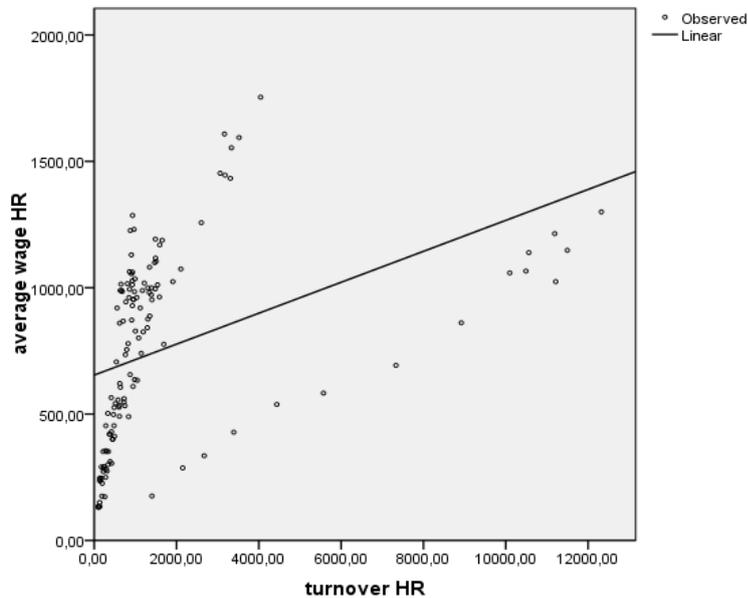
In Fig. 7 these positive links are graphically represented, where high values of an indicator correspond to high values of the other indicator and the same goes for small values. It emerges that, as the number of tourists increase, the incomes as well as the number of employees will be higher.

6. Correlation turnover HR – average gross nominal monthly earnings HR and correlation turnover HR - average number of employees HR

Checking the possible link between *turnover HR* and *monthly gross average nominal earnings HR* shows the existence of a significant correlation, positive and of high intensity (0.755) (Annex, Table no. 12). We consider that an increase in turnover has influence on wage growth, due to the fact that an increase in incomes of economic agents leads to an allocation of these revenues to the factors of production used (labour, in this case). As we already mentioned, the level of average earning HR also depends, to some extent, on the general economic evolution.

Another link that we have identified is that between *turnover HR* and *average number of employees HR*. This correlation is positive, of high intensity (0.806) and significant (Annex, Table no. 13). At an increase in turnover, the average number of employees HR will also increase, even if there is not necessarily a direct link, but rather multiple connections among a variety of indicators. In this case, the turnover increases due to increased number of tourist arrivals, which requires a larger volume of work, so, implicitly, additional staff.

From a graphical point of view, these links are represented in Fig. 8, where high values of one of the indicators correspond to high values of the other indicator and, equally, for the small values.



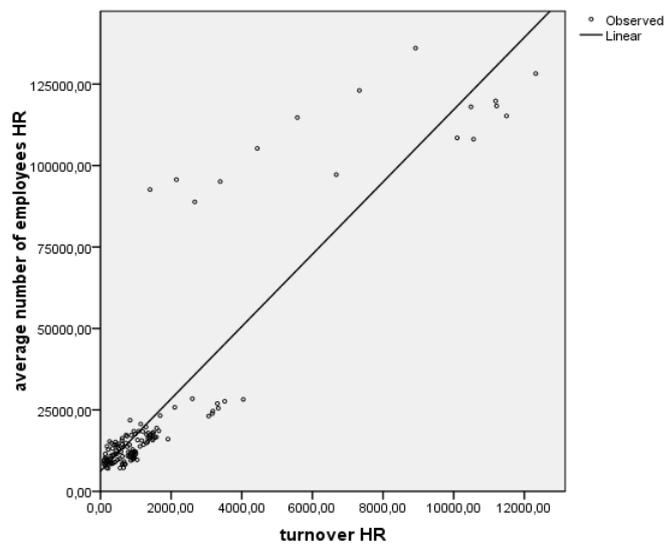
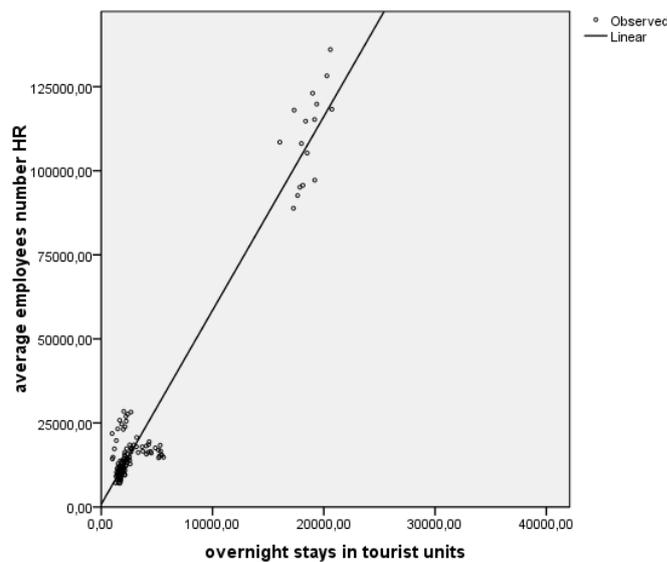


Fig. 8. Graphical representation of the correlations *turnover HR – average gross nominal monthly earnings HR* at regional level and *turnover HR - average number of employees HR* at regional level
 Source: own elaboration using data from www.insse.ro

7. Correlation overnight stays in tourist units - average number of employees HR and correlation overnight stays in tourist units - turnover HR

It is possible that *the average number of employees HR* is also influenced by the *number of nights spent by tourists*. Verification of such a link has revealed that there is a positive correlation of high intensity (0.714) and at the same time significant (Annex, Table no. 14). So, in the case of an intensification of tourist activity, reflected by the increasing number of overnight stays, there will also be an increase in the number of employees serving the tourists.

Turnover HR can be influenced, among other factors, also by *the number of overnight stays in tourist units*. We found that there is a positive correlation of medium intensity (0.538), and also significant (Annex, Table no. 15). Therefore, if tourism activity intensifies, increasing the number of overnight stays, there will be also an increase in turnover.



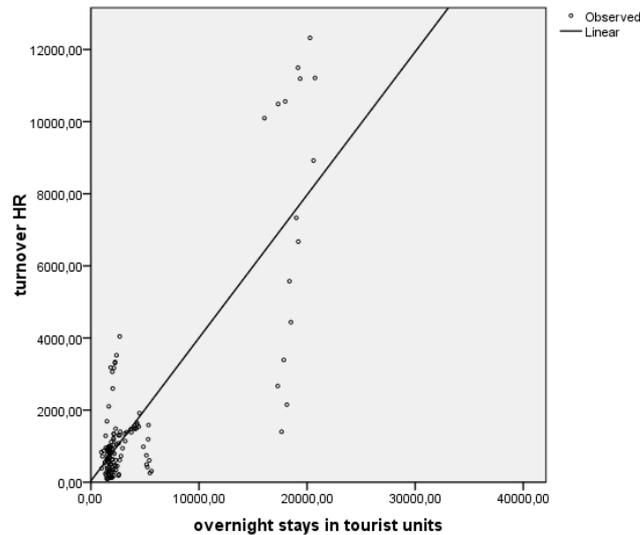


Fig. 9. Graphical representation of the correlations *overnight stays in tourist units - average number of employees HR* at regional level and *overnight stays in tourist units - turnover HR* at regional level
 Source: own elaboration using data from www.insse.ro

The graphical representation of these links are illustrated in Fig. 9 where, usually, there is a correspondence between the high values of the two indicators and, similarly, between the low values.

Conclusions

According to the analysis that we have made, there are several links among regional tourism indicators. The causal relations among the variables analysed are represented in the Fig. 10.

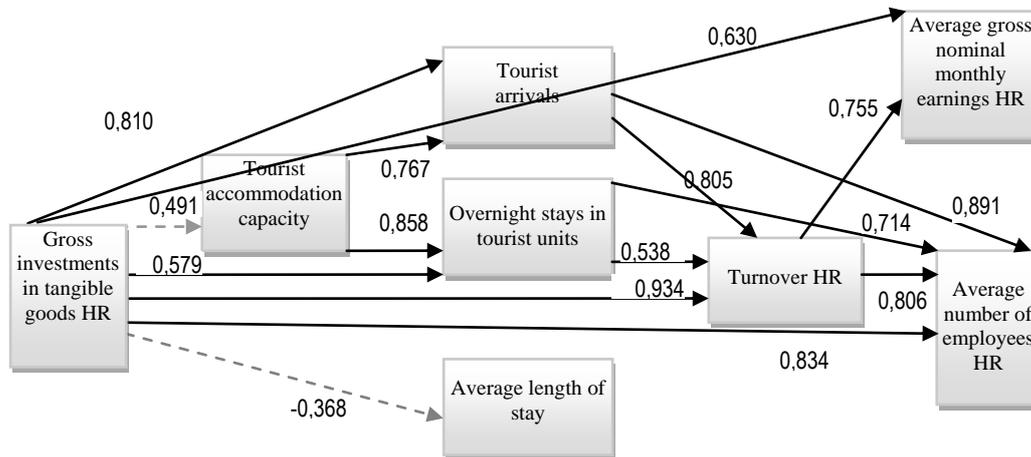


Fig. 10. Existing correlations among the indicators in the tourism field, at regional level, in Romania
 Source: own elaboration

The existing correlation allows us to assume that the increase of tourist arrivals will have an influence on the increase of turnover. A higher number of tourist arrivals has some effect on increasing earnings, through the fact that an increase in revenues of economic agents determines also a proper allocation of them to the factors of production used (in this case labour). An increase in turnover (as a result of the increased number of arrivals and overnight stays) will cause an increase in the average number of employees HR.

In order to satisfy existing demand for tourism products, the number of accommodation places increased, the number of arrivals increasing also at the same time. However, even if with the increase of the existing tourism accommodation capacity, the number of overnight stays has also grown, we think that this does not mean that between the two variables there is necessarily a causal relation, but rather they are influenced by a series of common factors (e.g. the increase of investments volume).

Regarding the increase of gross investments in tourism in the period 2000 – 2014, we think that it is deep and complex linked to the development of areas with high tourism potential.

First, we can refer to the increase of the number and the quality of accommodation units, which contribute to the intensification of tourism activity. This is quantified also through the increase of turnover and number of employees, variables that have an intense correlation with investments HR indicator (for $\rho = 0.934$ and, respectively, $\rho = 0.834$). In the touristic zones, increasing the number of employees in this field has a positive influence on the unemployment rate, and hence on the population welfare.

On the other hand, the analysis showed that the gross investments in tangible goods are correlated to wages level, which can be explained if we also take into account the increase of turnover, so the increase of revenue of economic agent will be also used to increase the quality of production factors. If a growth of wages will be recorded, this will lead to an increase in consumption and therefore to a stimulation of the economy.

We can consider that investments efficiency is also reflected in the increase of *number of arrivals* and *overnight stays*, with which *investments* have a correlation of $\rho = 0.810$ and, respectively, of $\rho = 0.579$. An increase in tourist activity is proved by the evolution of the two variables (number of accommodation places and arrivals), this being an obvious consequence of increasing the number, but also the quality of the accommodation units. Medium intensity correlation between *gross investment in tangible goods HR* and *existing tourist accommodation capacity* (0.491) shows that the two indicators do not vary in the same rhythm, because some investments are directed towards increasing the quality of accommodation units.

The link between investments and average length of stay has a high complexity and a strict reference only to the correlation coefficient between the two variables could not lead to appropriate conclusions. The decrease of length of stay that takes place simultaneously with the increase of investments can be explained in two ways. First, the overall development of the economy determines intensifying of “business tourism”, characterized usually by a reduced average length of stay. Second, the increase of the population living standard determines “week-end tourism” development. It should be noted that 2009, but also the beginning of the economic crisis are exceptions to the above, being a circumstantial situation.

The existing links among tourism indicators were highlighted as a result of the analysis that we made. In order to attract tourists, one must have an adequate offer. It is obvious that tourism activity has certain effects on the area where it is located, fact confirmed by the correlations above. These effects have an obvious contribution, both quantitatively (additional income, lowering the unemployment rate, GDP growth) and qualitatively (cultural exchanges, diversification of activities), at the realization of a harmonious regional development.

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Annex

Table 1. Spearman correlation coefficient for gross investments in tangible goods HR and turnover HR at regional level

| | | | gross investments in tangible goods HR | turnover HR |
|----------------|--|---|--|----------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,934** ,000 |
| | turnover HR | Correlation Coefficient Sig. (2-tailed) | ,934** ,000 | 1,000 |

** Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 2. Spearman correlation coefficient for gross investments in tangible goods HR and average number of employees HR at regional level

| | | | gross investments in tangible goods HR | average number of employees HR |
|----------------|--|---|--|--------------------------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,834** ,000 |
| | average number of employees HR | Correlation Coefficient Sig. (2-tailed) | ,834** ,000 | 1,000 |

** Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 3. Spearman correlation coefficient for gross investments in tangible goods HR and average gross nominal monthly earnings HR at regional level

| | | | gross investments in tangible goods HR | average gross nominal monthly earnings HR |
|----------------|---|---|--|---|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,630** ,000 |
| | average gross nominal monthly earnings HR | Correlation Coefficient Sig. (2-tailed) | ,630** ,000 | 1,000 |

** Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 4. Spearman correlation coefficient for gross investments in tangible goods HR and accommodation capacity at regional level

| Correlations | | | gross investments in tangible goods HR | accommodation capacity |
|----------------|--|--|--|------------------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,491** ,000 |
| | accommodation capacity | Correlation Coefficient Sig. (2-tailed) | ,491** ,000 | 1,000 |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 5. Spearman correlation coefficient for gross investments in tangible goods HR and tourist arrivals at regional level

| Correlations | | | gross investments in tangible goods HR | tourist arrivals |
|----------------|--|--|--|------------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,810** ,000 |
| | tourist arrivals | Correlation Coefficient Sig. (2-tailed) | ,810** ,000 | 1,000 |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 6. Spearman correlation coefficient for gross investments in tangible goods HR and overnight stays in tourist units at regional level

| Correlations | | | gross investments in tangible goods HR | overnight stays in tourist units |
|----------------|--|--|--|----------------------------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | ,579** ,000 |
| | overnight stays in tourist units | Correlation Coefficient Sig. (2-tailed) | ,579** ,000 | 1,000 |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 7. Spearman correlation coefficient for gross investments in tangible goods HR and average length of stay at regional level

| Correlations | | | gross investments in tangible goods HR | average length of stay |
|----------------|--|--|--|------------------------|
| Spearman's rho | gross investments in tangible goods HR | Correlation Coefficient Sig. (2-tailed) | 1,000 | -,368** ,000 |
| | average length of stay | Correlation Coefficient Sig. (2-tailed) | -,368** ,000 | 1,000 |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 8. Spearman correlation coefficient for accommodation capacity and tourist arrivals at regional level

| Correlations | | | accommodation capacity | tourist arrivals |
|----------------|------------------------|-------------------------|------------------------|------------------|
| Spearman's rho | accommodation capacity | Correlation Coefficient | 1,000 | ,767 |
| | | Sig. (2-tailed) | . | ,000 |
| | tourist arrivals | Correlation Coefficient | ,767** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 9. Spearman correlation coefficient for accommodation capacity and overnight stays in tourist units at regional level

| Correlations | | | accommodation capacity | overnight stays in tourist units |
|----------------|----------------------------------|-------------------------|------------------------|----------------------------------|
| Spearman's rho | accommodation capacity | Correlation Coefficient | 1,000 | ,858 |
| | | Sig. (2-tailed) | . | ,000 |
| | overnight stays in tourist units | Correlation Coefficient | ,858** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 10. Spearman correlation coefficient for tourist arrivals and turnover HR at regional level

| Correlations | | | tourist arrivals | turnover HR |
|----------------|------------------|-------------------------|------------------|-------------|
| Spearman's rho | tourist arrivals | Correlation Coefficient | 1,000 | ,805 |
| | | Sig. (2-tailed) | . | ,000 |
| | turnover HR | Correlation Coefficient | ,805** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 11. Spearman correlation coefficient for tourist arrivals and average number of employees HR at regional level

| Correlations | | | tourist arrivals | average number of employees HR |
|----------------|--------------------------------|-------------------------|------------------|--------------------------------|
| Spearman's rho | tourist arrivals | Correlation Coefficient | 1,000 | ,891 |
| | | Sig. (2-tailed) | . | ,000 |
| | average number of employees HR | Correlation Coefficient | ,891** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 12. Spearman correlation coefficient for turnover HR and average gross nominal monthly earnings HR at regional level

| Correlations | | | turnover HR | average gross nominal monthly earnings HR |
|----------------|---|-------------------------|-------------|---|
| Spearman's rho | turnover HR | Correlation Coefficient | 1,000 | ,755 |
| | | Sig. (2-tailed) | . | ,000 |
| | average gross nominal monthly earnings HR | Correlation Coefficient | ,755** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 13. Spearman correlation coefficient for turnover HR and average number of employees HR at regional level

| Correlations | | | turnover HR | average number of employees HR |
|----------------|--------------------------------|-------------------------|-------------|--------------------------------|
| Spearman's rho | turnover HR | Correlation Coefficient | 1,000 | ,806 |
| | | Sig. (2-tailed) | . | ,000 |
| | average number of employees HR | Correlation Coefficient | ,806** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 14. Spearman correlation coefficient for overnight stays in tourist units and average number of employees HR at regional level

| Correlations | | | overnight stays in tourist units | average number of employees HR |
|----------------|----------------------------------|-------------------------|----------------------------------|--------------------------------|
| Spearman's rho | overnight stays in tourist units | Correlation Coefficient | 1,000 | ,714 |
| | | Sig. (2-tailed) | . | ,000 |
| | average number of employees HR | Correlation Coefficient | ,714** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro

Table 15. Spearman correlation coefficient for overnight stays in tourist units and turnover HR at regional level

| Correlations | | | overnight stays in tourist units | turnover HR |
|----------------|----------------------------------|-------------------------|----------------------------------|-------------|
| Spearman's rho | overnight stays in tourist units | Correlation Coefficient | 1,000 | ,538 |
| | | Sig. (2-tailed) | . | ,000 |
| | turnover HR | Correlation Coefficient | ,538** | 1,000 |
| | | Sig. (2-tailed) | ,000 | . |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own elaboration using data from www.insse.ro