LINKS BETWEEN TOURISM ENTREPRENUSHIP AND ECONOMIC DEVELOPMENT IN ROMANIA

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Abstract
Entrepreneurship is frequently associated with being a driving force in an economy (Mises, 1949). Tourism is considered to be a key factor with potential to generate economic development and foster local entrepreneurship in Romania. Despite the importance associated with tourism and entrepreneurship there is no agreement of how these impact the economy. The aim of this article is to present some information about the connection between tourism entrepreneurship and to analyse its impact on the Romanian economy. Some analyses were conducted in order to examine the interrelation and the impact between tourism entrepreneurship and economic development.

Keywords: tourism entrepreneurship, economic development
JEL classification: L26 Entrepreneurship, M13 new firms & Start-ups, Z32 Tourism and development

1. Introduction

The role of entrepreneurship for economic growth in an economy is extensively recognized by experts, as well as by governments (van Stel, 2006). Because of importance associated with entrepreneurship the European Commission is working towards creating an environment that will foster entrepreneurship and encourage person to start new ventures (EC, 2003).
Some researchers even stated that "entrepreneurship has become an engine for economic and social development around the world" (Audretsch, 2003).

Understating the role of entrepreneurship and its impact on economic development and growth requires to better understand and defining the concept of entrepreneurship (Wennekers & Thurik, 1999), because the proof

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on whether entrepreneurship matters for economic growth is not unequivocal (Naude, 2013).

This article builds on earlier work that was presented in 2014 at a conference (Joint International Conference of Doctoral and Post-Doctoral researchers conference) and I continue some of the analyses conducted in the research paper that was discussed (Popescu, 2015).

2. Tourism entrepreneurship

The World Travel & Tourism Council (WTTC) together with the Romanian National Tourism Authority states in its 2006 report that "Tourism and travel can be a catalyst for improving living standards across the country and have been identified as a central point of the National Development Plan" (WTTC, 2006, Romania). According to WTTC data, Romania ranks 60th out of 184 analysed countries in terms of tourism's contribution to GDP.

Tourism throughout history has been dependent on entrepreneurs who have identified the opportunity they turned those opportunities into business (Page & Connell, 2014).

The tertiary sector is an important source of jobs and the technological advance reduces the number of jobs in the primary and secondary sectors. Tourism is a service industry; a creative industry says Rusu (Rusu, 2014). There are several reasons for increasing entrepreneurial activity as the economy evolves. Service companies offer more opportunities for entrepreneurship. Often the opening of a ne venture in "Hotels and Restaurants" sector in our country does not involve very high costs. Enterprise-based statistics show that most of the time new companies in this sector are micro-enterprises and small firms that are more likely to transform an existing location into an accommodation-providing unit. The tourism industry is a good example for many entrepreneurial initiatives that start rather out of lifestyle purposes than rapid growth start-up type motivations. Thus small entry barriers in the tourism can be a factor contributing to growth of entrepreneurial activity in a certain region.

Most concepts on tourism development and entrepreneurship are not new, but the explanation of the relationship between the two concepts is a complex path, the link between tourism, development and economic growth having a multilateral character. Tourism is a broad concept with many

meanings; there is a total lack of agreement on how tourism is properly and fully defined even among researchers in the field. (Page & Ateljevic, 2009).

The complex nature and interdisciplinary of the two concepts (economic and social) are reasons that have led to less specialized literature on the link between entrepreneurship and tourism.

3. Research based on secondary data on the connection between tourism entrepreneurship and economic growth.

To measure entrepreneurship, a number of indicators were chosen to capture this concept, the common used metrics encountered in the literature are: Creating new entrepreneurial initiatives, New businesses and nascent entrepreneurs; Small and medium-sized businesses; Self-employed workers and business owners (Parker, 2009). Each of the mentioned metrics comes with some advantages and disadvantages when used to describe entrepreneurship. So because there is no "ideal" dependent variable for entrepreneurship, selecting a right one is important (Davidsson & Gordon, 2011).

For measuring economic growth, the most commonly used indicators are: GDP (Gross Domestic Product) growth and GDP per capita, the increase in the number of jobs, labor productivity (Carree &Thurik, 2010).

As mentioned in the literature, between entrepreneurship and economic growth, there are a number of links and correlations. But the connection between these two is not very explicit, straightforward, and simple to quantify. One of the issues that lead too less obvious results is that entrepreneurship is hard to quantify. It is relatively easy to capture certain aspects of entrepreneurship in figures, such as the number of new firms, the evolution over time of this number, incorporations, churn rates, self-employment, etc. But these are only a part of what we call entrepreneurship. Entrepreneurship is difficult to quantify into a metric, to operationalize, because there is no clear definition (Iversen et al, 2007). Having a multidisciplinary aspect it involves the use of research techniques from relatively diverse sciences: economics, management, sociology, and psychology. Another cause that makes it more difficult to quantify entrepreneurship, especially when we want to making comparisons between

different areas or countries is related to the lack of indicators calculated on secondary trustworthy data.

Further, taking into account the limitations presented above, I ran some statistical calculations in order to observe if there are some correlations between tourism entrepreneurship and economic growth in the sector, at Romanian country level.

Data used and methodology

To perform the analysis, I used methods such as correlation and linear regression. The variables used were the "direct Travel and Tourism contribution to GDP", as an independent variable, and the "number of new company/ventures registrations in the Hotel & Restaurants sector", "the number of active companies/ventures in the Hotel & Restaurants sector" and "tourism employees" as dependent variables. The data needed to conduct the analysis were collected from the ONRC (Oficiul Național al Registrului Comerțului - National Trade Register Office), INS (Institutul Național de Statistică – Romanian National Institute of Statistics) and WTTC (The World Travel & Tourism Council).

For the first analysis for operationalizing entrepreneurship I used the number of new business registrations in tourism industry, more exactly in the Hotels and Restaurants sub-sector. This variable shows us the number of new ventures created in the sector each month, unlike the number of active (established) companies in the field of tourism. Such a variable indicates a greater degree of novelty and can better capture the idea of a new entrepreneurial initiative.

The birth of new enterprises is a key indicator of business dynamism. It shows a capacity to start up entirely new ventures in a country (OECD, 2013).

The data were collected monthly from the ONRC and summed up at yearly level, with the analysis being carried out over the period 2007-2013.

Table 1: Evolution of the number of new ventures registered in Hotels and Restaurants sector (2007-2013)

Years	2007	2008	2009	2010	2011	2012	2013
No. of new venture registrations Hotels and restaurants	5290	5721	5486	5581	6105	5691	6087

Source: Own calculations based on ONRC data, 2007-2013.

As a measure for economic performance, I used the indicator developed by WTTC, the direct contribution of Travel and Tourism to GDP.

Table 2: Data on direct contribution of T&T to GDP (2007-2013)

Years	2007	2008	2009	2010	2011	2012	2013
Direct contribution of travel&tourism to GDP (bn)	6,371	7,797	7,229	7,519	8,057	9,27	10,536

Source: WTTC, 2014

The first step of the analysis was to run a correlation between the two initially proposed variables, the "direct contribution of T&T to GDP" and "the number of new company registrations in the Hotel & Restaurants sector".

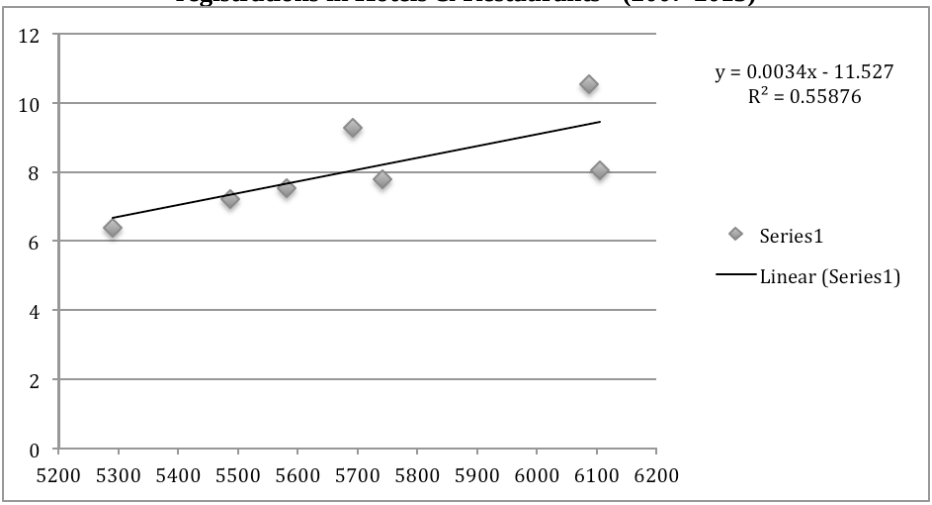
The Pearson correlation coefficient gives an R-value of approximately 0.75 (0.74751 - see Annex 1). According to Colton's empirical rules (1974), a correlation coefficient of between 0.5 and 0.75 indicates a moderate to good correlation between the two variables.

In the context of the analysis it can be stated that there is a direct positive correlation between the number of new company registrations at the Trade Register in the Hotels & Restaurants sector and the direct contribution of the T & T sector to GDP. Thus at this point of the research it is confirmed by the statistical relationship the existence of a link between the two variables.

The next step consisted to use another statistical tool, a simple linear regression between the two variables for the period 2007 – 2013 (7 years) to observe the intensity of the link between the two variables.

Below is a cloud chart of the two variables analysed, the "number of new companies registrations in the Hotels & Restaurants sector" and the "direct contribution of T&T to GDP".

Figure 1 - "Tourism's contribution to GDP" and "No. of new companies registrations in Hotels & Restaurants "(2007-2013)



Source: Own calculations based on collected data from ONRC and WTTC

From a theoretic point of view, based on the literature review, we can deduce that there should be a link between the increase of direct contribution T&T to GDP and the number of registrations of new firms, and in this respect I ran a simple linear regression.

In the regression analysis carried out, the variable "Number of new companies registered in hotels and restaurants sector" was the independent variable (or explanatory), and the "direct contribution of T & T to GDP" was the dependent variable (or explained).

The results obtained after running the regression between the two variables showed a coefficient of determination r^2=0.55876 (see Annex 2).

The percentage of variation in the "direct contribution of T&T to GDP" as a percentage of the total change represents only 55%; the remaining 45% of variation is explained by other variables or factors. Approximately 55% of the variation proportion of dependence is explained by the regression model.

Even if the determination coefficient is not close to value of 1, which would indicate a strong link between the two variables, the fact that more than

half of the change in the direct contribution of T&T to GDP is explained by the emergence of new firms/ventures in the tourism field demonstrates the importance of this variable. The number of new registrations represents, in this case is a measure for entrepreneurship, even if it is only a partial measurement of this phenomenon.

The results obtained, even if they are not among the strongest and relevant, highlight the importance of the variable tourism entrepreneurship measured as the number of new ventures registered in hotels and restaurants sector, to the growth in tourism GDP.

Such results need to be interpreted with caution and require a deepening of the thematic using multivariate regression models, identifying other variables that contribute to economic development and growth, and see which ones play an important role alongside the number of new registered companies, to undercover other factors of influence.

The next part of the analysis consisted in running a regression starting from another possible operationalization of the concept of entrepreneurship, respectively identifying the number of active enterprises in the Hotels & Restaurants domain (NACE code 55 and 56 respectively). The data related to the number of companies active in Hotels and Restaurants sector were obtained from INS (Institutul Național de Statistică – Romanian National Institute of Statistics).

Table 3: No. of active enterprises in Hotels & Restaurants (2003-2012)

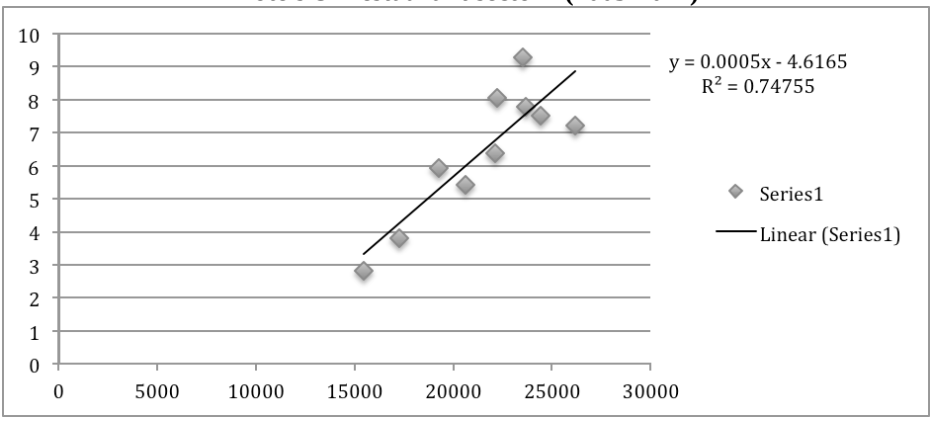
Years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of established firms in hotels & restaurant sector	15459	17240	19229	20579	22089	23653	26170	24402	22210	23499

Source: INS, 2014

The regression used was aimed at analysing the relationship between the number of active companies in Hotel & Restaurant sector and the direct contribution of T & T to GDP over a 10-year period between 2003 and 2012.

Below is a cloud point graph of the two variables analysed, the number of active enterprises in the Hotels & Restaurants sector and the direct contribution of T & T to GDP.

Figure 2 - "Tourism contribution to GDP" and "No. of active enterprises in Hotels & Restaurant sector "(2003-2012)



Source: Own calculations based on collected data from INS and WTTC

After calculating the correlation between the two variables, a correlation coefficient R of 0.86 was obtained ranging from 0.75 – 1 which denotes a very good association or high correlation to very high (see Annex 3).

In the second regression, the variable "Number of active enterprises in Hotels & Restaurants" was the independent (or explanatory) variable, and the "Direct Contribution of T & T to GDP" was the dependent (or explained) variable.

The linear regression run between the two above mentioned variables generated a coefficient of determination $r^2 = 0.747$ (see Annex 4).

These values show that there is a link between the two variables analysed and that approximately 75% of the proportion of variation dependence is explained by the regression model, the number of active

enterprises in the Hotels and Restaurants sector significantly influencing the direct contribution of T & T to GDP. The remaining 25% is explained by other variables not taken into consideration in this regression with only two variables, for deepening it is necessary to apply higher regression models with several variables, multi-varied.

I mention that the p-value was 0.053 in the case of the first regression (independent variable = "the number of new company registrations in the Hotel & Restaurants sector" and dependent variable = "direct contribution of T&T to GDP"). This value is situated at the limit of the normally accepted threshold for the probability of obtaining statistically significant results.

In the case of the second regression (the independent variable = "number of active enterprises in Hotels and restaurants sector" and the dependent variable = "direct contribution of T & T to GDP"), the p-value was 0.012. The correlation coefficient is statistically significant and in the case of the second regression, the "null hypothesis" is rejected, the 0.05 threshold being the most commonly used, initially set by Fisher.

Some authors also approach the topic related to entrepreneurship and its contribution to job creation and growth. Fritsch and Mueller (2004) make an important contribution, pointing out that there may be both positive and negative effects of new job creation, but with differing time differences. In this respect, they propose a time-lag structure with 3 stages.
Carrie and Thurik examined this time lag structure approach and did some analyses to see how variation in the number of business owners will influence employment growth, increasing of GDP and increasing of labour productivity, this three being possible measures of economic performance. Their results confirmed earlier evidence showing the existence of the three-step gap on the performance of the economy in several countries. An initial stage of positive influence followed by a negative period and finally a stage with positive influences. The net positive effect on the whole was noted in the increase in the number of jobs and in GDP growth (Carree & Thurik, 2010).

So the next step of the analysis was to continue and observe whether there is a relationship between the two concepts tourism entrepreneurship and generation of new jobs in tourism, over a period of 10 years between 2003 and 2012.

Table 4: Evolution no. of employees in Hotels & Restaurants (2003-2012)

Years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Evolution of employees in Hotels and Restaurants sector (thousands of persons)	104,7	132,8	132,8	134	155,5	161,8	125,3	133,1	137,9	154,2

Source: INS, 2014

The number of employees in the tourism sector has been quantified using data obtained from INS - "Population (civil) employment by activities of national economy at section NACE 55", hotels and restaurants.

However, the Pearson correlation coefficient had a value of 0.51 suggesting a relatively weak link, an acceptable to moderate correlation between the two variables analysed. (See Annex 5).

As researchers in the field have shown, the effects of increasing entrepreneurial activity are not immediately perceived by economic growth and therefore time-lag models are usually used to better capture the effect of the growth in the number of new businesses active in tourism over of T & T's direct GDP contribution.

Both the results of correlations and regressions (using time lagged-data) provided numbers showing weak to moderate links between the two variable "Employees in tourism - hotels and restaurants sector" and "Number of active companies in the hotels and restaurants sector" variables. The results showed correlation coefficients R ranging between 0.29 and 0.53, and the coefficients of determination r^2 between 0.08 and 0.26. (See Annex 6)

These results can cause me to conclude that the new ventures created in "Hotels & Restaurants" sector do not contribute significantly to the creation of new jobs and employment growth. What can often be true because they are often small firms or micro-enterprises employing few persons, in the Romanian hotels and restaurants sector this is the case most of the times, so SMEs are predominant.

Such statements must be made with some reservations because another important aspect has to be taken into account. Respectively, the large number of units operating in the informal "grey" economy must be taken into account, not being counted by official statistics. A large proportion of workers are either relatives, family members doing undeclared work or other persons doing "moonlighting", so that statistical results should be interpreted with care.

Table 5: Employees in tourism vs. No. active companies in tourism (with a time-lag up to 6 years)

	Y	X	X lag 1	X lag 2	X lag 3	X lag 4	X lag 5	X lag 6
Years	Employees in tourism - hotels and restaurants sector (thousand persons)	Number of active companies in the hotels and restaurants sector						
2003	104,7	15459	13535	10464	9929	10127	10147	10122
2004	132,8	17240	15459	13535	10464	9929	10127	10147
2005	132,8	19229	17240	15459	13535	10464	9929	10127
2006	134	20579	19229	17240	15459	13535	10464	9929
2007	155,5	22089	20579	19229	17240	15459	13535	10464
2008	161,8	23653	22089	20579	19229	17240	15459	13535
2009	125,3	26170	23653	22089	20579	19229	17240	15459
2010	133,1	24402	26170	23653	22089	20579	19229	17240
2011	137,9	22210	24402	26170	23653	22089	20579	19229
2012	154,2	23499	22210	24402	26170	23653	22089	20579

Source: Own calculations based on collected data from INS

Table 5 shows data on the number of employees in tourism, more precisely registered under the Hotels and restaurants sector NACE code. Then the number of companies active in the hotels and restaurants sector is set at a gap of 1 to 6 years according to INS data. These data were used in time lag regression between the variables "Number of active companies in hotels and restaurants" and "Employees in tourism - hotels and restaurants".

The limitations of the analyses performed

As mentioned earlier all these values and especially their interpretation must be treated with caution. There are several reasons for these precautions; firstly I would mention related period, time frame, which was reviewed. A period of 7 or 10 years may not be long enough to correctly reflect the relationship between the two variables over time. In the case of the first regression (the "direct T & T contribution to GDP" vs. "Number of new company registrations") the value p, indicating the probability of obtaining statistically significant results, is 0.053 being the limit for acceptance of the significance threshold.

Another aspect is related to the NACE codes that have undergone changes over time, in Romanian classifications, so that some divisions, groups and classes have been added and / or eliminated. The data used were from both periods old and new NACE nomenclature, so these changes may generate slightly differences according to the applicable NACE nomenclature, in respect to when those firms were set up.

NACE codes at the section "Hotels and restaurants" also include group 563 "Bars and other beverage activities", which are not always directly and entirely related to the tourism industry. Also the activities of the travel agencies are not caught, having another NACE code, division 79: "Activities of tourist agencies and tour operators; other reservation and tourist assistance services ". Thus, the use in the analysis of only the number of companies registered under a NACE code does not fully and fairly captures the impact on tourism.

4. Conclusions

The role of entrepreneurship for its contribution to economic development is widely recognized, but due to the fact that there is no unanimously accepted definition, entrepreneurship is difficult to be quantified and use in mathematical models so that we can determine is there is a influence on economic development and growth. Not having reliable metrics for entrepreneurship, comparable between periods and countries, it is hard to determine if there is a very strong connection between entrepreneurship and economic growth. In the literature there can be found different and sometimes contradictory views on the evolution between the two phenomena. The way of

operationalization entrepreneurship has different approaches depending on the author views and considerations.

I have also mentioned the importance of tourism as a sector of the Romanian economy and how this area offers opportunities for entrepreneurial initiatives, even though there are fewer studies in the literature concerning the link between entrepreneurship and tourism.

In the paper, I conducted a series of correlations and regressions between tourism entrepreneurship and economic growth. I used as a metric for measuring economic growth the direct contribution of tourism to GDP, an indicator calculated by the WTTC. The operationalization of entrepreneurship has been made using both the a number of new company registrations in hotels and restaurants sector (Romania), but also as the number of companies active in the hotels and restaurants sector (Romania).

Even if the results in the first regression were not that conclusive, they still highlight the importance of tourism entrepreneurship in the form of the variable "the number of new company registrations in the Hotel & Restaurants sector" in GDP growth in tourism.

In the case of the second regression, where better values were obtained, the results indicate that there is a link between the two variables analysed. The "number of active enterprises in Hotels and restaurants sector" is influencing considerably the direct contribution of T & T to GDP. But it is necessary to deepen the analysis with the use of higher regression models with multiple variables.

The results confirms, bearing in mind the presented limitations of the analysis, that tourism entrepreneurship has a positive impact over economic development.

Most businesses start as small businesses and to achieve such commendable goals they need to grow. Under these circumstances, public policies should focus their efforts on creating an environment conducive to the growth of small and medium-sized firms and encourage entrepreneurs to start ventures in the tourism area, a sector with potential in the Romanian economy.

This analysis is just a starting point for future, more complex approach of the connection between tourism entrepreneurship and economic development.

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Annex 1

Correlation Coefficients Matrix			
Sample size	7	*Critical value (2%)*	3.36493
		The number of new company registrations in the Hotel & Restaurants sector	*Direct contribution of T&T to GDP*
The number of new company registrations in the Hotel & Restaurants sector	**Pearson Correlation Coefficient**	*1.*	
	R Standard Error		
	t		
	p-value		
	H0 (2%)		
Direct contribution of T&T to GDP	**Pearson Correlation Coefficient**	*0.74751*	*1.*
	R Standard Error	*0.08825*	
	t	*2.51631*	
	p-value	*0.05341*	
	H0 (2%)	*accepted*	
R			
Variable vs. Variable	*R*		
Direct contribution of T&T to GDP" vs. The number of new company registrations in the Hotel & Restaurants sector	0.74751		

Annex 2

Linear Regression							
Regression Statistics							
R	0.74751						
R Square	0.55876						
Adjusted R Square	0.47052						
Standard Error	1.00658						
Total Number Of Cases	7						
Direct contribution of T&T to GDP =- 11.5267 + 0.0034 * The number of new company registrations in the Hotel & Restaurants sector							
ANOVA							
	d.f.	*SS*	*MS*	*F*	*p-level*		
Regression	1.	6.4154	6.4154	6.33181	0.05341		
Residual	5.	5.06601	1.0132				
Total	6.	11.48141					
	Coefficients	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*	*H0 (2%) rejected?*
Intercept	-11.52672	7.81356	-37.81878	14.76535	-1.47522	0.20017	*No*
The number of new company registrations in the Hotel & Restaurants sector	0.00344	0.00137	-0.00116	0.00804	2.51631	0.05341	*No*
T (2%)	3.36493						
LCL - Lower value of a reliable interval (LCL)							
UCL - Upper value of a reliable interval (UCL)							
Residuals							
Observation	*Predicted Y*	*Residual*	*Standard Residuals*				
1	6.6618	-0.2908	-0.31648				
2	8.21247	-0.41547	-0.45215				
3	7.33571	-0.10671	-0.11613				
4	7.66234	-0.14334	-0.156				
5	9.464	-1.407	-1.53122				
6	8.04056	1.22944	1.33799				
7	9.40212	1.13388	1.23399				

Annex 3

Correlation Coefficients Matrix			
Sample size	10	*Critical value (2%)*	2.89646
		Number of active companies in Hotel & Restaurant sector	*Direct contribution of T & T to GDP*
Number of active companies in Hotel & Restaurant sector	**Pearson Correlation Coefficient**	*1.*	
	R Standard Error		
	t		
	p-value		
	H0 (2%)		
Direct contribution of T & T to GDP	**Pearson Correlation Coefficient**	*0.86461*	*1.*
	R Standard Error	*0.03156*	
	t	*4.86717*	
	p-value	*0.00124*	
	H0 (2%)	*rejected*	
R			
Variable vs. Variable	*R*		
Direct contribution of T & T to GDP vs. Number of active companies in Hotel & Restaurant sector vs.	0.86461		

Annex 4

Linear Regression							
Regression Statistics							
R	0.86461						
R Square	0.74755						
Adjusted R Square	0.71599						
Standard Error	1.05919						
Total Number Of Cases	10						
Direct contribution of T & T to GDP=- 4.6165 + 0.0005 * Number of active companies in Hotel & Restaurant sector							
ANOVA							
	d.f.	*SS*	*MS*	*F*	*p-level*		
Regression	1.	26.57666	26.57666	23.68939	0.00124		
Residual	8.	8.97504	1.12188				
Total	9.	35.55171					
	Coefficients	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*	*H0 (2%) rejected?*
Intercept	-4.61654	2.29304	-11.25825	2.02517	-2.01328	0.07888	*No*
Number of active companies in Hotel & Restaurant sector	0.00051	0.00011	0.00021	0.00082	4.86717	0.00124	*Yes*
T (2%)	2.89646						
LCL - Lower value of a reliable interval (LCL)							
UCL - Upper value of a reliable interval (UCL)							
Residuals							
Observation	*Predicted Y*	*Residual*	*Standard Residuals*				
1	3.33955	-0.51155	-0.51226				
2	4.25615	-0.46115	-0.46179				
3	5.2798	0.6612	0.66212				
4	5.97459	-0.53759	-0.53834				
5	6.75172	-0.38072	-0.38125				
6	7.55665	0.24035	0.24069				
7	8.85204	-1.62304	-1.62529				
8	7.94212	-0.42312	-0.42371				
9	6.814	1.243	1.24473				
10	7.47739	1.79261	1.7951				

Annex 5

Correlation Coefficients Matrix			
Sample size	10	*Critical value (2%)*	2.89646
		Tourism employment (hotel&restaurant)	*Number of active companies in Hotel & Restaurant sector*
Tourism employment (hotel&restaurants)	**Pearson Correlation Coefficient**	*1.*	
	R Standard Error		
	t		
	p-value		
	H0 (2%)		
Number of active companies in Hotel & Restaurant sector	**Pearson Correlation Coefficient**	*0.51738*	*1.*
	R Standard Error	*0.09154*	
	t	*1.71003*	
	p-value	*0.12563*	
	H0 (2%)	*accepted*	
R			
Variable vs. Variable	*R*		
Number of active companies in Hotel & Restaurant sector vs. Tourism employment	0.51738		

Annex 6

	Coeficient corealție R		**Coeficient de determinație r^2**
Y vs X	0.517379583	**Y vs X**	0.26768
Y vs Xt-1	0.457106926	**Y vs Xt-1**	0.20895
Y vs Xt-2	0.534871877	**Y vs Xt-2**	0.28609
Y vs Xt-3	0.52799928	**Y vs Xt-3**	0.27878
Y vs Xt-4	0.452732002	**Y vs Xt-4**	0.20497
Y vs Xt-5	0.397727407	**Y vs Xt-5**	0.15819
Y vs Xt-6	0.29111164	**Y vs Xt-6**	0.08475