THE CATALYSTS OF THE CREATIVE ECONOMY IN ROMANIA: AN EMPIRICAL ANALYSIS

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ABSTRACT

The creative and cultural industries represent an economic engine capable to generate economic development, job creation, economic development for other sectors, social inclusion, and also to promote traditions and social identity. Thus the benefits brought by the development of the creative economy relate to economic, social and environmental impacts. Richard Florida is a well-known contributor to the creative economy's literature, whose most important findings relate to the determinants of the creative economy's development, including the theory of the 3T, and later of the 4T; these T's comprise technology, talent, tolerance and territory as factors influencing the development of the creative cities, the creative economy being considered to be developing mostly in the urban areas. During the last years, there were several studies aiming to find out which are the influencing factors of the creative economy's development, so numerous academics tried to test Richard Florida's well knows theories. Our paper will briefly present some of these studies, but our aim is to reveal the main influence factors on the Romanian creative economy, selecting seven cities relevant as creative cities. Our hypothesis is that the number of students enrolled in bachelor studies, the young population and the local public expenditure on cultural activities, are correlated with the dimension of the local creative economies. So, we analysed the creative economies of the seven Romanian cities, in terms of number of employees and recorded turnover, and also five independent variables regarding the factors mentioned above, and so we applied the regression ANOVA method, in order to test if there exists any correlation between the selected variables.

KEYWORDS: *creative economy, catalysts, influence factors, regression, ANOVA method*

1. INTRODUCTION

Another well-known praiser of the creative economy, John Howkins, frames the creative economy as the economic sector enclosing "all those activities covered by intellectual property in some form – design, trademark, copyright and patents" (Howkins in O'Connor, 2010,p.51). However, in order to be more specific, so we would emphasize the intellectual capital and the talent as the input for the creative economy, whereas the output comes as creative and cultural goods and services, their value being given by traditions, symbols and expressiveness. The intellectual capital and the talent are crucial for this economic sector, as these two resources enjoy an unlimited potential of exploitation, but otherwise their exploitation require proper human resources, their quality given by education and training.

In his theory regarding the 4T's, Florida praises talent (in Lorenzen & Andersen, 2009, p. 368) arguing that "in a globalized economy in which innovation constitutes competitive advantage, it is possible to identify analytically a component of the labour force that is particularly important for competitive advantage and growth because it is technically, socially, and/or artistically creative on the job"; talent is given by the level of knowledge and creativity of the talented, trained, skillful and

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professional people, being hard to assess, mostly through the level of higher education attainment or the share of the creative class. Regarding the next T, Technology, as a key factor, represents a region's technological potential and it "can be measured by number of patents, spending for R&D and employment sector, productivity" (Martinaitytė & Kregždaitė, 2015, p. 59). The third T – tolerance - regards social attractiveness of a region for talented people. Tolerance is a factor "mostly discussing and hardly accepted by economists (…) and is measured by identifying openness to new cultures, races, immigrants and other minorities" (Martinaitytė & Kregždaitė, 2015, p. 60). The last T, territory, comprises all kinds of amenities of a place or region, being defined as "local – specific characteristics with a positive impact on household utility" (Borgoni et al., 2018, p. 2). These can be natural or built amenities, the latter being of interest for the creative economy, because of their types: museums, heritage, libraries, theatres, parks, etc.; several studies proved that the amenities have a strong impact "not only on household utilities but also on firm's productivity" (Borgoni et al., 2018, p. 2). As carriers of the intellectual capital, the creative class prefers "regions that can offer opportunities and possibilities of change. Places that attract and retain talents have to offer a wide range of life styles, energy, stimulation and agitation" (Florida in Suciu et al., 2010, p. 171) so these various possibilities could not be found, along with the career opportunities, somewhere else than in those cities with an important economic, cultural and academic background. Thus, access to qualified and talented staff influences the strategies of investors, so training and owning a skilled and competent labour pool become the key to economic growth and regional development, a particularly important aspect of the creative economy paradigm, as other specialists have shown, stating that "what confers power to the cities, is not represented by their great buildings, companies or infrastructure, but by the concentration of skilled and talented people owned, the clusters of human capital being the basis of regional business conglomerates" (Glaeser, 2011, p. 193). The investors's preference for the university centres may be linked also to some features of the young graduates, making them valuable as potential employees, such as: lack of professional experience or family obligations, strong desire of affirmation, power and availability to work, and also low labour costs (Sava, 2018, p. 227). Considering these, our analysis includes the capital of Romania, Oradea – a highly developing Romanian city of the last years and also the hometown of the authors – and other five cities selected due to their economic, cultural and academic importance. Newbigin's argument that "wherever there is a strong and sustainable hub of creative economic activity, there is likely to be a university that has helped to plant the seed and that continues to nurture local creative businesses and the specialized local labour markets on which they may depend" (Newbigin, 2010, p.40) represents the basis of our hypothesis, aiming to test if this argument applies also to the seven Romanian cities.

2. LITERATURE REVIEW

According to Martinaityte and Kregzdaite (2015), in the assessment of the creative economy, the "most validated factors are employment within the industry; time use; trade and value added; copyright and intellectual property rights issues; public investments" (Martinaitytė & Kregždaitė, 2015, p. 61). Martinaityte and Kregzdaite (2015) conducted a study on the creative economies of Lithuania and Estonia analysing factors such as the location, structure of the creative industries and environment as influencers of the development of the creative industries. Their results showed that Lithuania's and Estonia's creative economies are mostly influenced by the private expenditures on culture and the creativity index - overall measure of regional economic potential combining Talent, Technology and Tolerance (Martin & Florida, 2011); secondly, come "government expenditure for culture, number of patents, and employment rate in R&D and tolerance index" (Martinaitytė & Kregždaitė, 2015, p. 56), whereas the employment level in the creative industries, exports of the creative economies, government expenditures for R&D and population with tertiary education, counted for less more. Another important finding of their study reveals that even if Lithuania and

Estonia have numerous employees in the cultural sector, relevant for the development of the creative economy is raising the quality of the employees, not the quantity, putting highlights on the education and the creativity training (Martinaitytė & Kregždaitė, 2015, p. 69).

Lorenzen and Andersen (2009, p. 383) established a correlation between the creative class and the specialized cultural services, suggesting that the creative class' consumer preferences have an impact on the creative urban hierarchy.

A study on another European country analysed several Danish creative cities by correlating them with the presence of the creative class. The presence of the creative class correlated significantly and strongly with the prosperity of the populated city and so, it revealed that that "Danish creative class propels economic growth and exhibits a tendency of congregating in major cities with diverse service and cultural offers and tolerance to foreign and bourgeoisie-bohemian lifestyles" (Lorenzen & Andersen, 2012, p. 123). This study found out that also the smaller Danish cities were attractive for the creative class in terms of cost advantages, work / life balance, specialized job offers and sense of community, the big cities of Denmark struggling with overpopulation, pollution, traffic jams and public generic services. The major cities attract lots of professional thus raising the costs of housing, making the time longer to commute and so lesser the time for the family and social activities. Also these specialists studied the cultural consumption and found that the Danish creative class "consumes culture differently than the rest of the labour force: it is more culturally active, attends more pop and rock concerts and visits art exhibitions and art museum, etc., the creative class is a major consumer of urban cultural activities" (Lorenzen & Andersen, 2012, p. 126).

Regarding the education of the creative class, in 2016 the Department for Culture, Media and Sport (2016, p. 17) conducted a study regarding the creative industries of the UK and figures proved that 59.9% of the employees with a creative occupations attended higher education, whereas only 32.7% of the total UK economy's employees are graduates of tertiary education.

Florida's theories regarding the tolerance as a influencer on the creative economy's development was tested and analysed by another researcher, Nathan Max, who considered Florida's suggestion that the "concentrations of bohemians in an area creates a milieu that attracts other types of talented or high human capital individuals. The presence of such human capital in turn attracts and generates innovative, technology-based industries" (Florida, 2002, p. 55). First, he pointed out that the attraction of immigrants is not only beneficial to an urban economy, increasing the size of the local population, labour force and its composition; it could bring multiple channels of short and longer–term changes. Some of these changes would be the temporarily bid down of the low-skilled native workers' wages (Nathan Max, 2015:8). And so, the positive effect that could impact the creative economy would be the rise of the high-skilled natives' and also migrants' wages. The same positive effects on the high-skilled migrants' wages are found in a study on Germany which revealed positive links between the cultural diversity of NUTS2 regions and the salaries (Sudekum et al. in Nathan, 2015, p. 10). Positive links between the ethnic diversity and the wages were found by Nathan (2011, p. 5) studying the UK. But these studies are concerning mostly the economy of diversity, not only the positive aspects of the diversity on the creative economy. Thus we conclude that the positive outcomes on the economy were established also specifically on the creative economy of the regions where social diversity was analysed.

Richard Florida traces some specific preferences of the creative class, in terms of lifestyle "such as high-quality housing, work empowerment and specialized consumption (…) it prefers to locate in cities with particular high levels of cultural services, ethnic diversity and tolerance" (in Lorenzen & Andersen, 2012, p. 124). But his studies are conducted in the USA, where the population is highly mobile and living in large-scale cities (Hall & Soskice, 2001, p. 60), and so there would be some probabilities that his findings wouldn't apply to the Romanian cities, with much smaller population and with a much lower mobility.

3. METHODOLOGY

We try to assess the potential in the creative economies' enhancement of several factors such as student population, young population aged between 25-29 years, and local public expenditure on culture, recreation and sport. These factors are correlated with economic measures of the local creative economies, more exactly: number of employees working in the creative and cultural industries, and the recorded turnover, during 2010 – 2017. These two dimensions regard only the private creative sector.

The creative cities included in this analysis are Bucharest, the capital of Romania, Cluj-Napoca, Timișoara, Iași, Brașov, Sibiu and Oradea, all these being considered representative for our study due to their importance as cultural and university centres, and also of their history.

In the followings quantitative data will be presented regarding the dimensions of the local creative economies – number of employees and recorded turnover - and also the influencing factors, student population, as share of the local population and share in the total number of Romanian students (bachelor studies, young population (25-29 years) – share in the local populations– and public expenditure on culture, as share in the local budget and also as allocation per person (lei / capita).

But the aim of this paper is not only to observe these data and their evolution during the ten years of the analysis; our goal is to assess statistically if there is any correlation between these two sets of data, and if so, which catalyst is the most influential. So we applied the ANOVA method in order to calculate the regressions and to point out how each influence factor lessens or strengthens the correlations. So in the statistical approach, the dependent variables were represented by the number of employees, on one hand, and the recorded turnover, on the other hand. In both analyses, we used five independent variables, such as: share of the student population in local population, share of the students in the total number of Romania's students (bachelor courses), share of the young population in the local population, share of the public expenditure on culture in the total local budget and cultural public expenses / capita.

4. Economic measures of the local creative economies and their catalysts

4.1. Dimensions of the local creative economies in the selected cities

The number and the evolution of the individuals employed in the creative industries of the selected cities, are presented bellow in Table 1.

Table 1. Number of employees in the creative industries of the selected cities (2010-2017)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	73137	75689	77636	78451	81783	85911	89099	98462	102513	108409
Cluj - Napoca	11514	10784	11732	13841	14711	15943	17876	20349	22775	24726
Timișoara	10427	7761	8124	8610	8858	9657	9159	10273	10984	11178
Sibiu	3880	3459	3686	4498	4658	5042	4967	5199	5767	6008
Brașov	6409	5889	5762	6789	6806	7167	7423	7887	8253	8793
Iași	5906	5049	5077	5458	5716	6545	7308	8196	9225	10135
Oradea	6679	6258	6504	6991	7478	8002	8454	8800	9367	9493

Source: realised by the authors based on the information available at https://membri.listafirme.ro/statistici-economice.asp#selectie, accessed at 11.06.2019

The trend of growth is noticed for all selected cities and also another aspect to be noticed, is the degree of development of each city: Bucharest, the city with the largest number of employees, followed but far beyond by Cluj-Napoca, Timișoara, Oradea, Iași, Brașov and Sibiu, the last one

recording much lower values than the others. Small decreases were present in each creative city after the debut of the economic crisis, except Bucharest, this city continuing its growing trend even in those conditions.

Table 2. The turnover recorded in the creative industries of the selected cities during 2008-2017 (millions lei)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	17834	17466	17539	19416	20647	21401	23312	26474	29041	47761
Cluj - Napoca	1214	1141	1279	1492	1851	2156	2585	3239	4050	4921
Timișoara	1155	767	751	911	984	1167	1236	1489	1941	2056
Sibiu	394	363	436	520	597	614	659	648	757	877
Brașov	631	617	652	845	1005	1086	1203	1397	1614	1886
Iași	645	553	595	675	741	844	981	1173	1367	1633
Oradea	497	469	481	663	762	863	1015	1083	1234	1335

Source: realised by the authors based on the information available at https://membri.listafirme.ro/statistici-economice.asp#selectie, accessed at 11.06.2019

Regarding the recorded revenues from the creative activities, the ranking is maintained for the first three cities, for this dimension, Iași and Brașov recorded better performances than Oradea. Another preserved positive aspect is the favourable evolution of each creative city. The most significant growth had taken place in Bucharest, but in relative terms the best performance belong to the creative industries of Cluj-Napoca, their revenues increasing during the analysed period with 305%. The negative effects of the economic crisis of 2008 – 2009 were felt also as decreases of the recorded turnover, this time, each creative city was affected by the 2008 – 2009 crisis, and their recorded turnover decreased significantly. After the economic recovery the figures increased rapidly and constantly.

4.2. Catalysts of the local creative economies of the selected creative cities

4.2.1. Students enrolled in higher education - bachelor degree

The creative class includes people who perform talent or intellectual-based activities; aiming to polish and to develop their abilities, the creative class requires higher education in order to be specialists in their field of activity. As a consequence, we chose to analyse the number of bachelor students, this level being the minimum required for most of the creative activities.

Throughout the analysed period, according to the number of students enrolled in higher education, Bucharest is on the leading position, being followed by Cluj-Napoca, Iași, Timișoara, Brașov, Sibiu and Oradea, these values being similar with those regarding their total population (INSSE, 2019). Each city has faced an unfavourable evolution regarding the number of students due to several factors, such as demographic decline, high migration and low level of secondary graduation.

However, by analysing the relative values in the table 3 we notice that the situation is changing, Cluj-Napoca becoming the leader being followed by Iaşi, Timişoara, Sibiu, Braşov, Bucharest and Oradea. Overall, the share of individuals enrolled in higher education in the total population of the selected cities has experienced unfavorable evolutions throughout the analysis period in all seven cities; however, excepting Iaşi, all the other cities included in the analysis showed some minor signs of increase of the share of students in the total local population.

Table 3. Share of the students in the local population of the selected cities (%)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	17.98	13.22	10.27	7.73	6.47	6.02	5.94	6.04	6.03	6.08
Cluj - Napoca	19.41	18.99	18.06	16.95	15.63	15.47	15.19	15.62	16.06	16.32
Timișoara	14.19	12.63	11.69	10.72	9.92	9.46	9.11	9.21	9.39	9.61
Sibiu	15.00	14.35	13.05	10.68	9.05	8.11	7.48	7.30	7.23	7.35
Brașov	20.45	20.00	15.64	8.96	7.11	6.20	5.80	5.78	5.74	5.83
Iași	18.09	17.51	16.61	16.61	13.76	12.67	11.87	11.65	11.17	11.02
Oradea	9.31	8.50	7.76	6.99	6.50	6.03	5.75	5.74	5.55	5.62

Source: realised by the authors based on the information available at http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table accessed at 12.06.2019

Table 4 reveals the share of the students belonging to each city from the total number of students enrolled in bachelor courses in Romania. We notice that most of the student population of Romania belongs to Bucharest, followed by Cluj-Napoca and Iași appear to be the second and the third most important university centres of Romania. Our data also show that the least appealing city for students of these seven are Oradea and Sibiu. These two cities are much smaller than the others and their higher education curriculum is also more limited. However, during the time, Bucharest and Brașov faced decreases in their shares, the capital losing in ten years around 10% of the students, meanwhile Cluj-Napoca enhanced its attractability and its share of student population.

Table 4. Share of the students in the total number of Romania's students (bachelor courses)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	43.56	36.85	32.99	30.87	29.98	29.75	30.48	31.04	31.24	31.34
Cluj - Napoca	6.90	7.79	8.56	10.04	10.76	11.45	11.84	12.24	12.74	12.92
Timișoara	5.33	5.45	5.82	6.64	7.12	7.28	7.38	7.48	7.69	7.79
Sibiu	2.83	3.12	3.28	3.35	3.30	3.18	3.09	3.02	3.02	3.05
Brașov	6.79	7.61	6.83	4.87	4.47	4.18	4.11	4.10	4.11	4.14
Iași	6.76	7.53	8.26	10.29	10.01	10.19	10.22	10.25	10.07	10.04
Oradea	2.36	2.47	2.60	2.91	3.13	3.12	3.13	3.12	3.04	3.06

Source: realised by the authors based on the information available at http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table accessed at 12.06.2019

4.2.2. Young population (25 – 29 years)

One of the determinants is the young population - aged between 25 and 29 years. This age segment is considered important in our research without being conditioned by higher education, since not the entire creative class has yet graduated or is undergoing higher education, part of it exploiting its innate talent without special training or education. At the same time, considering the previous factor - the population enrolled in higher education - the indicator of the young population takes into account also the persons that settled down in the host cities, after graduation, part of the population enrolled in the courses representing, in many cases, only a temporary population of university cities. The young population represents a large part of the creative class due also to their age-specific characteristics, such as the lack of material or family responsibilities that allow them to carry out high risk activities with unpredictable pecuniary gains, as long as they are able to pursue their passions. The young population presents interest in the creative economy's studies because "young people can be considered the engine of the culture's development; they are active cultural

consumers and at the same time they represent the future consumers of events and cultural goods" (Voicu et al., 2017, p. 217).

Table 5. Share of the young population in the local population of the selected cities (%)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	9.02	8.60	8.43	8.24	8.30	8.44	8.37	8.04	7.51	6.85
Cluj-Napoca	9.17	8.84	8.59	8.46	8.31	8.38	8.37	8.12	7.77	7.35
Timișoara	9.36	9.06	8.97	8.85	8.87	8.98	8.86	8.51	7.99	7.36
Sibiu	9.26	8.92	8.70	8.38	8.18	8.23	8.17	7.91	7.49	6.90
Brașov	9.58	9.14	8.84	8.47	8.24	8.23	8.09	7.83	7.31	6.67
Iași	9.73	9.25	9.09	8.79	9.03	9.61	9.77	9.47	8.88	8.00
Oradea	8.88	8.54	8.34	8.11	8.09	8.23	8.32	8.22	7.87	7.36

Source: realised by the authors based on the information available at http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table accessed at 12.06.2019

In the previous table, we can see the share of the young population in the total local population of the selected towns. Overall, the evolutions were negative in all analysed cases, with low oscillations throughout the analysed period. Decreases of the values are due to demographic involutions. In absolute values, the young population is mostly found in Bucharest, Iaşi, Timişoara, Cluj-Napoca, Braşov, Oradea and Sibiu. However, in relative terms, the highest average values are recorded in Iași, followed by Timișoara, Cluj-Napoca and Oradea, Bucharest, Sibiu and Brașov. These values could be explained by the advantages offered by these cities, as: diverse tertiary education offer and great career opportunities. The many and various career possibilities were the reason for Oradea's great figures, this city facing an impressive development during the last years.
This indicator had a decreasing evolution throughout the analysed period, the share of young people in the total local population diminishing continuously in all selected cities. This phenomenon may be caused by the decrease of demographic growth during the last decades, but also by the emigration of young people who are looking for a better living in other countries.

4.2.3. Culture, recreation and religion local public expenditures

Considering that the stimulation of the economic sectors is also triggered by public expenditure, we selected as a determinant in the development of the local creative economy, the cultural public expenditure of each selected city, the funds allocated to cultural, recreational and religious activities. This budget includes several allocations, such as (Municipiul Oradea, 2019): cultural services; recreational and sports services (sports, maintenance of public gardens, parks, green areas, etc.); other services in the fields of cultural, recreational and religious activities. We included all three sub-categories for several reasons: first, the expenditures on *Other services in the fields of culture, recreation and religion* makes it impossible to separate the expenses, and so a part allocated for the cultural activities would miss; second, another reason is religion, a concerning cultural diversity, tolerance and social inclusion – specific aspects of the creative economy; and the last reason concerns recreational and sports services that are considered amenities of the city.
On the other hand, the local public expenditure on Cultural, recreational and religious activities needed also a qualitative analysis, conducted by reporting the absolute values to the total local budget firstly, and secondly, by reporting the same absolute values to the local population, an approach prefferd also by the National Institute for Cultural Research and Training in the calculation of various indices regarding the cultural vitality of Romanian cities (Croitoru et al., 2018, p. 10). So the local public expenditure on cultural, recreational and religious activities was analysed as in absolute values, but also as share of the local public expenditures on cultural, recreational and religious activities in the total local expenditures and per capita local public

expenditures on cultural, recreational and religious activities in the selected creative cities (lei / capita). During the analysis, the funds allocated to cultural, recreational and religious activities had a favourable evolution in all selected cities. The highest average values were recorded in Bucharest, which was followed at a considerable distance by Timișoara, Sibiu, Iași, Oradea, Cluj-Napoca and Brașov. However, during the ten years of analysis, we can notice a steady growth in all cities' budgets, but the most significant increases belong to Bucharest and Sibiu, the latter being one of the cities with the largest funds allocated on culture in 2017, alongside with Timișoara and Bucharest. Contrary to the other aspects analysed, during the analysed period, Cluj-Napoca recorded some of the lowest expenditures compared to those of the other cities.

Table 6. Local public expenditures on Cultural, recreational and religious activities (Millions lei)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	653	402	591	533	557	443	459	487	572	914
Cluj - Napoca	-	29	20	32	31	24	32	35	47	40
Timișoara	75	73	65	62	71	77	84	102	118	124
Sibiu	19	20	21	23	28	33	34	38	87	108
Brașov	-	-	27	17	22	23	20	23	30	56
Iași	-	-	34	30	44	38	55	58	48	63
Oradea	29	18	24	31	52	61	46	88	52	60

Source: realised by the authors based on the information available at http://www.oradea.ro/subpagina/buget, https://www.primariatm.ro/index.php?meniuId=2&viewCat=26&viewItem=4763, https://www.sibiu.ro/index.php/primaria/bilanturi, http://www.primaria-iasi.ro/portal-iasi/pmi/informatii-de-interes-public/97/bugetul-local, https://primariaclujnapoca.ro/bugete-si-executii-bugetare/bugete-generale/, https://www.sibiu.ro/index.php/primaria/buget, https://site.judbrasov.ro/page_Situa-ii-Financiare_30.html accessed at 12.06.2019

On the other hand, analysing the share of these expenditures in the total local expenditures of each analysed city, we will find the highest values also in Bucharest and Sibiu, followed by Timișoara and Brașov; Cluj-Napoca records once again the lowest share of the expenditures for cultural activities/ projects, in this case, with an average of 4.33% (Table 7).

Table 7. Share of the local public expenditures on Cultural, recreational and religious activities in the total local expenditures (%)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	19.88	11.78	16.02	15.41	15.47	13.17	11.7	13.26	15.43	18.74
Cluj - Napoca	-	4.47	3.44	4.42	4.18	2.90	3.18	3.14	6.43	7.20
Timișoara	8.78	9.81	9.29	9.10	9.76	7.44	7.58	8.73	11.74	11.60
Sibiu	4.69	4.57	8.96	7.83	10.49	9.23	10.7	12.70	15.16	14.56
Brașov	-	-	10.32	6.84	9.37	10.38	7.77	8.03	8.64	13.37
Iași	-	-	7.60	4.08	5.73	3.94	5.59	6.45	6.62	6.86
Oradea	5.66	3.32	4.69	5.74	6.73	2.34	7.25	8.46	8.36	7.70

Source: realised by the authors based on the information available at http://www.oradea.ro/subpagina/buget, https://www.primariatm.ro/index.php?meniuId=2&viewCat=26&viewItem=4763, https://www.sibiu.ro/index.php/primaria/bilanturi, http://www.primaria-iasi.ro/portal-iasi/pmi/informatii-de-interes-public/97/bugetul-local, https://primariaclujnapoca.ro/bugete-si-executii-bugetare/bugete-generale/, https://www.sibiu.ro/index.php/primaria/buget, accessed at 12.06.2019

Generally, the share of expenditures increased from a year to another, Oradea recording the largest increase, 7%, while Iași was the only one that encountered oscillations.
We chose to analyse these expenditures also by referring them to the existing population in the selected cities. Table 8 reveals a general favourable evolution. In most cases the values managed to double during the ten years of analysis, yet Sibiu is the city with the most significant growth, i.e. an increase of 524 lei / inhabitant. On average, the highest values of expenditure on cultural, recreational and religious activities per capita were recorded in Bucharest and Timişoara, followed by Sibiu and Oradea, considerably lower -, Iași, Cluj-Napoca and Brașov. Cluj-Napoca recorded some of the lowest values, well below the other cities included in the analysis, highlighting that the significant creative performance of this city is not dependent on the public expenditures.
Analysing the per capita local budget expenditures allocated on cultural activities considering both points of view, we observe that Cluj-Napoca records the lowest values, in opposition with the previous situations; this proves that the creative economy of this city is not based on the public contribution.

Table 8. Per capita local public expenditures on Cultural, recreational and religious activities in the selected creative cities (lei / capita)

Year / City	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
București	302	186	273	247	259	207	217	231	272	434
Cluj - Napoca	-	92	63	99	96	75	100	109	145	124
Timișoara	225	218	193	185	214	232	251	305	356	374
Sibiu	112	118	123	136	163	193	202	225	515	636
Brașov	-	-	91	57	75	78	70	78	104	192
Iași	-	-	103	91	131	109	154	161	130	169
Oradea	129	80	108	139	231	271	205	395	233	269

Source: realised by the authors based on the information available at http://www.oradea.ro/subpagina/buget, https://www.primariatm.ro/index.php?meniuId=2&viewCat=26&viewItem=4763, https://www.sibiu.ro/index.php/primaria/bilanturi, http://www.primaria-iasi.ro/portal-iasi/pmi/informatii-de-interes-public/97/bugetul-local, https://primariaclujnapoca.ro/bugete-si-executii-bugetare/bugete-generale/, https://www.sibiu.ro/index.php/primaria/buget, https://site.judbrasov.ro/page_Situa-ii-Financiare_30.html accessed at 12.06.2019

5. THE ANOVA METHOD IN THE ANALYSIS OF THE LOCAL CREATIVE ECONOMIES' CATALYSTS

In order to test if there is any real dependence of the creative economy's dimensions on the student population, young population or expenditure on cultural activities, we chose to apply the ANOVA method, studying the correlation between the number of employees and the recorded turnover of the local creative and cultural industries, and the share of students in the local population of the selected cities (x1), the share of the students in the total number of Romania's students (bachelor) - (x2), the share of young population in the total local population (x3), the share of the local public expenditure on Cultural, recreational and religious activities in the total local expenditure budget (x4) and the local public expenditures on Cultural, recreational and religious activities per capita (x5), all in the selected creative cities.
We have computed the coefficient of correlation R^2 in order to measure the intensity of the correlation between the dependent variable and its factors of influence; the results confirm the existence of a direct and strong correlation between the number of employees of the local creative industries (dependent variable) and the selected catalyst factors (independent variables) for each

city. In all the cases the values of R^2 were very close to 1, and the residual variance indicates that the influence of the catalysts selected is statistically significant.

Table 9. ANOVA method – between the number of employees of the local creative industries and the independent selected variables

Statistics / City	R^2	Explained variance	Residual variance	Total
București	**0.9781**	220463956	8243321	228707277
Cluj - Napoca	**0.9942**	37332481	360439	37692920
Timișoara	**0.9648**	2274809	138304	2413113
Sibiu	**0.9921**	1148851	15204	1164055
Brașov	**0,.979**	1621264	57846	1679111
Iași	**0.9315**	5222621	639796	5862418
Oradea	**0.9771**	2239447	87463	2326910

Source: own calculation at 18.06.2019

On the other hand, the correlation between the recorded turnover of the local creative industries and its determinants is also confirmed by the very high values of the coefficient of correlation R^2 as presented below in Table 10. The residual variance records lower values than the explained one, for selected city. Once again, the existence of a correlation between the catalysts and the recorded turnover of the creative cities is confirmed.

Table 10. ANOVA method between the recorded turnover of the local creative industries and the independent selected variables

Statistics / City	R^2	Explained variance	Residual variance	Total
București	**0.9965**	40524396060393	232734598882	40757130659275
Cluj-Napoca	**0.9814**	2690513245529	84823471333	2775336716862
Timișoara	**0.9914**	368757678718	5308636637	374066315355
Sibiu	**0.992**	38961910716	521946932	39483857648
Brașov	**0.9659**	284049300663	16690156656	300739457319
București	**0.9965**	40524396060393	232734598882	40757130659275
Cluj-Napoca	**0.9814**	2690513245529	84823471333	2775336716862

Source: own calculation at 18.06.2019

This regression analysis has considered the aggregate influence of all five catalysts. We omitted, one by one at a time, each of the determinants aiming to determine the value of R^2 in each case and so, to see how much the results are affected if one of the independent variables is left outside of the regression model. We will analyse the results knowing that in the following tables the meaning of the notations is as follows:

- x1: the share of the students in the total local population;
- x2: the share of the students in the total number of Romania's students (bachelor courses);
- x3: the share of young population in the total local population;
- x4: the share of cultural expenditure on Cultural, recreational and religious activities in the total local expenditure budget;
- x5: Local public expenditure on Cultural, recreational and religious activities per capita in the selected creative cities (lei / capita).

Analysing the changes brought by the elimination of each catalyst, in the case of Bucharest we see that R^2 doesn't change significantly, yet the most important variation occurs when we do not consider the local public expenditure on culture / capita (x5), this catalyst having the greatest influence on the number of individuals employed in the creative and cultural industries of Bucharest.

Considering Cluj-Napoca, we still notice the high values of the correlation ratio, but the highest variation is caused by eliminating the share of the students in the total local population (x1); this confirms the great importance of the university centre due to the future labour pool – students in training – ensuring so the employability of the human resource in the creative economy.

Timișoara is similar with the capital, the correlation between the number of employees in the creative industries and the influencing factors being most affected by the elimination of the local public expenditure on culture / capita (x5). Thus, we could conclude that in this city the local budget's allocations create opportunities for the local private creative and cultural activities.

Another similarity occurs when we assess Sibiu, this one facing the same situation as Cluj-Napoca, the correlation ratio recording the highest variation after the removal of the variable x1 from the regression model. However, something is different, more exactly the variations resulted from the removal of the variable x5 and x4 are pretty important, these two variables being related to the local budget for culture. The human resource engaged in the local creative industries is closely related to the share of the students in the total local populations, these bringing the labour supply, but there is also a much less significant correlation with the public expenditure on culture.

In what regards Brașov, the correlations is still strong, but it is most affected by the removal of the variable x3 (young population) from the regression model, while the removal of variable x1 produces extremely insignificant changes. These variations lead us to notice the importance of the young population in Brașov, but no longer enrolled in tertiary education. However, we can not argue if this population is valuable for the creative economy only after graduating (we could not take into consideration the graduate population) or that higher education is not important in hiring in the local creative industries.

Iași presents an odd situation; the correlation ratio is strongly affected by the removals of variable x1, and then variable x3. The removal of the first catalyst has led to an average correlation between the number of persons employed in the local creative economy and the selected catalysts, which proves us concretely the dependence of this city's creative economy on the student population. On the other hand, the removal of variable x3 has led to a moderate correlation, which proves that the creative economy of this city needs young persons enrolled in higher education or graduates.

A considerable variation of R^2 occurs also in the case of Oradea when variable x1 is removed, confirming so the essentiality of the student population also in the creative economy of this city. The other determinants did not produce any significant changes, x1 the only variable that weakened the correlation between the number of employees and the selected catalysts.

Considering the analysis of the correlation between the recorded turnover and the selected catalysts, removed one by one at time, we notice a similar situation as previously presented in analyzing the correlation between the number of employees in the creative economies and the five influencing factors.

Thus, in Bucharest, the greatest change was produced by the removal of variable x1, the share of students in the total local population, even so the correlation remains strong. Regarding Cluj-Napoca, both variables related to the student population, by each removal, considerable changes have been produced, confirming again the essential role played by the students in the creative economy of this city.

The recorded turnover of Timișoara also depends on the local public expenditure on culture, removing the variables regarding this aspect, modifies mostly each time the values of R^2. Considering Sibiu, again the removal of x1 brings the most significant changes, and besides the changes produced by the removal of the variable regarding the young population (x3), we could

believe that the young population enrolled in higher education presents a particular interest for the creative economy of Sibiu.

Table 11. The catalysts' influence on the number of employees of the local creative industries (ANOVA method)

Statistics / City	R^2 (aggregate)	R^2 without x1	R^2 without x2	R^2 without x3	R^2 without x4	R^2 without x5
București	0.9781	0.9645	0.9615	0.9639	0.9643	0.9359
Cluj-Napoca	0.9942	0.9781	0.9804	0.9905	0.9915	0.9921
Timișoara	0.9648	0.9645	0.9615	0.9639	0.9643	0.9359
Sibiu	0.9921	0.9347	0.9907	0.9916	0.9895	0.9846
Brașov	0.979	0.979	0.9785	0.9731	0.9764	0.9780
București	0.9315	0.6727	0.9256	0.8019	0.9315	0.9306
Cluj-Napoca	0.9771	0.8096	0.921	0.9663	0.9749	0.9686

Source: own calculation at 18.06.2019

The creative economy of Brașov is dependent on the young population, the removal of variable x3 producing the most drastic changes. Iași and Oradea reveal the same situations that confirm the correlation of the local creative economies on the existing student pools. In Iași, the correlation becomes moderate by eliminating the variable x3, the young population of Iași is particularly important, even after graduating, generally higher education.

Table 12. The catalysts' influence on the recorded turnover of the local creative industries (ANOVA method)

Statistics / City	R^2 (aggregate)	R^2 without x1	R^2 without x2	R^2 without x3	R^2 without x4	R^2 without x5
București	0.9965	0.9779	0.9824	0.9956	0.9954	0.9964
Cluj-Napoca	0.9814	0.9566	0.9665	0.9766	0.9805	0.9812
Timișoara	0.9914	0.9913	0.9904	0.9892	0.9914	0.9485
Sibiu	0.992	0.9671	0.9907	0.9874	0.9913	0.9885
Brașov	0.9659	0.9642	0.9653	0.9575	0.9635	0.965
București	0.9476	0.7325	0.9402	0.7675	0.947	0.9476
Cluj-Napoca	0.9653	0.8194	0.9193	0.9407	0.9597	0.9586

Source: own calculation at 18.06.2019

The influence of the selected catalysts is confirmed by the analysed correlations, but in most of the cases the strongest influences came from the student population (both variables), which is particularly important for the creative economies of Iași, Oradea, Cluj-Napoca and Sibiu. Another powerful catalyst is the local public expenditure on culture / capita, this factor stimulating the creative economies of Timișoara and Sibiu. Brașov has an atypical situation, its creative economy being mostly correlated to the local young popualion.

5. CONCLUSIONS

All economic activities imply a degree of creativity, but for the activities of the creative economy, creativity represents the main resource, the fuel. The cultural elements of the human activity often

describe creativity as, more exactly: aesthetic sense, imagination, inclination towards innovation. Together, these elements have potential in creating added - value.

In our study, we aimed to figure out which are the catalyst factors of the creative economy, so by creating the two previous regression models, we correlated the number of persons working in the creative industries, and then the recorded turnover of these local industries, with five variables, regarding aspects such as: student population, young population and local public expenditure on cultural activities. Our results proved that the correlations between these variables are statistically significant; as regards both the number of employees and the recorded turnover of the local creative industries of each selected city, the regression models confirmed the existence of direct and strong correlations between them and their influence factors. Removing one by one each factor at a time, the correlations weakened in each case, but the most significant changes appeared so:

- In Bucharest, the changes of the correlation coefficient were not significant in any of the cases, the most important change occurring by removing the variable x5 – local public expenditure on cultural activities / capita – in analysis the influence on the number of employees; otherwise, when we analyse the correlation with the recorded turnover, another variable stood out – variable x1, the share of the students in total local population. Thus, we could conclude that regarding the employment in the creative economy of this city, the public allocation on cultural activities are important by creating opportunities for the creative business environment; on the other hand, regarding the turnover, students are important as labour supply, but also for their consumption of creative and cultural goods and services.
- In Cluj-Napoca, for both dependent variables, the correlations suffered the most drastic changes by removing x1; the situations confirms the creative economy's need for a training pool and as mentioned previously, this is important for both the labour market as potential labour supply and also for the creative and cultural market, students and young people, generally, being large consumers of creative products and services.
- Timișoara's creative economy finds a real support in the public allocation on cultural activities; this fact was confirmed by analyzing both correlations, and the removal of variable x5 brought major changes.
- For Sibiu, the most signficant influences on the coefficient of determination were caused by removing the variable x1,the share of student population in the total local population. However, the correlation weakened also when we removed the variable x5 – public expenditure on cultural activities / capita. Along with the student population, the local public allocations are essential for Sibiu, stimulating the creative business environment and the specific consumption.
- A particular case of that of Brașov, the correlations weakened when we removed the variable representing the share of young population in the total local population (x3); the local creative economy finds labour supply among the young persons, and just like the students, these are highly inclined toward cultural consumption, thus stimulating the sales of creative and cultural goods and services.
- Also for Iași the student and young populations are highly important, the creative economy of this town being dependent on these factors, as we have seen in the correlation analysis; removing one of these factors that changed the intensity of the correlation between each economic dimension (the dependent variables) and the others catalytic factors.
- Oradea's creative economy appears also to rely on the student population, because significant changes of the correlation's intensity were produced after removing variable x1. So just as in the cases of Cluj-Napoca, Iași and Sibiu, the creative economy of this city is strongly dependent on the student population.

All the catalysts included in our analysis are influential, but the strongest catalysts of the local creative economy, in considering only the selected citites, are the share of the student population in the total local population, the local public expenditure on cultural activities / capita and the share of young population in the total local population.The local population's structure and the public

allocations on cultural activities stimulate the cultural consumption, and also the business environment, and so create opportunities for the creative economy's development.

We noticed the dynamic evolution of the creative economy, which continually grew through the years following the economic crisis proving sustainability, and ability to adapt, offering goods and services needed also during difficult times; as the President of the Athens and Epidaurus Festival, Yorgos Laukos, said: "Art is great antidote to crisis, and enables creators to think differently while it gives people a real appetite and enthusiasm for culture" (EY, 2014). Thus the creative economy's sustainable development could stimulate long-term perspectives, minding the capacity of the environment and its existing limitations, and so behavioural changes towards environmentally - friendly processes. As the natural resources deplete, according to Newbigin (2010, p. 20) "the value of creativity is only going to go on rising. It will not just be a desirable element in economic activity – it will be the crucial factor in our ability to adapt and survive as a species".

The resources involved, as well as the earnings of the creative economy, prove its existing potential in Romania and make us wonder about the possible values that the creative industries could generate if they were given more attention.

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