Creative industries in the EU: factors influencing employment

Abstract. Introduction. When analysing creative industries, it is not fully clear yet, which factors do influence this phenomenon, and thus how to support its development and functioning. The creative sector employs about 3.3% of the economically active population in the European Union. The aim of this research paper is to test the possible impact of five selected factors on the employment in the creative industries of the European Union. Results. The data represent 135 observations from 27 EU member states, drawn from the Eurostat database in the period of 2008-2012. Our final model confirmed a significant impact of public spending on science and research, employment in science and research and average wages in creative industries. Our model confirmed positive relationship between public spending on R&D and employment in creative industries. Hence, for every increase in expenditures on R&D by 1%, we may expect 0.014% increase in employment in creative industries. Conclusions. Thus, the research confirms the importance of public support for science and research, as it seems that the development of science and research boosts the development of creative industries as well. This could also apply to a general increase in wages.

Keywords: Creative Industries; Employment; Creative Class; Creativity; Science and Research

JEL Classification: Z10; R11

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1. Introduction

In recent years, more attention has been paid to the concept of creative economy. It is not a new concept; however it accurately describes the transformation of the economy and society in the 21st century. Along with further development, man ceases to focus on satisfying the primary needs. There is a room for the application of human creativity. Therefore, creative industries have become recognised at the European level.
level as well. According to the document of the Government of the Slovak Republic (2011), the creative economy - a range of industries based on the use of intellectual creative activity in the field of art, culture and other sectors; it creates a wide exploitative chain extending from the creation of conditions for creative activity, through production and redesign of the results. Creative economy is represented by particular creative industries. The European Creative Union (KEA, 2006) [15] divides creative economy into the cultural sector and the creative sector (see Table 1), which is subdivided into four categories:

- Core industries (arts - visual art, performing artists and heritage);
- Cultural industries (film, video, television, radio, music industry, video gaming sector, the book industry);
- Creative industries (design, architecture and advertising);
- Related industries (the production of computers, mobile phones, multimedia devices).

This division offers also resolves the question of how to differentiate between high culture and mass industry production of creative goods. The art and high culture are essential and represent the core result of human creativity; on the other hand, creative industries refer also to mass production of goods, which resulted from original human ideas, but are mainly intended for practical use or entertainment (crafts, TV production, etc.).

People themselves represent the basis of the creative economy. They bring new ideas to the creative process. Creativity could become a factor for economic growth [19]. Although it is very difficult to grasp and measure creativity, this does not mean that it does not exist or that its economic activity has no effect. In fact, the opposite is true, because creativity drives innovation. Already Solow (1956) [21] stressed the parameter of the current level of technology; the theory of a new paradigm also includes new ideas and creativity in the growth model. The impact of creativity on economic growth is therefore undeniable. Often, creativity represents the first step towards innovation; on the other hand, it does not always lead directly to innovation.

With the development of creative industries, more and more people have become employed in the creative sectors. According to EY (2014) [7], creative sectors employed 3.3% of the economic active population in the EU. However, employment in the creative sectors has some specific characteristics, which we will discuss in the presented paper. The main aim of our article is to confirm the dependence of the employment in the creative industries in the European Union on selected factors. Two models were tested. The factors for the analysis were chosen according to the theory advanced by Florida and the research conducted by Kloudova and Zhang [10; 16]. Due to the lack of proof of the importance of the two variables in the first model, we have created a second model that tested the effect of the following three factors - the size of public spending on research and development, employment in science and research and average wages. We expect that our findings may outline the possibilities of supporting the development of creative industries in the EU.

### 1. Employment in creative industries in the EU and its specifics

According to EY (2014) [7], cultural and creative industries (CCIs) employ more than 7 million Europeans, which represents 3.3% of the workforce. According to the study of the European Expert Network on Culture (EENC), it is approximately 2% of the European workforce [22]. The biggest job makers are sectors such as performing arts, visual arts and music industry. Ernst & Young (EY) claims that creative industries represent the third largest employer in the EU. On the other hand, Stumpo declares that the workforce employed in cultural and creative industries represent only a small part of total workforce in the European Union [22]. Both studies confirm the fact that CCIs can be save harbour in economic crises. Stumpo figured out that those who were employed in CCIs suffered less during the crisis, especially those persons who were self-employed. The fact is also that CCIs remained stable, or even grew, during the crisis years [7].

The employment in CCIs, as well as their development, is unevenly distributed in the European Union. We see several clusters of countries where CCIs dominate, if compared with other industries. The largest economies of the European Union, namely the economies of the United Kingdom, Germany and France hold the leading positions. Yet, favourable positions of smaller countries, such as Finland, Estonia, the Netherlands and the Czech Republic, are even more interesting in terms of research [2].

Table 2 shows the results of the analysis by Stumpo and Manchin [22]. Estonia has the highest employment rate in CCIs, while the highest participation in cultural life is observed in Finland. Public expenditures in culture are the highest in the Czech Republic.

In general, we can observe several specific characteristics of employment in CCIs:

- territorial diversity;
- a tendency to create clusters;
- small and medium enterprises;
- highly qualified employment;
- attractiveness for young people;
- relative resistance to crises;
- significant women’s employment in CCIs;
- impact of other factors such as technologies, innovations and traditions.

Most of the employed in CCIs are self-employed persons or those working at small and medium enterprises. It is the opposite of the dominance of large corporations. The sufficient support for small and medium enterprises is the desired future of the EU and is also part of the Creative Europe programme. Creative industries are also very attractive to young people who search creativity, self-expression, development and non-conformism. It is thus considered that CCIs could be a possible solution for the unemployment problem of young people. Another interesting trend is that a greater proportion of the employed are women [22]. Long-term stability of such

### Table 1: Definition of creative industries in the EU

<table>
<thead>
<tr>
<th>Cultural sector</th>
<th>Creative sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual arts, performing artists, cultural heritage</td>
<td>Design, architecture, advertising</td>
</tr>
<tr>
<td>Film and video, television and radio, music industry, video gaming, books and press</td>
<td>Manufacture of computer, mp3 players, mobile phone market</td>
</tr>
</tbody>
</table>

Source: [15]
employment is another important fact. Mayerhofer, Peltz and Resch (2008) [20] analysed the sustainability of newly created jobs. Contrary to expectations in the Austrian and the region of Vienna. According to this study, the software, multimedia and Internet sectors are most sustainable among the creative sectors. In general, the sustainability of newly created jobs was very high - over 74% after one year of activity and about 44% after three years.

As we consider most of these characteristics to be positive economic outcomes, we decided to analyse which of the factors could positively boost the interest to work in creative industries.

2. Factors which influence creative economy; Richard Florida and creative class

Creative human capital is the core of the creative economy. A man with ideas enters the innovation process. Creativity can thus stimulate innovation in any economic activity. The contribution and role of creative people in the creative economy analysed R. Florida (2002) [10]. Florida created the concept of the creative class represented by the talented people. A creative person is not only an artist, but also a lawyer, an engineer, a comedian or a journalist. The creative class is a rapidly growing segment of the workforce which is educated, qualified and nonconformist. The creative class influences economic growth and corporate profits in the creative industries. Florida introduced a 3T index to measure the factors, which, according to him, influence the development and performance of the creative industries and help to build up creative value. We applied his approach in our research.

Florida described talent, technology and tolerance. According to J. Howkins (2013) [14] talent is something we are born with, however Florida's view is more complex. He stressed the role of education, especially the role of higher education. He proved a positive correlation between higher education and employment in the creative industries in the USA [10]. Therefore, we choose this factor to be one of the most important in our tested model.

Another important factor is technology. Florida concretely describes the positive relation between the number of patents or patent applications and the creative class. It is understandable, since science and research is an essential part of Florida's concept of the creative class. Tolerance is a factor which seemed to be the most controversial, especially in the conditions of the European Union. Florida examined the Gay index. It is very hard to measure this indicator in European countries because we can hardly find any relevant statistics.

Other important factors, which influence the performance and development of creative industries, are:

- High economic level of the country - the higher the level is, the more focus is put on creative activities, leisure time and culture;
- Open social environment and the openness of the country to liberal thinking in particular, since conservative thinking does not create a favourable environment for the development of creative industries;
- Generally available technologies - creative sectors are strongly linked to new technological solutions (e.g. video gaming, music industry, etc.). Therefore, available technologies enable spreading creative industries as well;
- Public support of creative industries and usage of structural funds (case of Baltic countries);
- Creativity - even though creative industry is not a new concept now, there is still a lack of information about this phenomenon.

Florida's research created a basis for choosing our model; however we combined it with the factors used in the study of Kloudova and Zhang (2011) [16].

3. The definition of creative industries in the model and its limits

The quantification of creative industries is very difficult. The problem occurs even with the definition of creative industries. The ambiguity of definitions has several reasons. As J. Kloudova (2009) [18] states, differences result from various perceptions of culture and art in different countries, and a difference in the meaning of the concept of creativity. If creativity is understood as the process of bringing new ideas, opinions, procedures, then it is substantive in each production sector. This is particularly the fact why we cannot include creative industries in the sectorial classification of industries (including the primary, secondary and tertiary sectors). According to Hartley (2004) [12], we can find products of creative industries in each of the mentioned sectors. It is an innovative idea in the knowledge economy that has become the bearer of progress and growth. The question that remains largely unanswered is the relationship and the boundaries between creativity and innovation. For purposes of the analysis, mainly because of the lack of statistical data, we abstracted from the use of the so-called broader Florida's model. Kloudova and Zhang (2011) [16] also used sectors like sport, recreation, banking and insurance, education and healthcare in their analysis of the factors affecting the creative economy in China. These categories were not included in our study, as we intended to include only core sectors. Our goal was to use parameters as close to the definition of creative industries in the EU as possible. We used the data of Eurostat, NACE Rev. 2 (two-digit categorisation used since 2008). The application of this classification, although not quite closely matching the definition of creative industries, seemed the most appropriate compromise because of the lack of statistical data in all EU countries.

We included the following categories in the model:

J.58 - Publishing activities
J.59 - Motion picture, video and television programme production, sound recording and music publishing activities
J.60 - Programming and broadcasting activities
J.62 - Computer programming, consultancy and related activities
J.63 - Information service activities
M.73 - Advertising and market research

In addition to choosing the proper sectors, we also had to define the factors, which were to be analysed. For purposes of our analysis, we used 2 of 3T categories, namely technology and talent. Talent was represented by higher education, as Florida had put it in his study. Technology was represented by the expenditures on research and development and employment in research and technology. Other factors, namely GDP per capita and average wages were chosen based on the study of Kloudova and Zhang (2011) [16].

Table 3 represents a comparison of different approaches to creative industries.

4. Model

4.1. Hypotheses

To determine potential impact factors, we used several theoretical backgrounds. We understand creative economy as an economy bringing in new, creative ideas, solutions and practices via using creativity. It can be expected that such an economy is mainly typical of developed countries, because people there do not focus their attention only on meeting the primary needs. Thus, GDP per capita was the first factor which we examined. Our first hypothesis was:

H1: Along with an increase in GDP per capita, employment in creative industries also grows.

When choosing other factors, we used Florida's research (2003) [9] and approach of Kloudova and Zhang (2011) [16]. Florida takes into account the factor of education, particularly higher education, for several reasons. Educational institutions carry out scientific research; they help to develop the region where they are located. These institutions also attract talented, innovative and entrepreneurial people to the region or city. University graduates are becoming key candidates for employment in creative industries. An important asset of higher educational institutions is also promotion of self-expression, open thinking and acceptance of new ideas. On this basis, we may suppose that creative industries will concentrate in places where higher educational institutes are located.

Thus, we created our next hypotheses:

H2: Along with the higher share of university graduates in total employment, employment in creative industries is bound to grow.

We decide to analyse the impact of the amount of money spent on research and development because we take into account the impact of educational institutions. However, it
should be noted that the data entered into the analysis related only to public, not private, expenditures on research and development across the EU.

H3: Along with an increase in spending on research and development, employment in creative industries also grows.

H4: Along with an increase in employment in science and research, employment in the creative industries also grows.

Wages was the last factor we chose for our analysis. This factor is one of the major, it has an impact on employment. Hence, we propose another hypothesis for our analysis:

H5: Along with an increase in average wages, employment in creative industries also grows.

### 4.2 Dependent variable

The dependent variable in this model is the employment in creative industries shown as a percentage of the employees in total employment.

To determine creative industries, we used the categories listed in Section 2.1. The data for the period of 2008-2012 were drawn from the Eurostat database for the 27 EU member states.

### 4.3 Independent variable

Based on the hypotheses, the independent variables in the model are: GDP per capita (Purchasing Power Standards (PPS)), the share of university graduates in total employment, expenditures on R&D as a share of the total public expenditures and average monthly wages. All the data were drawn from the Eurostat database in order to maintain data consistency. We analysed two models. In the first model, we chose GDP per capita (PPS), the share of university graduates in total employment (%), expenditures on R&D (% of total public expenditures), employment in science and research (%) and average monthly wages as predictors.

The equation of the model is:

\[
y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \epsilon, \tag{1}
\]

where \(y\) is the share of employees in creative industries relevant to total employment (%);

\(x_1\) is GDP per capita (PPS);

\(x_2\) is the share of university graduates in total employment (%);

\(x_3\) is expenditures on R&D (% of total public expenditures);

\(x_4\) is employment in science and research (%);

\(x_5\) is average monthly wages expressed as a proportion of average monthly earnings (%);

\(\epsilon\) is the parameter of statistical error.

The results showed a significant effect of the three variables, namely \(x_3 (\beta = 0.0071; p < 0.001)\); \(x_4 (\beta = -0.0000779; p = 0.008)\); \(x_5 (\beta = 0.00000401; p = 0.01)\) had a significant impact on employment. Hence, we decided to use the second model, where we excluded the variables \(x_1\) and \(x_2\). The equation of the model has the form:

\[
y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \epsilon, \tag{2}
\]

where \(y\) is the share of employees in creative industries in total employment (%);

\(\beta_1\) and \(\beta_2\) were not significant.

\(\beta_3 = 0.0000693; p = 0.006)\); \(\beta_4 = -0.0000377; p = 0.006)\); \(\beta_5 = 0.00000041; p = 0.006)\) were not significant.

The results of the second model indicate a significant relationship between the variables \(x_1, x_2, x_3\) and employment in the creative industries (\(R^2 = 0.481; F(3, 111) = 13.355, p < 0.001\)). The variables \(x_1, x_2, x_3\) contribute to the explanation of about 46.7% of the variance in the employment in creative industries.

The equation of the model has the following form:

\[
y = 0.05 + 0.014x_1 - 0.0000693x_2 + 0.00000041x_3, \tag{3}
\]

### Tab. 3: Definition of creative industries - comparison of approaches

<table>
<thead>
<tr>
<th>Tab. 3: Definition of creative industries - comparison of approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition in our analysis</strong></td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Publishing activities</td>
</tr>
<tr>
<td>Motion picture, video and television program production, sound recording and music publishing</td>
</tr>
<tr>
<td>Radio and television broadcasting</td>
</tr>
<tr>
<td>Computer programming, consultancy and related services</td>
</tr>
<tr>
<td>Information services</td>
</tr>
<tr>
<td>Advertising and market research</td>
</tr>
<tr>
<td>Legal service</td>
</tr>
<tr>
<td>Education</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors

### Tab. 4: Summary output of the first model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standardised coefficient</th>
<th>Standard error</th>
<th>t - statistics</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure on R&amp;D</td>
<td>0.014</td>
<td>0.434</td>
<td>0.002</td>
<td>5.596</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Employment in science and research</td>
<td>-0.0000093</td>
<td>-0.246</td>
<td>&lt; 0.001</td>
<td>-3.409</td>
<td>0.001</td>
</tr>
<tr>
<td>Average monthly wages</td>
<td>0.00000041</td>
<td>0.433</td>
<td>&lt; 0.001</td>
<td>5.752</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

### Expenditures on research and development

Our model confirmed statistical significance of the assumed hypothesis. The relationship between public spending on research and development and employment in creative industries is positive. For every increase in expenditures on R&D by 1%, we can expect an increase in employment in creative industries by 0.014%.

### Employment in science and research

The model confirmed a negative correlation between employment in science and research and employment in creative industries. The fall in employment in science and research by 1% is followed by a 0.0000693% increase in employment in creative industries or vice versa. It can therefore be concluded that science and research takes potential employees out from creative industries. This is due to very similar characteristics of employees in both sectors (university educated, innovative, and open, intellectuals). Thus, these two sectors are competitors in terms of labour force.

### Average wage

Along with an increase in the share of average wages in the average monthly income of 1%, an increase in employment in...
The Rise of the Creative Class. And How It’s Transforming Work, Leisure, Community and Everyday Life.


5. Department of Communications and the Arts of Australia (1994).


Conclusions and discussion
Creative industries are now in the centre of attention of academicians and researchers due to their possible impact on economic growth. In this paper, we have investigated the influence of selected factors on the employment in the creative industries. When selecting the variables we used the theoretical materials advanced by Florida and Kloudova and set five basic hypotheses. The model confirmed the significance of the effect of the three factors - expenditures on research and development, employment in science and research and average wages. Although the factors such as expenditures on R&D and the value of average wages as a proportion of the average monthly earnings have shown positive statistical significance and therefore confirmed our hypotheses, the factor of employment in science and research and employment in creative industries have demonstrated a negative correlation, which is inconsistent with our hypothesis.

The obtained results may be justified by the difference between the concepts of creative industries. In our model, we used the definition given by the EU. However, Florida classifies scientists and researchers to be the employees of creative industries. Thus, if we apply his view, then the employment of scientists and researchers is the employment in creative industries. In this case, the relationship between the employment in science and research and the employment in creative industries is irrelevant. Hypothesis H4 was therefore not confirmed. From the first proposed model, we also excluded two factors, i.e. GDP per capita and the share of university educated employees in total employment. We decided to use the factor of GDP per capita based on the research conducted by Kloudova and Zhang (2011) [16], who used this factor when examining creative industries in different regions of China. Since the effect of this variable was not confirmed for China as a developing country, we tested the effect of the size of GDP per capita on employment in developed countries of the EU. Even in this case, the factor did not show any statistical significance.

The role of creative industries in various EU countries is significantly different. The limits of the model are mainly due to insufficient data. Information about creative industries has not yet been collected in all the member states at the same level; many measurements are missing. It is only possible to evaluate the development since 2008, since the time when the data categorisation NACE Rev. 2 has been available. Thus, the factors which may possibly impact the employment in creative industries were chosen according to the availability of data.

In practice, the results of the model could be applied in developing countries to support creative industries in the EU member states. The most significant finding considers the impact of expenditures on science and research on employment in creative industries. If we are currently talking about the knowledge economy and in the future we will talk about the creative economy, then one of the objectives of the EU should be a systematic support for the development of creative industries. One possible way of promoting such development is to increase the share of expenditures on research and development. Finally, the support for inclusive growth is one of the main pillars of the Europe 2020 strategy.

A great number of other factors impacts creative industries - from an adequate institutional environment, the support from the part of the government and the private sector to the appropriate legal environment, effective legal protection and effective solutions to the problem of piracy. However, there is no relevant statistical database. In addition, the data available are often too aggregated. Further, we find it necessary to create a consistent methodology for data collection in creative industries both for the EU and its individual member states.

References


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