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The Creative Class Goes Global brings together detailed studies of the creative class in cities across the globe, examining the impact of the creative class on growth and development. The countries covered include the United Kingdom, the Netherlands, Germany, Australia, China, Japan and Canada, in addition to the United States. Taken together, the contributions deepen our understanding of the creative class and the various factors that affect regional development, highlighting the similarities and differences between the creative class and economic development across countries.

This book will be of great interest to scholars of economic geography, regional economics, urban sociology and cultural policy, as well as policy-makers involved in urban development.

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THE CREATIVE CLASS GOES GLOBAL

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REGIONS AND CITIES

EDITED BY CHARLOTTA MELLANDER, RICHARD FLORIDA, BJØRN T. ASHEIM AND MERIC GERTLER

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11 The location of the creative class in seven European countries

Ron Boschma and Michael Fritsch

Introduction

A debate has recently emerged about the role of creative people on economic growth (Lang and Danielsen, 2005). In his book, *The Rise of the Creative Class*, Richard Florida (2004) argued that creative people are a key driver of urban and regional development. According to his empirical analysis for the USA, the creative class is not evenly distributed among cities and regions, and rather, is especially attracted to places, which are characterized by an urban climate of tolerance that is open to new ideas and newcomers. Florida states that it is this type of 'people climate', rather than 'business climate' (such as low taxes or good infrastructure *per se*) that is crucial for regional growth. He argues that creative people induce and attract new economic activities, such as start-ups and high-tech firms.

However, there are hardly any empirical studies available that provide information on creative people in countries other than the USA, or that make a systematic comparison between regions in different countries. This chapter aims to fill in this gap. We present results of a large research project on the creative class and regional development in seven European countries: Denmark, Finland, Germany, Netherlands, Norway, Sweden, and the United Kingdom (see Boschma and Fritsch, 2009, for details). In this research project, data on creative employment and development at the regional level have been collected by using similar definitions, thus, trying to make the information comparable between the countries.

We deal with two research questions. First, how concentrated is the distribution of the creative class among European regions? Second, what are the determinants of the share of creative population in a region? In the following section, we briefly set out the main ideas of Richard Florida's work that will be tested with the European data set. Section 3 provides details on this data set, and section 4 summarizes the spatial distribution of the creative class in the seven European countries. In section 5, we will explain this European pattern by means of a regression analysis. The final section (section 6) draws conclusions.

The creative class, urban climate and regional growth

A basic idea of Florida's (2004) work on the role of the creative class for economic development is that geography matters. He asserts that the creative class is especially attracted to places that are characterized, among other things, by a tolerant urban climate that is open to new ideas and to newcomers. According to Florida, creative people tend to be attracted to tolerant and open regional societies that are home to a diversified group of people with different cultural and ethnic backgrounds. The main reason for this preference is that diversity serves as a source of inspiration in the innovation process (Andersen and Lorenzen, 2005). In addition, the creative class attaches great value to urban facilities and cultural services such as cinemas, bars, museums, art galleries, restaurants and trendy shops. In other words, Florida places emphasis on the socio-cultural underpinnings of regional development. It is an urban culture characterized by tolerance, diversity and open-mindedness that constitutes an important asset for economic development because it attracts creative class people (Peck, 2005). These are not places with high levels of social capital that consist of homogeneous communities with strong ties between their members, as according to Florida (2004), these environments tend to suppress creativity and new ideas.

According to Florida, this type of 'people climate' provides an environment that is conducive to regional growth. This stands in contrast to conventional beliefs that refer to quality of places in terms of 'business climate' characteristics, such as low taxes or good infrastructure. The essence of Florida's proposition is that instead, places with a good 'people climate' retain and attract creative people who, in turn, induce new economic activities, such as start-ups and high-tech firms. Therefore, the creative class is not attracted to places with high growth *per se*. On the contrary, regional growth is expected to be more of an outcome of the presence of creative people, or in the terminology of Florida, jobs will follow people instead of people following jobs.

With its focus on creative people, Florida argues that it is what people actually do is what enhances regional growth, rather than their sector affiliations or educational attainment (Markusen and Schrock, 2006; Markusen *et al.*, 2008). This abandonment of an industry perspective implies that urban and regional growth is primarily based on creative occupations that are not industry-specific. Though creative and cultural industries have attracted a lot of attention in this respect (Power and Scott, 2004), the creative class is found not only in those industries (Stam *et al.*, 2008). This take also makes Florida's approach different from the literature on agglomeration externalities (such as Glaeser *et al.*, 1992) that merely focuses on the question whether regional specialization or regional diversity enhance innovation and regional growth. Instead of concentrating on regional externalities between firms and industries, Florida focuses on creative individuals who generate spillovers and innovation in a region (Stolarick and Florida, 2006).

Florida's ideas about the role of the creative class for economic development have also induced considerable controversy. A major part of the debate concerns

the question whether creative people are really different from educated and skilled persons. According to Glaeser (2004), creative capital equals human capital, as most, if not all, members of the creative class are skilled and highly educated individuals. Therefore, Glaeser claims that it is no use to include creative capital in a growth model that already accounts for the effect of human capital. Running regressions using Florida's data, Glaeser's analysis shows that human capital removes the positive effect of the creative class on urban growth in the USA in the 1990s. In fact, the creative class variables become negative and statistically insignificant in his regressions when adding human capital.

Another related issue that remains almost untouched in Florida's thesis is the importance of knowledge spillovers for regional growth. All that matters is the presence of the creative class; cities grow more when they attract a disproportionate share of creative people, not because cities cause the creative class to be more productive and more innovative. Other critiques of Florida's work mainly concern empirical issues (see e.g., Hansen and Niedomysl, 2009), which will be dealt with in subsequent sections.

The measurement of the creative class

In his empirical analyses, Florida (2002a; 2002b; 2003; 2004) based his definition of the creative class on professions, not industries. According to Florida, the creative class is a category of people who are engaged in creative, innovative jobs that can be found in every industry. Creative people are defined as workers who are engaged in identifying problems, figuring out new solutions and combining pieces of knowledge in new and innovative ways. While the general idea behind the creative class may sound plausible and appealing, its definition and measurement are still problematic. A main weakness of this kind of definition is that assigning certain professions to the creative class tends to be biased towards the highly educated, largely excluding creative people in occupations that require low or no level of education (Markusen and Schrock, 2006; Markusen *et al.*, 2008).

In our empirical approach, we have used Florida's definition of the creative class for a purely pragmatic reason. One of the objectives of the European project was to conduct a comparative analysis of European regions similar to the study for the USA. Using comparable definitions (based on professions) allows us to investigate the similarities and differences between the US and the European case. Three steps have been taken to define and measure the creative class:

As a starting point, we adopted the definitions of creative occupations as given by Florida (2004). We followed his idea of distinguishing between the creative core, creative professionals and bohemians. Creative core members are those individuals who invent. They basically are comprised of occupations in Research and Development and higher education. Creative professionals include educators, managers and health care professionals. Bohemians are engaged in cultural and artistic occupations. Bohemians fulfil two roles: they are part of the creative class, and they reflect

an urban culture of tolerance; thus they act as a key factor in attracting the two other categories of creative people. According to Florida, the creative core and the bohemians are mainly engaged in 'problem finding' activities, i.e., creating new ideas, knowledge, technology, designs and content. By contrast, creative professionals are active in 'problem solving' activities. We largely followed Florida's work in assigning the professions to these three main categories.

In order to secure international comparisons, we used the International Standard Classification of Occupations (ISCO 88) to select professions that belong to the creative class. This classification scheme has been developed by the International Labour Office (ILO) and is based on the types of skills that are necessary to conduct a profession. The selected 3-digit ISCO categories are presented in Table 11.1.

Each country team applied these classifications to their national data sources. Due to data availability and different ways of measurement, it is unavoidable that country-specific effects may occur in the data, which result in limited comparability between countries. In our analyses, we will account for this problem by including country dummies in our estimation models.

Table 11.1 The creative occupations (ISCO)

Groups of creative people	*Occupations (ISCO-Code)*
Creative core	Physicists, chemists and related professionals (211); Mathematicians, statisticians and related professionals (212); Computing professionals (213); Architects, engineers and related professionals (214); Life science professionals (221); Health professionals (except nursing) (222); College, university and higher education teaching professionals (231); Secondary education teaching professionals (232); Primary and pre-primary education teaching professionals (233); Special education teaching professionals (234); Other teaching professionals (235); Archivists, librarians and related information professionals (243); Social sciences and related professionals (244); Public service administrative professionals (247)
Creative professionals	Legislators, senior officials and managers (1); Nursing and midwifery professionals (223); Business professionals (241); Legal professionals (242); Physical and engineering science associate professionals (31); Life science and health associate professionals (32); Finance and sales associate professionals (341); Business services agents and trade brokers (342); Administrative associate professionals (343); Police inspectors and detectives (345); Social work associate professionals (346)
Bohemians	Writers and creative or performing artists (245); Photographers and image and sound recording equipment operators (3131); Artistic, entertainment and sports associate professionals (347); Fashion and other models (521)

Because of the special character of bohemian occupations, we depart from Florida's approach (2004) of including bohemians in the creative core and instead create a separate category specifically for them. Accordingly, we use two different definitions of the creative class: Creative Class A is the sum of the Creative Core and the Creative Professionals; Creative Class B contains the Creative Core, the Creative Professionals, and the bohemians.

After identifying the professional categories of the creative class, we calculated their numbers in each country and region, making use of national employment data that are provided by profession and by region in or around the year 2002.[1] Our results show that the creative class (including the bohemians) consists of about 26,065,907 persons in 2002, which comprises about 37.7 per cent of the total workforce in the seven European countries, and about 15 per cent of their total population. The total workforce was calculated for each country as the total number of workers who work at least half the regular full-time employment hours per week. The Creative Professionals form the largest category (18,179,184 persons), followed by the Creative Core (6,782,995 persons). The number of bohemians is comparatively small, amounting to 1,103,728 employees.

The spatial distribution of the creative class in Europe

For most of the countries, the data are available at the level of NUTS III–regions, which more or less correspond to city regions or labour market areas.[2] At this rather detailed spatial scale, the place of residence and place of work are expected to coincide. The data set we use comprises information for 471 regions.

In the regions of the seven European countries as a whole (Table 11.2), the descriptive statistics of the share of the creative class are in line with Florida's statement that the creative class is highly unevenly distributed across geographic space. For example, the lowest share of the creative class records a share of almost 3 per cent, while the maximum value amounts to 33 per cent.

Table 11.2 Descriptive statistics for variables

Variable	*Mean*	*Median*	*Minimum*	*Maximum*	*Standard deviation*
Creative core (ln)	1.074	1.252	−1.529	2.163	0.659
Creative professionals (ln)	2.137	2.149	0.953	3.024	0.407
Creative class A (ln)	2.446	2.500	1.045	3.377	0.443
Bohemians (ln)	−1.112	−1.032	−5.048	1.409	0.907
Openness index (ln)	1.674	1.674	−0.724	4.018	0.770
Public provision index (ln)	2.144	2.248	1.155	3.000	0.414
Cultural opportunity index (ln)	0.276	0.256	−1.061	2.637	0.561
Employment growth 1993–2002	1.076	0.875	−2.780	8.232	1.531

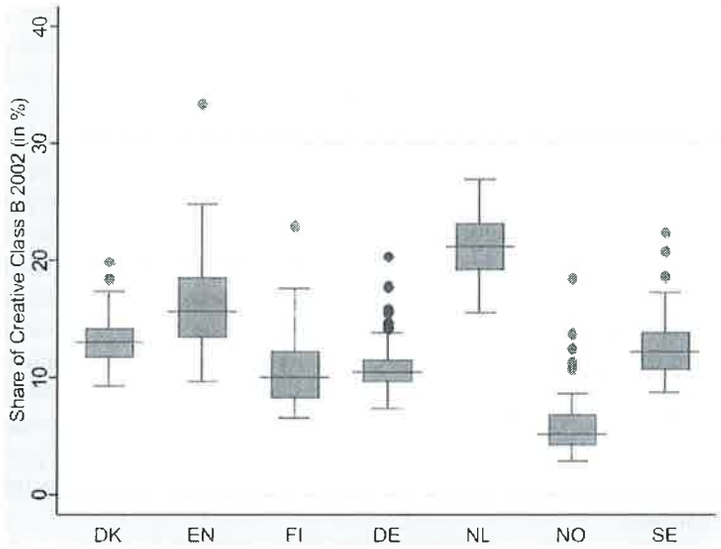

Figure 11.1 Spatial distribution of the creative class (defined as Creative Class B) in each of the European countries in 2002*

Note: * DK: Denmark, EN: England/Wales, FI: Finland, DE: Germany, NL: The Netherlands, NO: Norway, SE: Sweden.

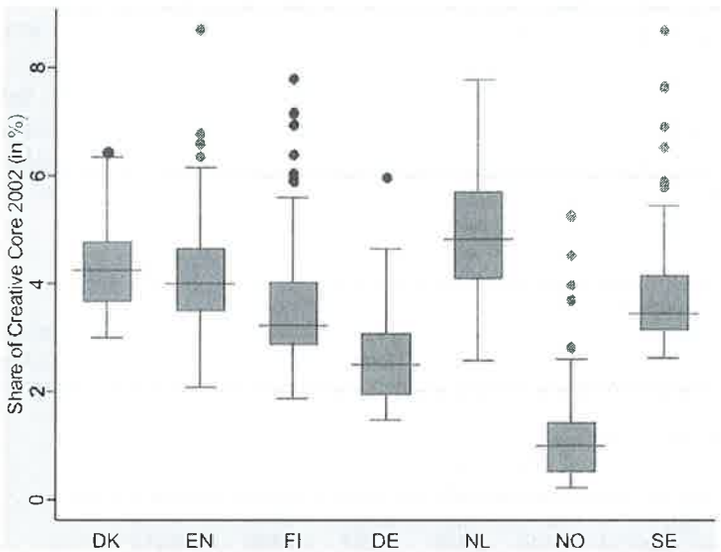

Figure 11.2 Spatial distribution of the share of creative core occupations in the population in the European countries in 2002*

Note: * DK: Denmark, EN: England/Wales, FI: Finland, DE: Germany, NL: The Netherlands, NO: Norway, SE: Sweden.

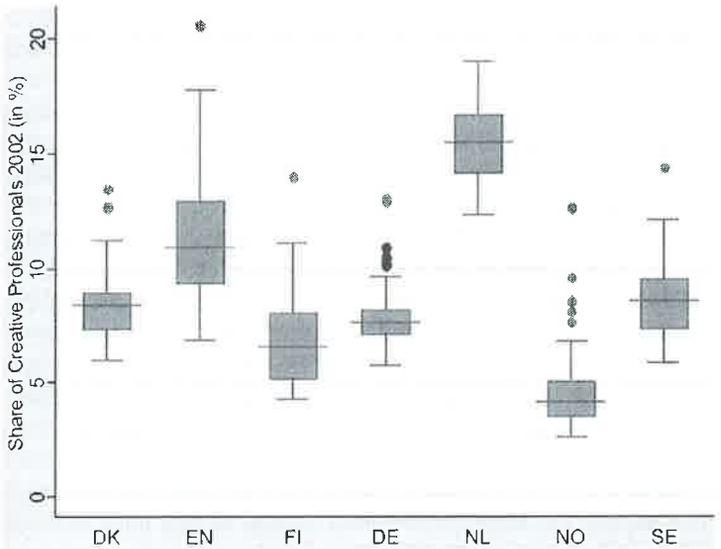

Figure 11.3 Spatial distribution of the share of creative professional occupations in the population in the European countries in 2002*

Note: * DK: Denmark, EN: England/Wales, FI: Finland, DE: Germany, NL: The Netherlands, NO: Norway, SE: Sweden.

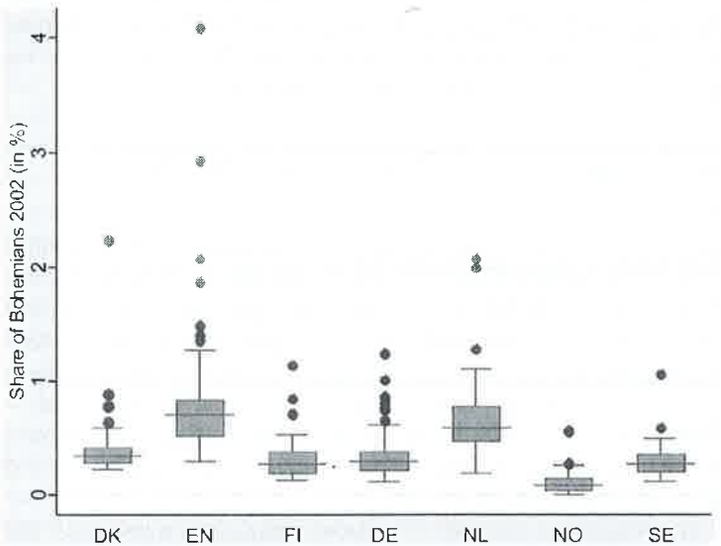

Figure 11.4 Spatial distribution of the share of bohemian occupations in the population in the European countries in 2002*

Note: * DK: Denmark, EN: England/Wales, FI: Finland, DE: Germany, NL: The Netherlands, NO: Norway, SE: Sweden.

Figures 11.1 to 11.4 show the spread of creative occupations for the entire creative class (i.e., including the bohemians, what we call Creative Class B) and the subcategories within each of the seven European countries. The line in the middle of the shaded box indicates the median value. The shaded box comprises the values of the second and the third quartile (i.e., between the 25th and 75th percentile of the distribution). The lines extending from the boxes (whiskers) show the adjacent values. The adjacent values are calculated by utilizing the interquartile range (IQR), which is the difference between the first and third quartile values. The upper adjacent value is the highest data value that is less than or equal to the third quartile plus 1.5 * IQR; the lower adjacent value is the smallest data value that is greater than or equal to the first quartile minus 1.5 * IQR. Values exceeding the upper and lower adjacent values are displayed as markers. Differences in the level of the shares between countries may be caused by different definitions and procedures of data collection and thus should be interpreted with caution. Nevertheless, the figures suggest that, broadly speaking, the Netherlands is well supplied with all categories of the creative class, whereas Norway is less so.[3]

Each of the Figures 11.1–11.4 displays outlier regions with relatively high shares of creative population. All of these outlier regions are the main cities of the respective country. In Germany, the Munich region has the highest values in all categories of creative occupation, followed by Frankfurt, Hamburg, Stuttgart, and Berlin. In Denmark, the outliers are Arhus and Copenhagen. In Finland, it is Helsinki. In the Netherlands, the leading regions are part of the northern wing of the Randstad area, with high scores for Amsterdam, Haarlem, and Utrecht. In Norway, by far the highest share of creative occupations is found in Oslo, followed by Kongsberg, and Trondheim. The leading Swedish region is Stockholm, with Uppsala, Linköping, and Gothenburg next in line. Unsurprisingly, in the UK, the London region is the clear winner as to highest share.

How to explain the spatial distribution of the creative class in Europe?

In order to analyze the reasons for the uneven spatial distribution of the creative class across Europe, we conducted multiple regressions that allow the assessment of the relative importance of the different factors.[4] The dependent variable in these regressions is the share of employees with creative occupations in the total number of regional employment in the year 2002. We split the creative class into three categories – the creative core, the creative professionals and the bohemians – because different explanations may apply for these different types of creative occupations. Hence, we ran various regressions explaining the European spatial pattern for each of these categories separately.

Three types of influences on the share of creative occupations were tested. The first type of influences is *regional culture*, which is closely associated with particular cultural qualities of regions such as tolerance and openness. Following Florida, we used two indicators to account for this effect.[5] The first indicator is the share of bohemian occupations in the total workforce in each region that, according to Florida (2004), should have a positive effect on the presence of other creative occupations. The idea is that a high proportion of bohemians indicates a kind of local culture, lifestyle and set of values that are different from the mainstream. Being artistically creative, bohemians add a meaning of liveliness to a particular place ('the place to be') and tolerance (openness to different lifestyles and values), which makes a region attractive for the other two categories of the creative class. The second measure is the share of foreign-born people, which is expected to have a positive effect on the presence of creative occupations.[6] Following Florida, this *openness index* is used as a proxy for the degree of open-mindedness, tolerance, cultural diversity and openness to newcomers.

The second type of explanatory factors can be labelled *regional facilities*. First, the *public provision index* has been measured by the share of the labour force working in public health care and public education (NACE codes 80 and 85). Second, the so-called *cultural opportunity index* is given by the share of the workforce, which is active in cultural and recreational activities.[7] Following Florida, we expect that both kinds of facilities are highly appreciated by the creative class. For analytical reasons, we have excluded those professions from the creative class that could be associated with these two indicators, in order to empirically disentangle the dependent from the independent variables.

The third type of explanation concerns a pure economic indicator. It is measured as the *annual employment growth rate* in the preceding ten years (1993–2002); this indicates job opportunities in a region. To control for country-specific differences (e.g., with regard to the measurement of creative occupations), we included country dummies.[8] Table 11.3 provides descriptive statistics for the variables included in the analysis.

Table 11.3 shows the results of the regression analyses with the shares of creative population as a dependent variable. We present the standardized regression coefficients (beta coefficients) here, which allow the direct comparison of the relative importance of the different variables (Greene, 2003). The analyses show that the share of bohemians in a region has a considerable positive impact on the share of the creative core and creative professional employment. We have, however, to be cautious in interpreting this result, because the share of bohemians shows a high correlation (0.66) with the other indices of the creative class. Moreover, there is also a high correlation between the share of bohemians and the cultural opportunity index (0.63). Due to the fact that the presence of bohemians could be a result of rich employment opportunities in cultural industries as indicated by the cultural opportunity index, we also ran a model where the share of bohemians is omitted in model II. It was found that there is, indeed, a considerable higher coefficient for the cultural opportunity index if the share of bohemians is omitted (model II). However, comparing the results of the different models indicates that the impact of the share of bohemians is considerably stronger than that of cultural opportunity.[9]

The results of the regression analyses tend to confirm our expectations. First, there is a close relationship between the presence of bohemians and the other creative class categories at the regional level in Europe. Even when the cultural

Table 11.3 Regressions to explain the share of the creative population

	Creative core (ln)		*Creative professionals (ln)*		*Creative class A (ln)*		*Bohemians (ln)*
	I	*II*	*I*	*II*	*I*	*II*	*I*
Share of bohemians (ln)	0.5378**	–	0.4118**	–	0.4613**	–	–
	(7.95)		(6.51)		(7.70)		
Openness index (ln)	0.0817	0.1815**	0.0889*	0.1675**	0.0938**	0.1812**	0.2102**
	(1.89)	(4.09)	(2.57)	(4.38)	(2.88)	(4.95)	(5.75)
Public provision index (ln)	0.2226**	0.2075**	–0.1117*	–0.1195*	0.0096	–0.0005	–0.0143
	(3.85)	(3.02)	(2.50)	(2.17)	(0.23)	(0.01)	(0.27)
Cultural opportunity index (ln)	0.0078	0.2742**	0.0828	0.2862**	0.0647	0.2926**	0.4944**
	(0.15)	(4.86)	(1.86)	(6.97)	(1.52)	(6.77)	(10.19)
Employment growth 1993–2002	0.0931**	0.1681**	0.2170**	0.2731**	0.1929**	0.2560**	0.1377**
	(2.90)	(4.67)	(5.97)	(6.45)	(6.21)	(6.74)	(3.49)
Population density (ln)	0.0050	0.0984	0.0613	0.1294**	0.0375	0.1447*	0.1369**
	(0.10)	(1.61)	(1.41)	(2.58)	(0.91)	(2.29)	(2.81)
R^2adj	0.845	0.795	0.896	0.867	0.905	0.864	0.825
F-value	129.86**	103.93**	213.49**	198.26**	226.08**	195.78**	117.32**
Number of observations	443	444	443	444	443	444	443

Notes: Beta coefficients, robust estimates (t-values in parentheses); country dummies included; * statistically significant at the 5 per cent-level; ** statistically significant at the 1 per cent-level.

opportunity index is included, the beta coefficients for the share of bohemians show the highest values in the model. The openness index has the expected positive impact on the presence of the creative class, but the effect is relatively small. This leads us to conclude that a regional climate of culture and openness tends to attract members of the creative class. By contrast, the public provision index (the level of supply in health care and education) only has a significantly positive effect on the regional share of the creative core employment. For creative professionals, it is significantly negative, while for the creative class (A) as a whole, it is insignificant. Thus, in general, the provision of public facilities has a slight, if any, impact on the presence of the creative class.

According to the beta coefficients, the annual employment growth in the preceding years in a region has the second largest impact on the regional share of creative occupations. The effect is relatively low for the creative core and for the bohemians, but quite pronounced for the creative professionals and the overall creative class (A). Finally, population density seems to only have a positive impact on bohemians, but it shows no effect on the other indicators of the creative class. This result suggests that the creative class is not attracted to highly urbanized regions *per se*, but to regions with a particular regional climate.

Conclusion

The results of our empirical analysis for regions in seven European countries tend to confirm a number of the hypotheses on the creative class as suggested by Florida (2004). We find that the creative class is highly unevenly distributed across Europe. A regional climate of tolerance and openness has a positive effect on the regional share of the creative class. The creative class is not attracted to highly urbanized regions *per se*, while the provision of public facilities in healthcare and education only has a minor, if any, impact on the presence of the creative class.

We consider our analysis as a first step towards a better understanding of the relationship between regional climate, creative class and regional growth in Europe. No doubt better indicators to measure creativity are a prerequisite for accomplishing such a task (Rantisi and Leslie, 2006; Markusen *et al.*, 2008). We need to define more precisely, for instance, which workers are really creative, in order to link them more directly to the other variables in the analysis.[10] We should also try to have a better understanding of the relationship between creativity and education, as well as the role of knowledge spillovers. Another key question concerns the relationship between a climate of tolerance, and the presence of the creative class. And we need better indicators to measure a tolerant climate or culture of openness.

Another issue to be taken up by future research is whether a high share of creative class people in a firm and the recruitment of new employees from the creative class actually enhance the performance of firms. Boschma *et al.* (2009) found empirical evidence that plants perform better when they employ individuals with related skills and when they hire new employees who bring in new knowledge

related to the knowledge base of the plant. This idea could be extended to creative individuals.

An important question that we have not dealt with here is the relationship between the creative class and regional growth.[11] Does the presence of creative people *per se* contribute to regional growth, or do they mainly generate (localized) knowledge spillovers that have an additional effect on regional growth? What is the relationship between the presence of creative people in a region and high levels of education? In empirical analyses, education and creative capital need to be disentangled in order to be able to identify their effects. We need to be able to better specify through which mechanisms regional conditions (e.g., a regional climate of tolerance) affect human capital, creativity and growth, and in what ways public policy could make a positive contribution.

Notes

1 The creative class data for Denmark are from 1999, for Finland from 2000, for England/Wales from 2001, and for Norway from 2004. The workforce data are for 2002.

2 NUTS (*Nomenclature des Unités Territoriales Statistiques*) is a hierarchical regional classification system used for the member states of the European Community. The data for the Netherlands are for 40 regions, the data for the UK comprise 106 regions. The 47 Swedish regions are defined as labour market regions (A-Regioner) based on travel to work patterns. In Switzerland, 25 city-regions as defined by the statistical offices were included. In Finland, there are 25 regions. The 77 Norwegian regions are so-called city-regions. These concern NUTS4 for most of the regions and combinations of several NUTS4 for the larger cities. In Denmark, the information is available for the 35 city-regions. Because the NUTS III regions for Germany are not always functional units, the analysis for this country is at the level of 93 planning regions, which are functional regions in the sense of travel-to-work areas and comprise at least one city and its surroundings. For a more detailed description of the German data, see Fritsch and Stuetzer (2009).

3 The low figures for the creative class in Norway are due to several reasons. First, the Norwegian figures do not include employees in the public health sector, which has relatively many creative class workers. Second, the Norwegian regions are comparatively small, and the most peripheral regions do not contain a city or town, which particularly lowers the share of creative class members in these small, peripheral regions of the country.

4 Many have criticized Florida's analyses that would rest on suggestive correlations rather than causality (e.g., Peck, 2005; Markusen and Schrock, 2006).

5 Another indicator of tolerant and open urban climate that has been applied by Florida in his analysis for the United States is the so-called Gay Index which measures 'the over- or under-representation of coupled gay people in a region relative to the United States as a whole' (Florida, 2004: 333). This type of index could not be calculated for the European countries because of a lack of data at the NUTS 3 level.

6 A better indicator would have been the rate of labour market participation of immigrants because, among other things, it reflects how open the region is to absorb and integrate people of different descent and cultures into the regional labour market. However, such an indicator was not available in the European countries at the regional level.

7 We have assigned these types of activities to the NACE codes 553 (restaurants), 554 (bars), 921 (activities in the field of film and video), 922 (radio and television), 923 (entertainment), 925 (libraries, public archives, museums and other cultural activities) and 926 (sports).

8 The results for these country dummies are not reported here due to space limitations. To account for the differences that still exist between East and West Germany (Fritsch, 2004), we included separate dummies for the two parts of the country.

9 The coefficients for the share of bohemians are slightly higher if the cultural opportunity index is omitted. This does, however, not lead to any substantial changes in the results.

10 Boschma and Fritsch (2009) and Lee, Florida and Acs (2004) find evidence for a positive effect of creative people on the regional level of new business formation. Boschma and Fritsch (2009) also provide empirical evidence for a positive relationship between creative class and the number of patents that are generated in the respective region.

11 For an attempt of such an analysis for Germany and the Netherlands, see Boschma and Fritsch (2009). Falck, Fritsch and Heblich (2011) discuss the causal link between cultural amenities and regional development presenting empirical evidence for the case of Germany.

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