

## HUMAN CAPITAL, THE CREATIVE CLASS AND INNOVATION IN POLISH REGIONS

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### **Abstract:**

The role of human capital in generating development processes has grown with the increased importance of knowledge in specific economic processes. One of the major carrier of knowledge resources is a human, as only humans having access to information and data are able to process and interpret them so as to create knowledge. Therefore, human capital is regarded as the 'creator' of knowledge, so the paper presents human capital as a factor promoting innovation.

The purpose of this paper is to operationally define the concept of the creative class, demonstrate its geographic distribution in Poland and to evaluate its impact on the level of innovation displayed by Polish regions.

Using the collected data, the relationship between existence of the creative class and the level of innovation in Polish regions was analyzed. Data pertaining to the year 2012 has shown that Mazovian voivodship, with the largest number of dynamically operating business entities registered in the National Official Register of Business Entities (REGON) and classified as belonging to the creative class, is the most innovative region among all regions in Poland. The analysis points to relationships between existence of the creative class and the level of regional innovation.

Distinguishing the creative class in the economy and learning about its impact on the level of region's innovation is an important source of information both for enterprises, as well as to officials dealing with administration of cities and regions.

*Keywords: innovation, creative class, knowledge, human capital*

## 1. INTRODUCTION

At the beginning of 21. century, the world is challenged by the optimum use of development potential, in order to ensure continuous and sustainable regional development as well as increased competitiveness and innovation of the economy, economic and social cohesion, as well as spatial cohesion. Providing conditions for proper utilization of endogenous resources in specific regions, as well as attracting external resources and their allocation for implementation of activities with the highest growth potential, provides grounds for effective fulfilment of these objectives.

## 2. HUMAN CAPITAL

Interest in skills and human capital dates back a long way. In his classic work on *The Wealth of Nations* (1776) Adam Smith identified the “acquired and useful abilities of all the inhabitants or members of the society” as something akin to a “fourth factor of production” (e.g. Samuelson and Nordhaus 2004) operating alongside land, labor and production, noting that: “The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is anywhere directed, or applied,” he wrote, “seem to have been the effects of the division of labour” (Smith 1776; book 1, p. 7). Still, until recently the great preponderance of economic and regional research has focused on the firm and firm location in order to understand geographical differences in economic performance (Mellander & Florida R, 2012, pp.3-4).

The term ‘human capital’ was invented by T. Schultz who developed his concept in 1981, and wrote that “All human abilities are either innate or acquired. Qualities (...) that are appreciated may be developed through proper investments and they shall comprise human capital” (Armstrong, 2010, p. 75.).

Human capital includes three elements:

- intellectual capital, i.e. knowledge gathered in an enterprise and flowing through the organisation,
- social capital, i.e. knowledge coming from networks of relationships within and beyond the organisation,
- organisational capital, i.e. knowledge gathered by the organisation in databases, manuals.

The theory on human capital emphasizes the meaning of added value contributed by people to an enterprise, which enables determination of people’s impact on the enterprise and their share in enterprise goodwill.

Economic analysis has no trouble explaining why, throughout history, few countries have experienced very long periods of persistent growth in income per person. For if per capita income growth is caused by the growth of land and physical capital per worker diminishing returns from additional capital and land eventually eliminated further growth. (Becker, 1993, p. 23)

Human capital has positive impact on social and economic development. It brings about increase in innovation and competitiveness of economies and in the ability to implement global developments in the field of science, engineering and culture.

The role of human capital in generating development processes has grown with the increased importance of knowledge in specific economic processes. One of the major carriers of knowledge resources is a human, as only humans, having access to information and data, are able to process and interpret it so as to create knowledge. Therefore, human capital is regarded as the creator of knowledge. And for this reason, human resources (defined by size and high quality) is a prerequisite to ensure smooth and uninterrupted functioning of the process of creating, collecting, transmitting and using knowledge in the field of economy. (Nowakowska, Przygodzki, Sokołowicz, 2011, pp. 43)

## 3. HUMAN CAPITAL AND IMPORTANCE OF PLACE

The role of human capital in generating development processes has grown with the increased importance of knowledge in specific economic processes. One of the major carrier of knowledge resources is a human, as only humans having access to information and data are able to process and interpret them so as to create knowledge. Therefore, human capital is regarded as the ‘creator’ of knowledge. And for this reason, these resources (determined by size and high quality) are a prerequisite ensuring functioning of the process of creating, collecting, transmitting and using

knowledge in the economy. Moreover, human capital acting as a factor promoting innovation, not only expands possibilities of developing innovative businesses, but is, in fact, their determinant.

Concentrations of skilled workers and skilled industries may increase local productivity. Yet we worry about the equity consequences of a policy that would encourage such concentrations, especially since skilled people already tend to move disproportionately into skilled areas. (Glaeser, 2008, p. 226)

E.L. Glaeser identifies cities as the world's key economic actors, indicating a triumph of the city. He indicates, that human capital, far more than physical infrastructure, explains which cities succeed. (Glaeser, 2011)

#### 4. THE CREATIVE CLASS

At the beginning of 1990's, in Australia the concept of a "creative nation" was developed, in response to challenges that had to be faced by innovation in information technology. In 1997, in the UK, there appeared the term "creative industries" and works were commenced on the mapping of enterprises representing creative industries. In 2003, Richard Florida presented his concept of the creative class in his book entitled "The rise of the creative class".

Florida used the term "creative class" to refer to individuals performing work whose function is to create meaningful new forms. New ideas, products, services are created by the super-creative core, and their selection and commercial use is the responsibility of the knowledge-intensive employees. Surrounded by these two groups, there exist the bohemians who give their opinions on the new ideas, products, services, very often mocking them or protesting against them. Bohemians include smaller communities of artists, celebrities, creators of niche and alternative art, performers, active anarchists, minority movement activists, etc. They also participate in developing of new ideas and they provide intellectual anchor and revival of the idea.

Creative class is composed of two sub-groups:

- *Super-Creative Core*- is the creative core of the new class, composed of scientists and engineers, performing artists, actors, designers and architects, poets and novelists, as well as representatives of opinion-forming environments existing in contemporary society – authors of non-fiction publications, publishers, cultural figures, analysts, think-tank researchers etc. (Florida, 2010, p. 83)

Individuals included in the core of the creative class are involved in creation of new forms, products or designs that are readily transferable and broadly useful. Their work is related not only to solving but also to searching for problems.

Super-creative core includes (Florida, 2010, p. 338):

- computer-related occupations and jobs using mathematical knowledge,
  - architecture and engineering,
  - jobs related to social sciences, natural science and life science,
  - education, training and libraries,
  - art, design, entertainment, sport, media.
- *Creative Professionals* who work in a wide range of knowledge-intensive industries, such as high-tech sectors, financial services, the legal and healthcare professions, and business management. These people engage in creative problem-solving, drawing on complex bodies of knowledge to solve specific problems. Doing so typically requires a high degree of formal education and thus a high level of human capital. People who do this kind of work may sometimes come up with methods or products that turn out to be widely useful, but it's not part of the basic job description. Their occupation may require testing and enhancement of new methods, applying new medical treatment methods or new management techniques, or even development of their own methods. When a given person focuses more on developing new solutions, e.g. by embarking on a new career or getting a promotion, he or she is transferred to the super-creative core, and his/her primary function will become production of new, readily transferable widely used forms. (Florida, 2010, p. 84)
- The group of Creative Professionals primarily includes individuals having the following occupations: (Florida, 2010, p. 338):
- managerial positions,
  - financial and business services,

- legal professions,
- healthcare jobs (doctors), technicians,
- sales management, sales (high-end segment).

## 5. PURPOSE AND METHODOLOGY OF THE STUDY

The purpose of this paper is to operationally define the concept of the creative class, demonstrate its geographic distribution in Poland and to evaluate its impact on the level of innovation displayed by Polish regions.

Research hypothesis to be verified in the study, is the impact of the creative class on the level of innovation in Polish voivodship. The hypothesis will be verified using statistical data related to the number of dynamically operating, registered business entities running their economic activity, classified in accordance with the Polish Classification of Activities 2007 (PKD) in Q4 2009, 2010, 2011 and 2012. All Polish voivodships were studied for the size of the creative class.

In order to measure the size of the creative class in Poland, a creative class measurement model was constructed.

In reference to Florida's concept, creative class in the constructed scientific model is composed of two sub-groups:

1. Super-creative core, corresponding to the scope of operation of creative industries,
2. Other employees using extensive knowledge in their work (knowledge-intensive industries).

In the scientific model, business entities operating in the following industries were included (Karasek A., 2012):

1. Creative industry and entertainment:
  - a) filmmaking, sound recording and music,
  - b) radio and television journalism,
  - c) advertising,
  - d) publishing,
  - e) culture,
  - f) design,
  - g) retail sales of cultural goods.
- 2) Information and communication technology:
  - a) production of information and communication technologies, including computer, electronic and optical goods manufacturing,
  - b) ICT-related services,
  - c) software and computer games.
- 3) Financial brokerage.
- 4) Legal and business-related services.
- 5) R&D and higher education.
- 6) Architecture and engineering.

The paper will present human capital as a factor promoting innovation, the concept of the creative class, operationalization of the creative class concept in Poland, geographic distribution of the creative class in Poland, as well as the evaluation of the impact of the creative class on the level of regional innovation.

## 6. CREATIVE CLASS IN POLAND

Study on the size of creative class included all micro, small, medium and large Polish enterprises under NUTS II. In order to evaluate the size of existing creative class, data gathered by the Central Statistical Office for Q4 of 2009, 2010, 2011 and 2012 regarding the number of dynamically operating, business entities registered in the National Official Register of Business Entities (REGON) was used. Of all registered entities, entities classified as belonging to the creative industry according to the adopted scientific model were selected.

Existence of the creative class in a given region is measured using the number of dynamically operating registered business entities from specific industries, in accordance with the Polish Classification of Activities, divided by the number of individuals employed in a given enterprise.

Presented study results show distribution of the creative class in specific voivodships according to all types of enterprises, based on the adopted measurement model for the creative class in Q4 of 2009, 2010, 2011 and 2012, as shown in diagram 1.

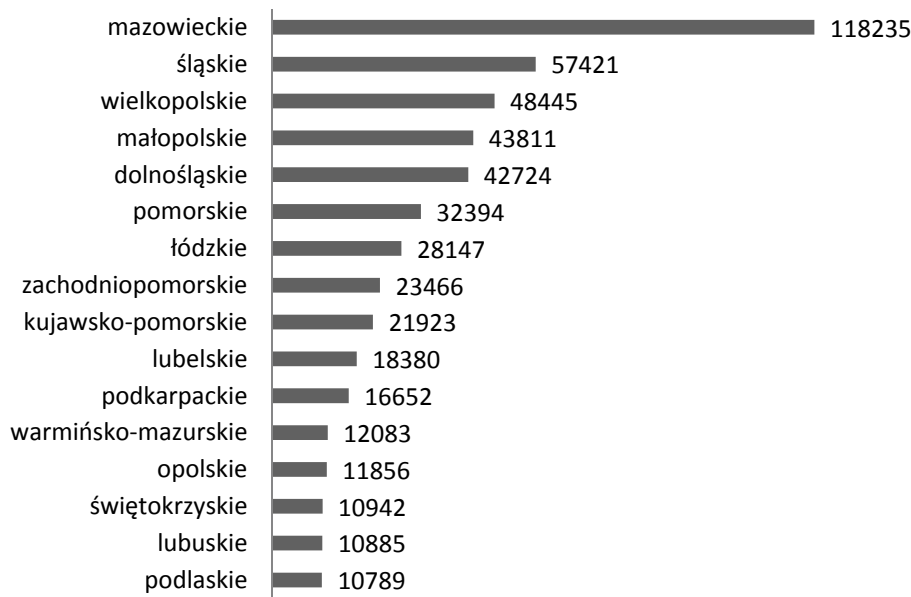
**Diagram 1:** Diversified distribution of the creative class in specific voivodships in Q4 of 2009, 2010, 2011 and 2012.



Source: author's own study based on data from the Central Statistical Office.

In Q4 2012, in all voivodships in Poland there were 508,153 business entities dynamically operating, classified as belonging to the creative industry in accordance with the adopted scientific model, growing up by 4.55% when compared to 2009. The largest growth was observed in 2010. In 2012, the highest concentration of enterprises operating in the creative industry was in the Mazovian voivodship (118,235 entities), Silesian voivodship (57,421 entities) and Wielkopolskie voivodship (48,445 entities). The smallest number of entities classified as belonging to the creative industry was recorded in Podlaskie (10,789 entities), Lubuskie (10,885 entities) and Świętokrzyskie voivodship (10,942 entities), which is presented in diagram 2.

**Diagram 2:** Existence of the creative class in particular voivodships in Q4 2012.



Source: author's own study based on data from the Central Statistical Office.

Growth in the number of entities operating in creative industries between 2009 and 2012, may be observed in case of 11 out of 16 Polish voivodships. The largest growth in the number of such entities was observed in Małopolskie (109.09%), Mazovian (108.69%), Lower Silesian (106.42%) and Podkarpackie (106.08%) voivodships. Minor fall in the number of entities classified as belonging to the creative industries on the other hand, occurred in five voivodships, the largest being in Świętokrzyskie (97.49%) and West Pomeranian voivodships (97.32%).

While comparing the number of enterprises from the creative industry to the entire 'population' of registered, dynamically operating enterprises, we may discover the structure of enterprises in particular voivodships. In Poland in 2012, enterprises classified as belonging to the creative industry accounted for 14.31% of all enterprises registered in Q4 2012. From 2009 on, the number of entities classified as belonging to the creative industry in relation to all dynamically operating entities registered in National Official Register of Business Entities (REGON) has grown systematically.

## 7. INNOVATION IN REGIONS

Innovation is a factor determining growth of competitiveness and economic development. In reference to Florida's view presented in his book "The rise of the creative class", regions with a high share of creative people will perform better economically because they generate more innovations, have a higher level of entrepreneurship, and attract creative businesses.

Gaining knowledge about sources of innovation in particular regions will enable to expand regional policies. What is more, this shows that it is human creativity that predominantly drives innovation in the country and in its specific regions. Bearing this thesis in mind, the relationship between existence of the creative class and the level of innovation in specific voivodships was analyzed.

In the Regional Innovation Scoreboard (RIS)<sup>1</sup> results regarding the level of innovation in specific regions in 2012 were presented. The concept of synthetic evaluation of innovation in the regions as well as their scoring was based on a set of 12 indicators available in given regions. Indicators were grouped into enablers, firm activities and outputs. On their basis, the Regional Innovation Index (RII) was created. Depending on the obtained score, a given region may be classified as belonging to one of the four groups: innovation leader, innovation follower, moderate innovator and modest innovator.

<sup>1</sup> The results were prepared by Hugo Hollanders, Maastricht Economic and Social Research Institute on Innovation and technology (UNU-MERIT), Lorena Rivera León & Laura Roman, Technopolis Group.



According to the Regional Innovation Scoreboard published in June 2012, Poland was classified as moderate innovator. In line with results of the innovation analysis, 15 out of 16 regions were classified as moderate innovators and only the Mazovian voivodship was found in the group of Modest innovators.

In previous years, regional innovation scoreboards were drawn up based on methods in which scores were based on 16 indicators available in regional databases. Depending on the obtained score, a given region may be classified as belonging to one of the five groups: high performers, medium-high performers, average performers, medium-low performers and low performers. By analysing diversity in the level of innovation in specific regions in the years 2009-2011, it may be observed that 11 regions maintained their ranks, whereas Mazovian voivodship increased its level of innovation (in 2009, it was classified as a medium moderator, and in 2011 as a high innovator). In four voivodships on the other hand, the level of innovation decreased. Silesian voivodship classified in 2009 as a high innovator, in 2011 was found in the group of medium innovators. In case of Opolskie, Lubelskie and Podkarpackie voivodships, their status was changed from modest innovators to low innovators.

## 8. ANALYSIS OF STUDY RESULTS

Research hypothesis is the impact of the creative class on the level of innovation in Polish voivodships. The hypothesis was verified using statistical data related to the number of dynamically operating, registered business entities running their economic activity classified in accordance with the Polish Classification of Activities 2007 (PKD) in Q4 2009, 2010, 2011 and 2012.

Using the collected data, the relationship between existence of the creative class and the level of innovation in Polish regions was analyzed. Data pertaining to the year 2012 has shown that Mazovian voivodship, with the largest number of dynamically operating business entities registered in the National Official Register of Business Entities (REGON) and classified as belonging to the creative class, is the most innovative region among all regions in Poland.

When comparing data for 2009 to the year 2011, it should be noticed that in all voivodships the number of entities belonging to the creative class fell down. In case of three (Opolskie, Lubelskie, Podkarpackie) out of four voivodships whose innovation score was poorer, the fall reflected the reduced number of dynamically operating business entities registered in the National Official Register of Business Entities classified as belonging to the creative class.

## 9. SUMMARY

Distinguishing the creative class in the economy and learning about its impact on the level of region's innovation is an important source of information both for enterprises, as well as to officials dealing with administration of cities and regions. The analysis points to relationships between existence of the creative class and the level of regional innovation.

Analysis of collected data showed that more creative regions constitute regions with higher level of innovation, that is those which hold the largest number of dynamically operating business entities classified as belonging to the creative industry.

In the report Poland 2030, it was shown that the key to boosting the development of Polish cities is increasing their attractiveness in general, domestically and internationally. Investments should be made in the infrastructure and city space, quality of human capital should be enhanced and conditions for development of the creative class should be provided. (Polska 2030, 2009, p. 266)

Creativity and innovation is highly important for policies at local and regional level. Nowadays in changing social, economic, technological and cultural environment putting impact on creative class, which has influence on level of innovation of region, is the right key to increased competitiveness and market responsiveness.

Turbulent environment induces the search for factors potentially facilitating innovative development of a region. The most important potential are people, therefore their creativity is extremely important, just as providing conditions for development in the constantly changing world. Also, creation of conditions conducive to development of creative people coming up with new ideas, should not only occur at the enterprise or institution level, but also at the regional level.

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