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**The determinants of crowdfunding development –  
empirical analysis in the countries  
of Central and Eastern Europe**

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## **The determinants of crowdfunding development – empirical analysis in the countries of Central and Eastern Europe**

**JEL Classification:** *G24; L26; M13; O16; O53*

**Keywords:** *crowdfunding, social funding, innovation, financing, CEE*

### **Abstract**

**Research background:** Crowdfunding (CF) is a method of raising money for projects and enterprises by an online platform. Since around 2003 it is getting popular and becoming a natural method of pre-financing for start-ups before reaching out to investors. The estimations gave the scale of raising worldwide 35 bn USD via CF platforms in 2015. In 2016 CF was on track to surpass venture capital investments. Yet, this method doesn't progress equally worldwide and it is essential to find out what makes the difference of its development between the countries.

**Purpose of the article:** The aim of the article is to examine the potential relation between: (1) the welfare of the countries, (2) structure of population and (3) availability of crowdfunding. The research is dedicated to the chosen countries of Central and Eastern Europe (CEE) in the period of 2005-2015, giving a perspective of changes in different terms of economy.

**Methodology/methods:** This article, theoretical and empirical in character, is based on international desk research findings. The authors used methods of data collection, organizing and processing information. Moreover, they implemented methods of analogy and deduction, while studying papers, as well as the selection, analysis and synthesis methods.

**Findings:** There is no direct correlation between GDP per capita of the country with its online alternative investments per capita. The richness of the country does not influence people's willingness to invest money through online tools. In the countries of average level of welfare, alternative financing is used more widely. Moreover, there is a significant impact of the age structure of the population on the

crowdfunding development. Estonia has the youngest structure of population and even there are not many inhabitants and the GDP per capita is average, the country has the most willing online crowd investors.

## **Introduction**

As crowdfunding platforms don't progress in size and popularity equally in analysed countries, it is essential to find out the potential factors of crowdfunding development. The aim of this paper is to examine the relations between: (1) the welfare of the countries, measured by GDP per capita, (2) structure of population, what explains the potential willingness of investment in new technologies, basing on online applications, (3) availability of crowdfunding.

The authors concentrate on the factors of crowdfunding's development in the countries of Central and Eastern Europe (CEE), in the period of 2005-2015. For the purpose of this article, 10 CEE countries (EU members) are analysed: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia. Due to insufficient data, information concerning crowdfunding covers the period of 2007-2015.

In connection with the objectives there are formulated two theses. The first assumes that more crowdfunding platforms are created and more financial funds are collected in the countries with higher GDP per capita. The second thesis outlines a significant impact of the age structure of the population on increase in the level of crowdfunding.

The article consists of two main parts: first, theoretical, outlines the background and definitions of crowdfunding, second, empirical part gives the picture of value analyses, contributing the final results.

## **Research methodology and current theories background**

This article is based on international desk research findings. The analysis conducted in this paper was based on data and statistics provided mainly by Eurostat and World Development Indicators. During the development of the paper the qualitative and quantitative methods of economic research were used, including selection, analysis and synthesis, descriptive statistics and graphical illustration methods, together with methods of data collection, organizing and processing information.

The basis of crowdfunding is related to the theories of innovation and entrepreneurship. In Schumpeter's approach the economic activity is a circular flow and innovations are the prime cause of economic development. (Jain & Malhotra, 2009, pp. 127-129; Schumpeter, 2004, p. 66). The great merit of Schumpeter is the awareness that innovations create a monopoly resulting from the ability to satisfy the needs in the better way than the others.

In the 60' of the last century many economists carried out discussions which were a continuation of the approach of Schumpeter within neo-technological theories. Posner distinguished two groups of entrepreneurs: innovators, who create new products as well as technologies, and imitators, who take over the solutions found in other countries (Posner, 1961, pp. 323- 341).

Also, Porter, Rugman and Oh underlined that innovations (new technologies, new methods of production, new products, the appropriate segmentation of the market and identification of the new groups of buyers) create competitive advantages of certain sectors in the economy (Porter, 1990, p. 69-71; Rugman & Oh, 2008, p. 58). Cho and Moon placed the human factors at the heart of the their nine-factor model. They noted that entrepreneurs were the group undertaking innovative and often risky venture, being key factors of competitiveness for countries in semi-developed stage (Cho & Moon, 2013, pp. 143-166).

## **The background and definition of crowdfunding**

The innovation is a key to success in changing global economy. The fundamentals of what today is called "crowdfunding" were made in 1700s, when Dean Jonathan Swift started the Irish Loan Fund (Hollis & Sweetman, 1996, p. 5) that provided loans to low-income families in rural areas. Modern microfinance mechanism was invented by dr. Mohammad Yunus within a research project with his graduate students in Bangladesh in 1976. His goal was to give banking opportunities to low-income people and create opportunities for self-employment by lending money to the poorest, what in 1983 transformed into Grameen Bank. The term "crowdfunding" was first used by Sullivan, a founder of a FundaVlog in 2006 (Sullivan, 2017).

Mollick explains this mechanism focusing on different aspects of the tool, underlining ability to attain funding from large audiences, when each individual provides a small amount of money, instead of gathering a large sum from one minor investor, online, without standard financial intermediaries (Belleflamme *et al.*, 2014, pp. 585-609; Mollick, 2014, p. 2-4).

The key components of crowdfunding are: an online tool, goal of the project, financial threshold in the limited time, presence of the crowd, financial or non-financial return.

In the process of crowdfunding three groups of interest are enumerated: entrepreneurs, investors and the platform, at which money is collected, and there is lots of structural and contextual linkages between such structure of stakeholders (Valančienė & Jegelevičiūtė, 2014, p. 602).

Small-scale entrepreneurs have limited access to some forms of financing like long-term bank loans and issue of shares or bonds, because they are not known on the market, do not have a credit history, nor sufficient assets. They typically cite access to finance as the most important constraint to growth (de Mel *et al.*, 2011, pp. 456-485).

The alternative ways of collecting capital for providing business activity are mainly based on financing by business angels, venture capital funds or private equity funds. Also, the European Union supports the development of small and medium enterprises. The initiatives, which transfer institutional support to this sector, are provided on the national and international level (Bednarz & Markiewicz, 2015, p. 89-115).

The capital gap is the biggest obstacle to the development of ambitious and innovative business projects. The main directions for improvement would be reduction of administrative barriers and strengthening the market infrastructure, which is examined in the CEE countries (Rupeika-Aboga, 2014, p. 117-124).

On the other hand, Shneor, Jenssen and Vissak indicate crowdfunding as an alternative financing channel for enterprises among the main trends that may highly affect business in the future (Shneor *et al.*, 2016, p. 138).

There is a long list of benefits crowdfunding provides for beneficiaries and benefactors. It includes access to valued and appropriate feedback towards proposed concept, proof of project validity, along with direct communication with partners (clients, media, funders, etc.) (Mollick & Kuppuswamy, 2014, p. 1-18) and expansion of geographical range of investment in the projects (Agrawal *et al.*, 2011). Crowdfunding is also not free of risk and requires activity and proficiency, substantial amounts of time, effort and energy.

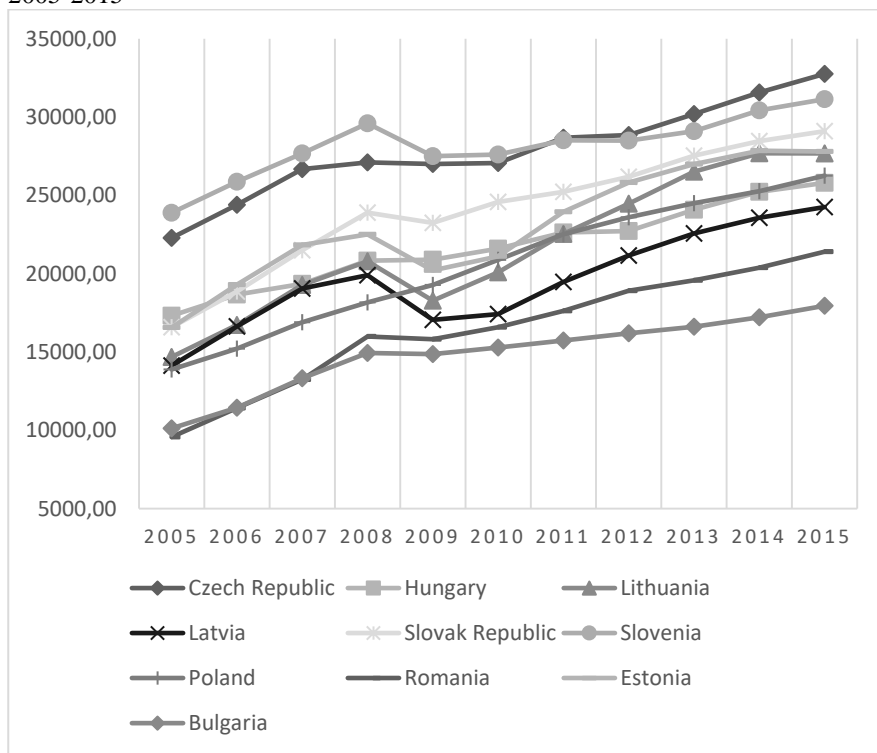
## **The welfare and population structure of CEE countries**

GDP per capita, the value of gross national income per 1 inhabitant, is one of the most important economic objective measures of social well-being and the basis for international comparisons used by the OECD and other international organizations and institutions.

In this part of the article GDP per capita in selected countries in 2005-2015 is compared in the context of wealth level which allows increase in the level of investment, generating charity and desire to invest.

In Figure 1 it may be seen the rising trend of GDP per capita in CEE in 2005-2015 with the exclusion of years 2008-2009, due to the financial crisis. The only countries, which did not suffer the decline or slowdown at this period, were Poland (rise of 6%) and Hungary (0,2% rise).

**Figure 1.** GDP per capita in CEE countries (PPP, current international USD) in 2005-2015



Source: own elaboration based on database of World Development Indicators (2017).

Czech Republic and Slovenia were outstanding countries concerning the rise of GDP per capita (Figure 1). It may be emphasised that in 2015 Romania, with 21,403 USD, and Bulgaria, with 17,957 USD, still didn't reach the level of GDP per capita of Slovenia and Czechia from 2005. In Romania, however, it was noticed the highest dynamics of growth: the level of GDP per capita in 2015 reached 223% of the 2005 level. The second coun-

try with the highest dynamics was Poland and the third one – Lithuania (adequately 189% and 188%).

Czech Republic and Slovenia were the only CEE countries, which may be classified as the countries with the highest level of well-being (above 30,000 USD). After 2011, when both countries reached 28,000 USD per year, Czechia took a leader position.

Comparison of age structure of population by three major age groups in 2005 and 2015 was presented in Table 1. It should be highlighted that in Lithuania, Hungary, Poland, Romania and Slovak Republic there were less young people (0 to 14 years old) in 2015 comparing to 2005. Moreover, in each analysed country there were less persons at working age (15-64) and more older (aged 65 or over) than 10 years before.

**Table 1.** Population age structure by major age groups, 2005 and 2015, (% of the total population)

	0-14		15-64		65 years old or over	
	2005	2015	2005	2015	2005	2015
Czech Republic	14,9	15,2	71,7	67,0	14,1	17,8
Estonia	15,4	16,0	68,0	65,2	16,6	18,8
Latvia	15,0	15,0	68,4	65,6	16,6	19,4
Lithuania	17,1	14,6	67,1	66,6	15,8	18,7
Hungary	15,6	14,5	68,8	67,6	15,6	17,9
Poland	16,7	15,0	70,2	69,5	13,1	15,4
Romania	17,5	15,5	68,4	67,5	14,2	17,0
Slovenia	14,4	14,8	70,2	67,3	15,3	17,9
Slovak Republic	17,1	15,3	71,3	70,7	11,7	14,0

Source: own elaboration based on Eurostat (2016).

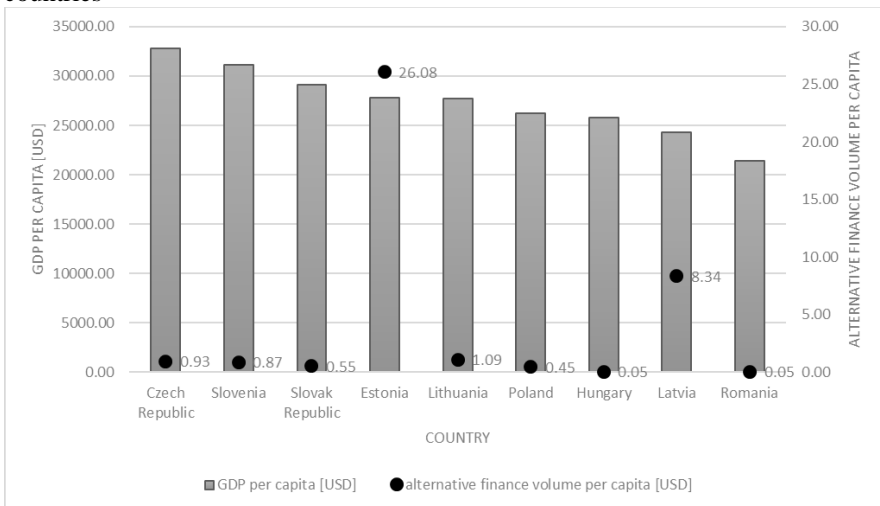
Taking into consideration the relation between percentage of young people comparing to persons aged 65 or older, in every country (except Slovak Republic) this trend was negative. Estonia had the youngest structure of population in the age 0-14 (16%). The richest countries, Czechia and Slovenia had growing number of children aged 0-14 (as well as Estonia and Latvia), but were aging societies with the highest rate of elder people in Czechia (26%, when comparing 2015 and 2005) and medium one in Slovenia (17% rise), while only 13% (the lowest rate) in Estonia.

## Crowdfunding data

Cambridge Centre for Alternative Finance surveyed platforms in Europe observing the trends in respect to online financing. Figure 2 presents GDP per capita and Alternative Finance Volume per capita in the chosen countries (The 2nd European Alternative Finance Industry Report, 2016, p. 30).

This comparison showed that alternative financing did not correlate with GDP per capita. Czech Republic had the highest GDP per capita, but at the same time it took only the 4th place taking into account online investments per capita, while Slovenia the 5<sup>th</sup> one.

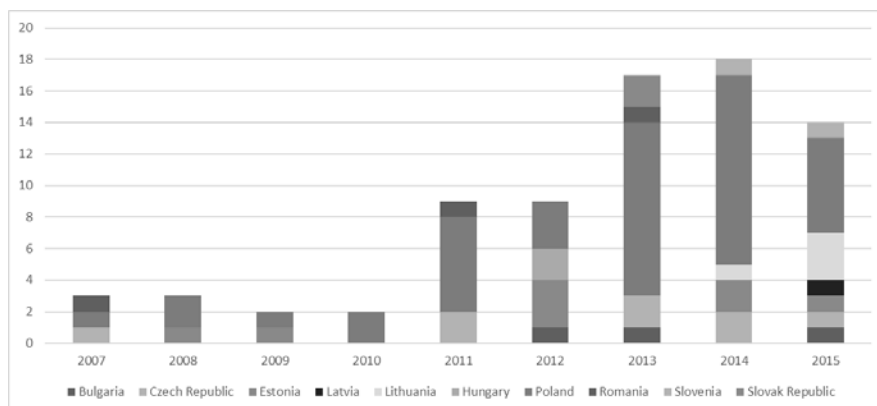
**Figure 2.** GDP per capita and alternative finance volume per capita in chosen CEE countries



Source: own elaboration based on World Development Indicators and The 2<sup>nd</sup> European Alternative Finance Industry Report, 2016, p. 30.

**Figure 3.** Platforms created in the chosen CEE countries 2007-2015





Source: own elaboration based on Internet research and The 2<sup>nd</sup> European Alternative Finance Industry Report, 2016.

Taking into consideration number of platforms created in CEE (Figure 3) it can be observed that in 2007-2010 only few platforms were created, mainly in Poland, Czech Republic and Estonia.

Since 2011, the rising trend is visible yearly. It relates to the world trend towards online alternative financing as well as a global change to sharing economy. It wasn't taken into account how many platforms ceased to exist within the time. In 2015 it was invested in: Estonia 32 mln EUR, Latvia 15 mln EUR, Poland (with the biggest number of platforms) 10 mln EUR, Czech Republic 9 mln EUR and Lithuania 2.3 mln EUR.

## Conclusions

Regarding the first thesis, which assumes that more crowdfunding platforms are created and more financial funds are collected in the countries with higher GDP per capita, it may be concluded that there is no direct correlation between GDP per capita of the country with online alternative investments per capita.

Though in CEE crowdfunding is still a niche, the annual growth rate is dynamic. CEE countries are recorded as developing ones and due to continuously increasing average income of society, they are an area of introducing advanced and innovative financial services.

Czech Republic had the highest GDP per capita in 2015 (32,758 USD), but at the same time it took only the 4<sup>th</sup> place taking into account online investments per capita (0,93 USD), while Slovenia had adequately GDP per capita of 31,144 USD and 0,87 USD of online investment (the 5<sup>th</sup> position).

Based on 2015 data it was compared an index Alternative Finance Volume per capita with GDP per capita. The comparison showed that alternative financing did not correlate with GDP per capita.

The high richness of the country does not influence people willingness to invest money through online tools. In the countries of average level of welfare alternative sources of financing are used more widely, because most often companies suffer from lack of experience, proven credit history and own initial capital required by the banks. The common access to the Internet and sharing economy presence in every area of life should change this correlation soon.

The second thesis outlines, that there is a significant impact of the age structure of population on increase in the level of financing through crowdfunding. In each analysed country in 2015 there were less persons at working age (15-64) and higher rate of older (aged 65 or over) than 10 years before. The richest countries, Czechia and Slovenia, had growing number of children aged 0-14 (as well as Estonia and Latvia), but all of them still were aging societies with the highest rate of elder people in Czechia (26%, when comparing 2015 and 2005) and medium one in Slovenia (17% rise), while only 13% (the lowest rate) in Estonia. It may be concluded that Estonia had the youngest structure of population.

Looking at the chosen CEE countries, the biggest number of crowdfunding platforms existed in Poland, followed by Czech Republic and Estonia. Lithuania will be running after these countries since the law changes and possibilities to use online financial platforms.

Considering Estonia, it has to be underlined that majority of financing comes from peer-to-peer lending platforms. Though there are not many inhabitants and GDP per capita is average, the country has the most willing online crowd investors. Baltic countries represent relative leaders (like Estonia) with respect to crowdfunding adoption and growth in terms of volumes per capita (Wardrop *et al.*, 2015).

As the future research it may be recommended to search for other contributing factors to develop crowdfunding platforms and models across CEE countries and different sectors, with the emphasis on the role of crowdfunding as complementary or alternative financing way to traditional channels. The other path of further study may be researching the disparities and nature of welfare, described by some authors as changing after the EU integration in CEE countries (Zdražil & Applová, 2016, p. 49-50) and its impact on crowdfunding development.

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