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SPECIFIC FEATURES OF BUSINESS BEHAVIOR AND DIMINISHING INTERNATIONAL DIFFERENCES

IBRAHIM MUSTAFA SHARFELDIN¹

Abstract:

Cultural environment is among the most important factors that affect nations' prosperity. Cultural values influence ways in which people conduct their professional and personal lives. Society members' attitudes and behaviors have significant contribution to the improvement of well-being standards. Undeniably, certain cultural characteristics assist in promoting welfare. These characteristics impacts society members' attitudes and behaviors towards many issues. In this work, we will reflect the influence of some of the cultural values on international business operations. For the purpose of performing this study, we have selected Norwegian and Japanese societies as samples because these societies originated from different parts of the world and may have different cultural values. Needless to say that the two nations achieved an outstanding welfare levels in spite of sever environmental and similar geographical conditions.

Keywords: *Cultural environment, Cultural values, Cultural characteristics, Attitudes and behaviors, Well-being, Welfare, Counterparts, Sequential, Monochronic, Synchronous, Uncertainty Avoidance, Diffuse, Polychronic, Individualistic, Specific, Deal-oriented, Power distance, Ascription-oriented.*

1. Introduction

Norway and Japan are among leading countries in many fields. Though, the two countries have severe environmental and geographical conditions such as cold weather and mountains. Yet they managed to achieve a tremendous well-being standards. Certainly, both countries have strong economic potentials, however Norwegians and Japanese people have some qualities that assisted them in attaining this significant welfare levels. Cultural values affect society members' behaviors towards professional and personal lives' styles in different ways. In this work, we intend to look at some of the cultural characteristics of the two nations so as to know how these characteristics influence the lives of the two nations with the aim of better understanding the impact of cultural environment in the development of nations and more precisely their attitudes and behaviors when performing international business operations.

Norwegian and Japanese societies members certainly have special cultural characteristics. Each of these societies has its own cultures which is relatively different from the other. Behavior is one of the components of culture. Thus, our behavior influences our actions and activities. As such our behavior would certainly have important impacts in our business behavior. In turn, our business behavior would certainly influence communication and negotiation styles with business counterparts in addition to the management of business activities. In following sections, we are going to identify the specific features of business

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behavior in Norwegian and Japanese societies in order to clarify how the business behaviors' influence business activities and operations.

2. SPECIFIC CHARACTERISTICS OF BUSINESS BEHAVIOR

Time is one of the most significant factors in all business activities. However, societies' attitudes towards time differ considerably. In the following lines we are going to look at business behavior towards time in Norwegian society. Norwegian society is sequential. This means that Norwegian society members tend to be punctual as they place high emphasis on time. It similarly means that they give emphasis to planning with a preference to stick to plans already set and to prepare for future. They opt to accomplish one task at a time and to concentrate on the task at hand. As such, Norwegian business sessions are characterized by punctuality and systemization. A detailed agenda has to be prepared in advance and any change in plans must be revealed beforehand. Thus, business behavior tends to be Monochronic in Norway. Norwegian business consider a business counterpart who fulfills business requirements in time [1, p.332].

Japanese take a synchronous approach to time. They stress the importance of punctuality and meeting the deadlines, still they can accept changes in times and plans easily. Uncertainty Avoidance Index is high in Japan. So, Japanese tend to formulate plans in order to avoid any surprises and to pay attention to details to ensure that things go appropriately. These attributes have a significant influence in business behavior. Japanese business seek always for perfection. They take relatively long time looking at details to ensure making right decisions. Japanese society is diffuse. Thus, Japanese may meet business partners after working hours in order to get to know them, so as to build trust and then to decide to conduct business with them. Japanese have a polychronic business behavior [2, p.10].

Culture influences Nations' approach towards business. Norwegians are individualistic. Thus each member of the society seek to make an achievement to gain a respectable status in the society. Norwegians are specific. Though, they give due consideration to work objectives, yet they maintain a clear separation between private and work lives. We also mentioned that they are Monochronic, meaning that they prefer to accomplish one task at a time and to concentrate on the task at hand. These attitudes signify that when Norwegians get involved in a business activity, they may not want to waste time in socializing before getting down to business. They initiate business communication and negotiation directly and focus in business deals rather than seeking to get to know business partner and then to decide to conduct business with her/him. Scandinavians are among deal-oriented societies [3, p.19].

Historical catastrophes and limited ability to exercise influence over nature impacted Japanese culture critically. We previously revealed that uncertainty avoidance index is high in Japanese society. Therefore, society members seek to avoid ambiguity by all means. To do so, they tend to identify all details. They similarly seek to investigate all relevant data to avoid any error and make accurate decisions. We also indicated that Japanese is a diffuse society. So, there is no clear separation between private and professional lives. Society members may socialize with peers and clients. As such, Japanese businessmen may seek to meet potential business partner after working hours with the aim of identifying counterpart's characteristics to build trust and then decide to conduct a business activity. Japanese culture influences

Japanese business behavior greatly. Business deals rely heavily on relationships in Japanese society [4, p.31].

Power distance indicator is low in the Norwegian society. It signifies that an opportunity for discussion and sharing opinion in this society is greater than in other societies. At the family level, parents need to convince their children by logic and not to use force. At society and public levels, each person understands her/his rights and obligations. So, individuals know limits of their prerogatives. Consequently, no one would exceed powers conferred upon her/him. Such attitudes may perhaps be reflected in their business behavior also. Norwegians tend to have a professional business approach. Any business decision is subject to extensive discussions and managers do not make decisions unilaterally. Subordinates are involved in decision-making processes each in her/his specialization. In business, people communicate in a less formal way as they have an equal status. Norway is characterized by its egalitarian business culture [5, p.59].

Power distance indicator is high in Japan. Therefore, titles and ranks play a major role in determining a person's position in an organization and status in society. Age is a main factor upon which one gain respect. This attitude is predominant in Japanese culture but also Japanese business behavior. Japanese is an ascription-oriented society in which age and experience play a main role in decisions-making. In business, managers who are mostly old and possess more experience make decisions in general. Subordinates attempt to avoid making decisions and just to communicate facts leaving responsibility of making decisions to managers. The acceptance of power inequalities and conferral of decision-making powers to senior family members in Japan society promoted hierarchical relationships in social institutions and in workplaces. Japanese business leaders are not democratic [6, p.296].

As aforesaid, power distance indicator is low in Norwegian society. Consequently, power is distributed equally amongst society members regardless of their ages and positions. The trend implies that since all members are equal, they have the right to reveal their viewpoints. As they belong to an indulgent society, Norwegians recognize the importance of debates and encourage, dialogue and feedback in meetings in order to make decisions that take into account interests of all. They also belong to a specific culture, so when Norwegians are invited for any discussion, they tend to be transparent and they prefer to be direct and precise. We believe that Norwegians reveal these cultural attitudes in social context and also in business environment. They likewise encourage a deal-focused approach to business and in order to achieve a business deal, they tend to communicate in a direct style. Norwegians place greater emphasis on directness [7, p.8].

Communication style in Japan is influenced by many cultural factors. Power distance indicator is high. Advices and instructions of parents and seniors have to be obeyed and respected. This could signify that an individual may communicate in an indirect manner to avoid been considered impolite. This attitude may be perceived in a similar way in business, between leaders and subordinates as juniors have little chances for sharing opinion and discussion. Westerners (whose PDI is low) consider this behavior to be a reversed communication approach. In business context, while specific westerners prefer to be direct and precise. Japanese may in general find it rude to reply to a partner's request with a direct no. So, they tend to use an indirect language. Furthermore, they do not like the westerns style. Japanese

consider westerners direct communication behavior as a violation for their cultural communication norms [8, p.90].

Table 1. Norwegians and Japanese business behavior

Norwegians	Japanese
Monochronic	Polychronic
Deal-oriented	Relationship-oriented
Egalitarian	Unequal
Achievement-oriented	Ascription-oriented
Direct Communications Style	Indirect Communications Style

Source: Author's elaboration

Industrial revolution contributed in providing communications and transportation means. Movement of people and goods became much easier than before the revolution. Thanks to the improvement made in communications and transportation, international business operations also witnessed a giant development. However, international differences constituted a major challenge for businesses. In this part, we are going to examine cultural differences only, because in this work we are focusing on culture and its components and their impact on business activities. Language constitutes one of the important components of culture. Industrial revolution played a great role in the spread of English as a language of science and technology. Businesses working internationally sought to recruit staff members who have a good command of English and other international language so as to promote business communication.

Businesses sought to discover new markets outside their countries so as to increase their profits. They always conduct complete market scans so as to identify aspects of the business environment. Business environment itself is composed of many dynamic and interrelated factors that can affect business activities in different ways. Thus, firms seek to identify international differences through using different policies and tools. Today, international business people find themselves working in a multicultural environment. Therefore, they need to know about these cultural differences as it can affect business behavior. Business behavior in turn would definitely influence communication and negotiation with business counterparts as well as management of business activities. Businesses are thus required to approve the best business behavior to ensure success of their operations and to assure their survival in the international markets.

Mass media and other tools often play a major role in bridging gaps between cultures. Whereas mass media reflects general styles and trends in a society, it also reveals fashions' changing. Thus, firms may rely on opinions expressed in local mass media to be acquainted with national cultures. Training sessions held to explain cultural diversity between nations and best business behavior contribute to the bridging of the gaps between cultures, enabling implementing global management strategies. Internet similarly provide a massive amount of information about components of most cultures, therefore, it can serve as a source of useful materials which can contribute to understanding characteristics of different cultures. So, we can safely state that it is important to know features of other cultures, so as to communicate effectively. Understanding cultural differences would definitely lead to diminishing international differences [9, p.25].



Figure 1.1. Understanding cultural Differences

Source: *Explore Cross Cultural Communication and more!* [10].

3. CONCLUSION

Behavior constitutes one of the components of culture, obviously, our behavior influences our actions and activities. As such our behavior would certainly have an important impact in business behavior. In turn, the business behavior would definitely influence communication and negotiation styles with business counterparts in addition to management of business activities. Time is known to be one of the most significant factors in all business activities. However, societies' attitudes towards time differ considerably. Norwegians are sequential, so tend to be punctual. They emphasize planning with a preference to stick to plans already set and to prepare for future. They choose to do one task at a time and to concentrate on the task at hand. Japanese are synchronous. They emphasize punctuality and meeting deadlines, however they are flexible. They have a polychronic business behavior.

Cultures influence nations' approach to business. Norwegians are individualistic, specific and Monochronic. Thus, when they get involved in a business activity, they get down to business directly giving little importance to business partner's recognition. Hence they are deal-focused. Japanese are much affected by historical catastrophes and their limited power on the nature. Therefore, society members seek to avoid ambiguity by all means. They tend to identify all details. They seek to investigate all relevant data to prevent errors and make accurate decisions. Japanese businessmen may seek to meet potential business partner to identify characteristics of the counterpart to build trust and then decide to conduct a business activity. The opportunity for discussion in Norwegian society is greater than in other societies as PDI is low. So, subordinates are involved in business decisions processes each in her/his specialization.

Titles and ranks play a major role in determining a person's position in an organization and status in the society. This attitude is predominant in Japanese culture and also Japanese business behavior. Generally, subordinates attempt to avoid making any decisions and just to communicate facts leaving decisions making to managers. The acceptance of power inequalities and conferral of decision-making powers to senior family members in Japan society promoted hierarchical relationships in society and in workplaces. Power is distributed equally amongst Norwegians who are indulgent and specific. As such, they prefer to be

transparent, direct and precise. Power is not distributed equally between Japanese. Juniors may communicate in an indirect manner to avoid been considered impolite. This attitude may be perceived in a similar way in business. This style of communication is considered by other culture as indirect.

Industrial revolution made a significant contribution to the widespread of communications and transportation means. International business operations also witnessed a parallel giant expansion. Yet, international differences, especially cultural, challenged firms business progress. Businesses sought to recruit staff who knows English and other international language to promote the business communication. International business people working in a multicultural environment were obliged to be aware of cultural differences as they can affect communication and negotiation with business counterparts as well as management of the corporate. They may exploit mass media as it reflects general styles and trends besides change of fashions in a society. Training sessions likewise contribute in bridging the gaps between cultures. Internet is similarly an important tool in revealing cultural dissimilarities, thus diminishing international differences.

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THE CONTRIBUTION OF PNCDI 2 PROGRAMS TO THE DEVELOPMENT OF YOUNG RESEARCHERS' CAREERS¹

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Abstract

This paper aims to analyze the contribution of specific programs included in the National Plan for Research, Development and Innovation for the period 2007-2013 (PNCDI 2) to the development of young researchers' careers in Romania. In particular, the focus will be on the Post-doctoral research projects, as well as the Research projects to stimulate young independent teams, both aiming to support young people to develop their research career, the ultimate purpose being that of stimulating scientific excellence in Romanian research. Both quantitative and qualitative data was collected from young researchers participating to two competitions launched in 2012. An investigation was thus conducted in order to evaluate the main benefits generated by the participation to the above-mentioned research programs and characteristics of further research careers of the participants.

1. Introduction

In this paper we investigate the contribution of the Romanian National Plan for Research, Development and Innovation for the period 2007-2013 (PNCDI 2) to the development of young researchers' careers in Romania, by focusing on the following two specific programs: *Post-doctoral research projects*, as well as *Research projects to stimulate young independent teams*. The selection of these two programs from the PNCDI 2 was made on the basis that they both aim to support young researchers with PhDs to either create or strengthen their own research teams through the carrying out of an independent research program, or to develop an independent research career in research institutions in Romania. Both programs aim in the end to create incentives for scientific excellence in research.

The methodological approach consisted in collecting both quantitative and qualitative data from young researchers who had participated in one of the competitions launched in 2012 for the two programs. The data was then used as input in our investigation on the main benefits generated by the two research programs. A hypothetical counterfactual scenario was also built in order to assess the main benefits that would not have been obtained in the absence of the financed projects.

The main findings presented in the paper represent preliminary results of the POCA project "Developing the administrative capacity of the National Authority for RDI for implementing actions from the National Strategy for RDI 2014-2020".

¹ The article was presented at the international workshop "ATTRACTION OF YOUNG PEOPLE TOWARD SCIENCE – STRATEGIC WISH OF THE KNOWLEDGE SOCIETY", Bucharest, ROMANIA, 21 – 22 of June, 2018

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The structure of the paper is the following: section 2 describes the methodological framework, while Section 3 is dedicated to the main findings of the investigation. The last section concludes.

2. Methodological framework

The purpose of our study consisted in exploring the contribution of the two specific programs included in the National Plan for Research, Development and Innovation for the period 2007-2013 (PNCDI 2) to the development of young researchers' careers in Romania, namely the *Post-doctoral research projects* (2012 call), as well as the *Research projects to stimulate young independent teams* (2012 call).

As said earlier, both programs aimed mainly to support young people to develop their research career, but also to contribute to the stimulation of scientific excellence in research.

The methodological framework of our study is built upon the collection of both quantitative and qualitative data through the following two complementary approaches:

- I. *Exploratory questionnaire-based survey among beneficiaries*, consisting of:
 - 30 face-to-face interview responses from post-doctoral researchers (*Post-doctoral research projects*),
 - 22 on-line interview responses from project directors (*Research projects to stimulate young independent teams*)
- II. *Case studies* at the level of:
 - 3 research projects funded through the *Post-doctoral research projects* program
 - 3 research projects funded through the *Research projects to stimulate young independent teams* program
 - Data from the project reports
 - Face-to-face interview with the project directors
 - Face-to-face interview with the representatives of the host (research) institutions

The data collection was financed by the National Scientific Research Institute for Labour and Social Protection during September-October 2017, through the POCA project “Developing the administrative capacity of the National Authority for RDI for implementing actions from the National Strategy for RDI 2014-2020”.

All the information gathered has been analysed following several topics, such as: continuation of research activities at the moment of the investigation, results achieved through the financed projects, results not achievable in the absence of financing and main benefits of the programs. We cover the perspectives of both researchers and research organizations where the projects have been implemented.

3. Main findings

The main findings of the two methodological approaches considered in the study (one regarding the exploratory questionnaire-based survey and the second one regarding case studies of projects) will be presented in this section.

3.1 Results of the exploratory questionnaire-based survey among beneficiaries

Regarding the beneficiaries of the *Post-doctoral research* projects that were analysed through explanatory questionnaire-based survey, it turned out that around 90% (27 persons) were still carrying out research-activities at the moment of the survey, having on average around 12.3 years of experience in R&D activities.

When referring to the project directors of the *Young teams research* program, approximately 82% (19 persons) were still carrying out research-activities at the moment of the survey, with an average of 14.6 years of experience in R&D activities. Moreover, 80% of the researchers involved were still employed at the host institutions at the moment of the survey.

The gender distributions of the investigated beneficiaries of the two programs are quite similar, having approximately 44% male researchers and 56% females. The age-groups distributions, however, differ between the two programs beneficiaries, according to the specificities of the targeted groups of the two programs. More precisely, among the interviewed beneficiaries of the *Young teams* program, around 50% were between 30-40 years old and 25% were below 30 years old. Among the beneficiaries over 41 years old, 18% were below 54 years old, while only around 6% were older than 55 years old. In comparison to it, the beneficiaries of the *Post-doctoral research* projects were mostly younger than 40 years old (around 60%), while the rest were between 41 to 54 years old.

Regarding the results achieved through the *Post-doctoral research* program, the vast majority of the respondents believe that the projects results led mostly to knowledge and skills development (87% of the respondents), enhanced visibility at national and international level (83%), significant scientific contributions (73%), as well as fulfilment of scientific criteria for promotion (70%). Less than 47% appreciated the access to mobilities, while some have considered relevant the access to international research teams (36.7%) and to further financing (33%), while only 16% appreciated that their post-doctoral research project led to high transferability potential of results or even personal fulfilment (see Figure 1 below).

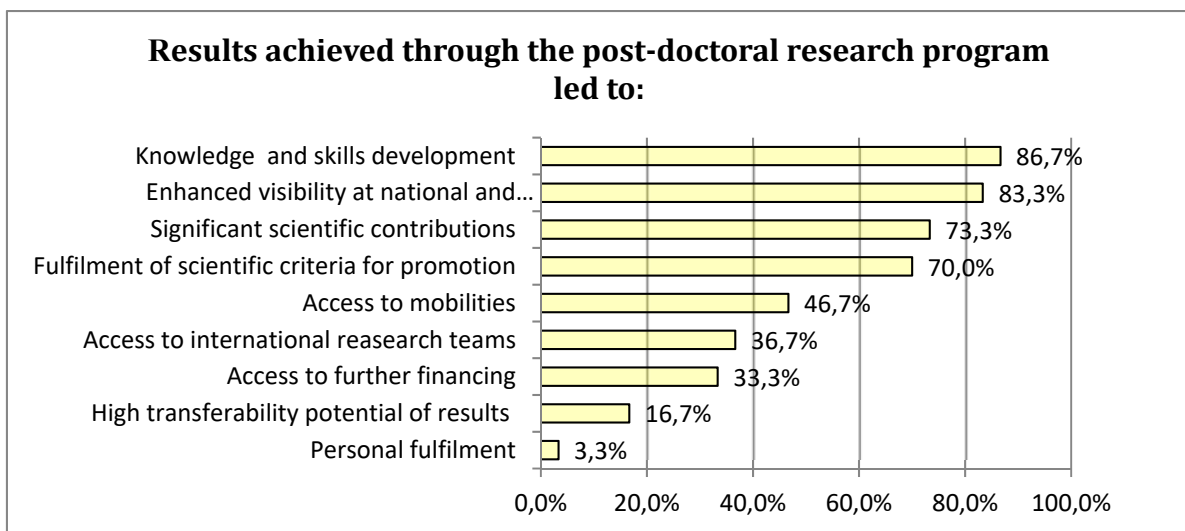


Figure 1. Results achieved through the post-doctoral research program

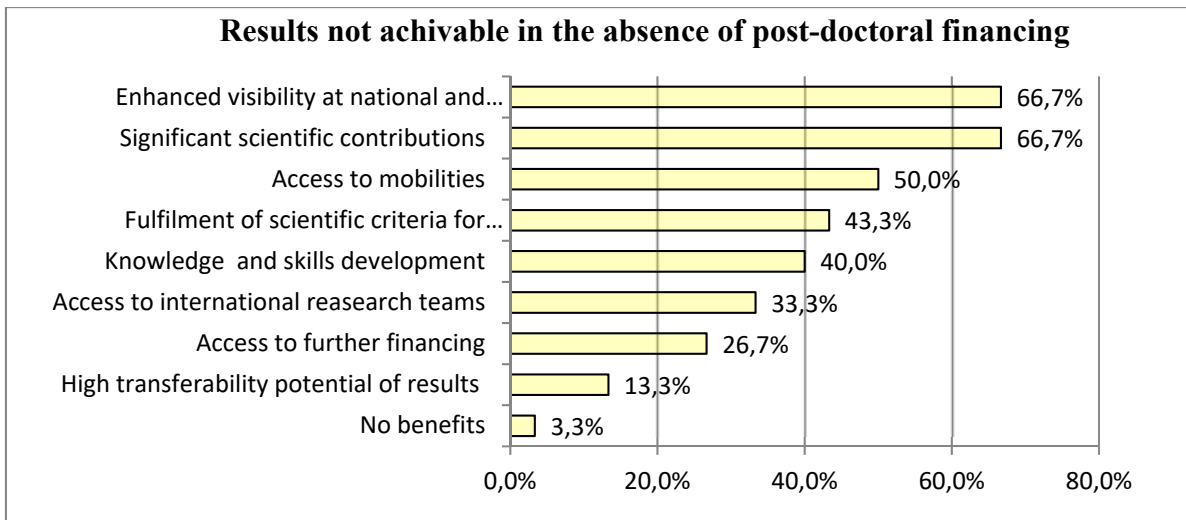


Figure 2. Results not achievable in the absence of the post-doctoral research program

When being asked to estimate the types of results that would have not been achieved in the absence of the post-doctoral financing, the respondents placed on top of the list the enhanced visibility at national and international level, as well as the increase in the significant scientific contributions. Half of the respondents also considered that without the post-doctoral financing they would not have had access to mobilities, while others expected less fulfilment of scientific criteria for promotion, less knowledge and skills development, or access to international research team or to further financing in the absence of the program. Very few of the respondents considered, however, that no real benefits were obtained from the post-doctoral research program.

Moreover, the respondents place among the main benefits of international mobility programs the following: collaborations with world-renowned experts (40% of the respondents), access to scientific bibliography (33%), or access to software and laboratories (30%) (see figure 3).

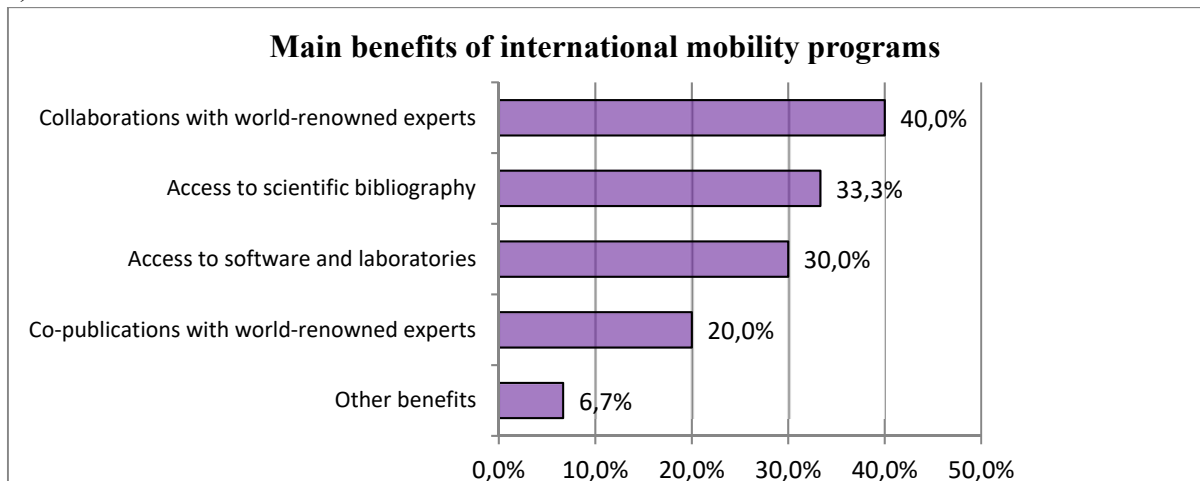


Figure 3. Main benefits of international mobility programs

Under the counterfactual scenario, the respondents kept a similar hierarchy of the main benefits believed not to be achievable in the absence of international mobility programs (see figure 4 below).

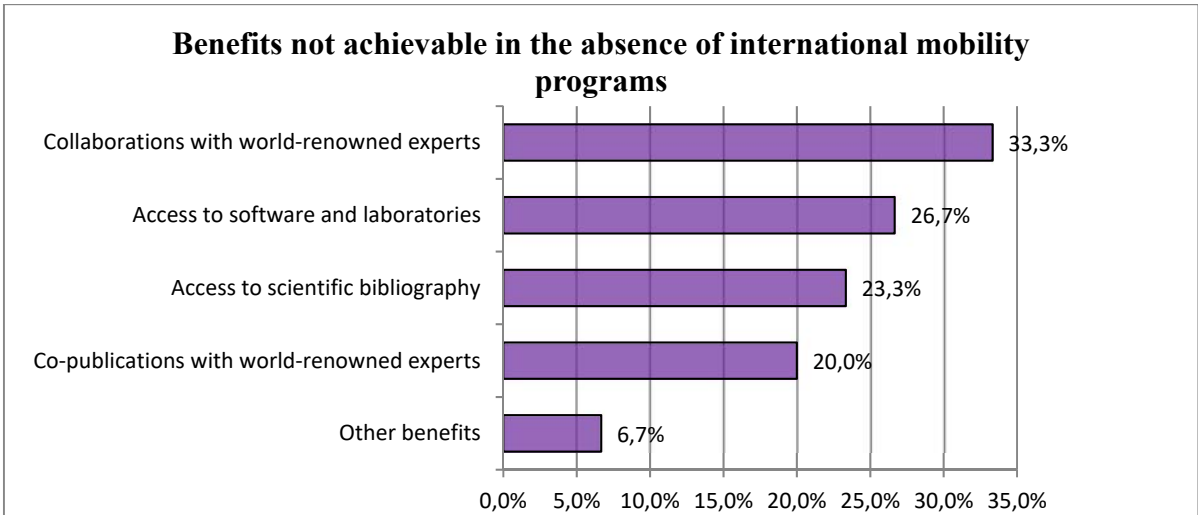


Figure 4. Benefits not achievable in the absence of international mobility programs

Concerning the perception of the beneficiaries of the *Young teams research* programs upon the projects results, the vast majority believe that the main benefits consist mainly of enhanced visibility at national and international level (91%), as well as an increase in significant scientific contributions (just as equally important). Highly important are also the benefits of extended and strengthened collaborations, as well as the opportunity for knowledge and skill development, while half of the respondents consider also the access to research networks and infrastructure among the main benefits of the Young teams research financing scheme (see Figure 5 below).

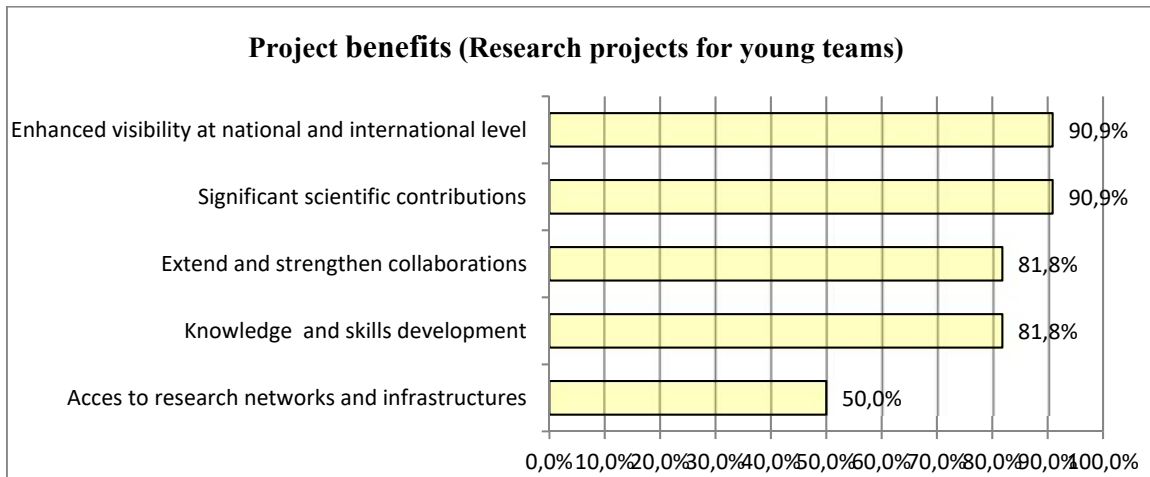
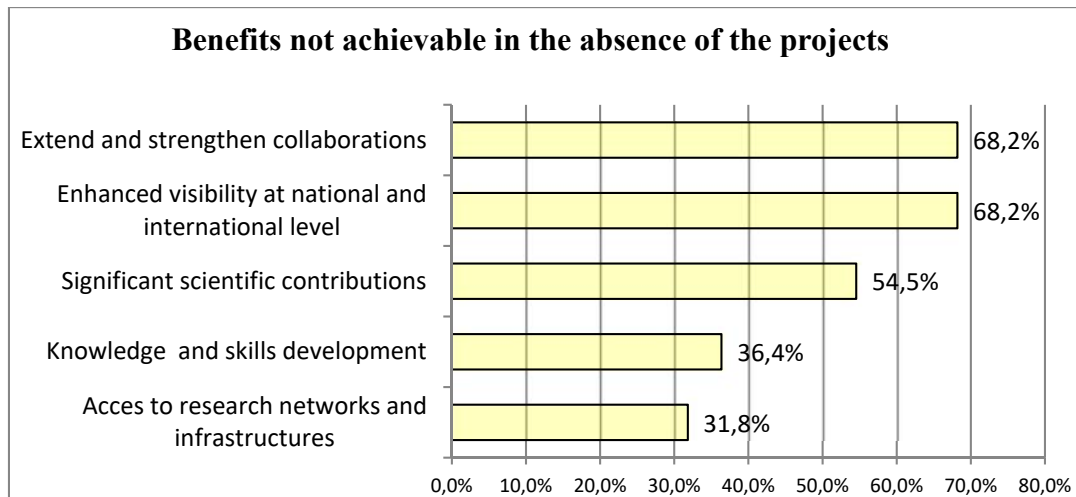


Figure 5. Project benefits (Research projects for young teams)

When being asked to estimate the types of results that would have not been achieved in the absence of the young teams financing, the respondents placed on top of the list the enhanced visibility at national and international level, as well as the opportunity to extend and to strengthen collaborations. More than half of the respondents also considered that without the financing of young teams they would not have managed to increase their significant scientific contributions. Others would have expected less knowledge and skills development, or access to research networks and infrastructures in the absence of the financing.



**Figure 6. Benefits not achievable in the absence of the projects
(Research projects for young teams)**

3.2 Results of the case studies

The second methodological approach consisted in collecting qualitative data through case studies among the beneficiaries of the two programs dedicated to young researchers. The information gathered through the case studies allowed us to build a more holistic image of the results achieved through the two research programs, both from the researchers' perspective and the research organizations' position.

From the researchers' perspective involved in the *Post-doctoral research* projects we learned that knowledge and skills in the scientific field (including access to relevant software) improved, along with visibility and publication (especially ISI articles). Moreover, the post-doctoral research program allowed the researchers to continue their research activities started during the PhD program. However, the researchers state that the retention in the academic career would have been the same in the absence of the project.

From the research organization's perspective, the projects contributed to the development of the research infrastructure (workstations, software, laboratories) and improved the visibility of the institution. Moreover, although the projects did not contribute to attract new researchers, it positively influenced the performances of the existing ones.

Among the researchers' answers during the interviews, the following phrases were stated:

- *“At that time, I didn't have any other opportunities to further finance my research”*
- *“Probably, I would have achieved the same results but it would have taken more time or collaborations or I wouldn't have had all the necessary resources”*
- *“I gained more knowledge and skills due to the new software that has been acquired within the project”*
- *“Even in the absence of the postdoc, I would have still be working at the university”*
- *“The results obtained through the project wouldn't have been possible as they required resources that we didn't have”*

Similarly, the general perception of the researchers' involved in the *Young teams* research projects consisted in the following benefits: improved visibility and publication (especially ISI articles), access to international collaborations, higher motivation, improved access to scientific

books, international conferences and research mobility, as well as the development of small teams of researchers, including young PhD Candidates.

From the research organization's perspective, the projects contributed to the improvement of the institution's visibility at international level and also of the institution's research infrastructure. Moreover, the young teams program also helped retaining young researchers in the institution

Among the researchers' answers during the interviews, the following comments are noteworthy:

- *“I gained higher motivation through the participation to international conferences and through the discussions with mathematicians from abroad”*
- *“I would have continued my research in the absence of the project, but I wouldn't have been able to go to the conferences, for example...”*
- *“I am extremely satisfied with my new relations with colleagues from abroad”*
- *“I developed a good working relationship with a younger colleague which is a good thing for both of us”*
- *“I believe that without funding, we cannot have results in research, at least not results which are recognized at international level”*

4. Conclusions

This paper aimed to analyse the contribution of two specific programs of the National Plan for Research, Development and Innovation for the period 2007-2013 to the development of young researchers' careers in Romania. In particular, the focus was on the Post-doctoral research projects, as well as on the Young teams research projects, aiming to support young researchers with PhDs to create or strengthen their own research teams or research career.

Both quantitative and qualitative data was collected from beneficiaries of financing through the two programs during the calls launched in 2012. The investigation focused on evaluating the main benefits generated by the research projects, as well as those that would not have been obtained in the absence of the findings.

The main findings of the analysis indicated that funding through PNCDI2 has helped young researchers to improve their international visibility, develop their skills and knowledge, obtain significant scientific results and access and strengthen collaborations. Moreover, according to researchers' opinions, most of these gains would have been difficult to achieve in the absence of financing.

On the one hand, post-doctoral researchers, being at an earlier stage of their career, as compared to project directors of young teams, value more the gains in skills and knowledge and the access to international mobilities, which consequently improved their access to international research infrastructures and encouraged collaborations. On the other hand, project directors of young research teams believe that extending and strengthening collaborations is the main benefit drawn from the funding.

Finally, the projects' host organizations' perspective emphasized the role of funding for researchers retention within the organization and the positive contribution to research infrastructure development.

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A SPATIAL ANALYSIS OF YOUTH RESEARCHERS IN ROMANIA¹

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Abstract

*Under the New Economic Geography and Evolutionary Economy framework we make a spatial analysis of the youth researchers in Romania. The youth researcher's presence in urban locations predict according to Moretti's (2012) the sustainability of the engine of economic growth. We profile the salaried employment in "R&D activities ISIC 4/ United Nations respectively 72 NACE (Act 72) classification/ INS Romania), at NUTS5 level, using 2011 RPL microdata provided by INS. Applying Univariate Local Moran's, calculated in GeoDa 1.10.0.8 (Anselin 2003, 2005, 2016) reveals for Romania a pronounced clustering tendency for this division, pattern illustrated in Choropleth maps made in ARC GIS. For any competitive city, **the human capital is a top priority** (World Bank, 2015, p.45) as the foundation for its growth policy and to the attraction of the investors.*

Keywords - youth research, innovation performance, knowledge production, RD agglomeration

1. Introduction

Importance of RD agglomeration

Mora et al., (2011) found „that highly skilled labour pools induce regions to increase their level of Specialization”. Bishop and Gripiaios, (2010) points that “local specialization policy option that is likely to yield substantial short-term gains in terms of employment creation”. They accentuate the thin frontier between specialisation and diversity, where unrelated diversity brings long term gains in employment creation. Not at least, Bishop and Gripiaios, (2010) stress that diversity is “complex and heterogeneous phenomenon, dependent critically on the specific technologies, customers and knowledge relevant to a particular sector”.

Kalemli - Ozcan et al. (2003) point out that „human capital may be a better indicator of development than per capita GDP”. Di Cataldo and Rodríguez-Pose (2017), finds that “higher innovation and education” contribute to overall employment generation in some regional contexts, low-skilled employment grows the most in regions with a better quality of government”. Finds that “the growth rate in one municipality is affected by the growth rates in its neighbouring municipalities” and that “net migration tends to ‘spillover’ to neighbouring municipalities”. Moretti (2012) considers that the high human capital agglomeration is the best predictor for the success of a location.

”Performance in the area of research and innovation remains modest. Despite a solid IT infrastructure and the rapid development of the ICT sector, Romania continues to score low on all European Innovation Scoreboard indicators and there are no signs of improving performance. **The degree of digitization of both the public and private sector remain very low.** (COM (2018) 120 final)

¹ The article was presented at the international workshop "ATTRACTION OF YOUNG PEOPLE TOWARD SCIENCE – STRATEGIC WISH OF THE KNOWLEDGE SOCIETY", Bucharest, ROMANIA, 21 – 22 of June, 2018

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Dachin and Postoiu, (2015) founds for Romania that “since 2000 industrial restructuring in the context of economic growth, foreign direct investment and integration in the European research networks led to an increase in the polarization of research and development (R&D) activities between NUTS3 and even NUTS2 regions”. It remarked the case of Arges and Ilfov counties, are the leaders in 2011 with 1.2-2.9% of regional GDP for R&D expenditures at NUTS 3 level. Locations that attract people indicates success in a global world. Beyond the economic performances, these places are more and more important for their role in the mechanism of empowerment of people. Pollock and Hind, (2017) found that place’ will become an ever more important concept in understanding the motivations for civic and political engagement”. On the other side, the pursuit of identity and personality formation is another driver for global mobility for youth. Roman and Vasilescu, (2016) found that age is a relevant factor for the intention of the youth to migrate: the younger a person is, the higher the probability of wanting to emigrate. Sandu et al., (2014) found that “almost 40% of the respondents state they would like to emigrate, even if only temporarily (for studies or work)”.

Our research question is how human resource is in general and youths in special, from the R&D sector spatially distributed? The identified patterns are random or clustered?

Rodríguez-Pose and Crescenzi, (2008) announces since 2008 the importance of “proximity for the transmission of economically productive knowledge, as spill overs are affected by strong distance decay effects”. In this context, the youth researcher’s spatial analysis at LAU2/NUTS5 level is an original contribution, first time made for Romania.

2. R&D&I short profile in Romania

2.1.Human resource from R&D activity in Romania - focused on youth researchers

According to Iagăr, (2017) INS in December 2017 were 44,8 thousand persons employed in R&D activity, from which 32,6 thousand employees with full-time equivalent. Female represent a share 45.8% from total employees in R&D activity and 44.7% from total researcher’s employees. The tertiary education level of this employees have the following structure: 42.2% with doctoral and post doc studies, 41.6% with tertiary level (exclusive doc and post doc), and 1.3% short term education for tertiary graduates before Bologna system implementation and of the education (tertiary exclusive one) 14.9%.

Youth concept from the Age perspective

Perovic, (2016) points that Romania defines youth age between 15-35 years old, the 35 years is regulated by housing law eligibility support. EU in its strategic framework targets young people between 15 and 29 years of age. The usual youth age group for labour market comparability is 15-24 years.

Youth researchers in Romania

The research activity for youth is at the frontier between high education and work. On the background of Bologna framework (3 – 2 – 3) the access to doctoral programs is in education system, counted for 15-24 years old age group. POCU doctoral programs provide bursaries fact that indicate the presence of a “work contract” in appropriate research activities. The 25-34 /35 years is the second age interval where is possible to found youth researchers, as freelancers but mostly as employees in RD institutes.

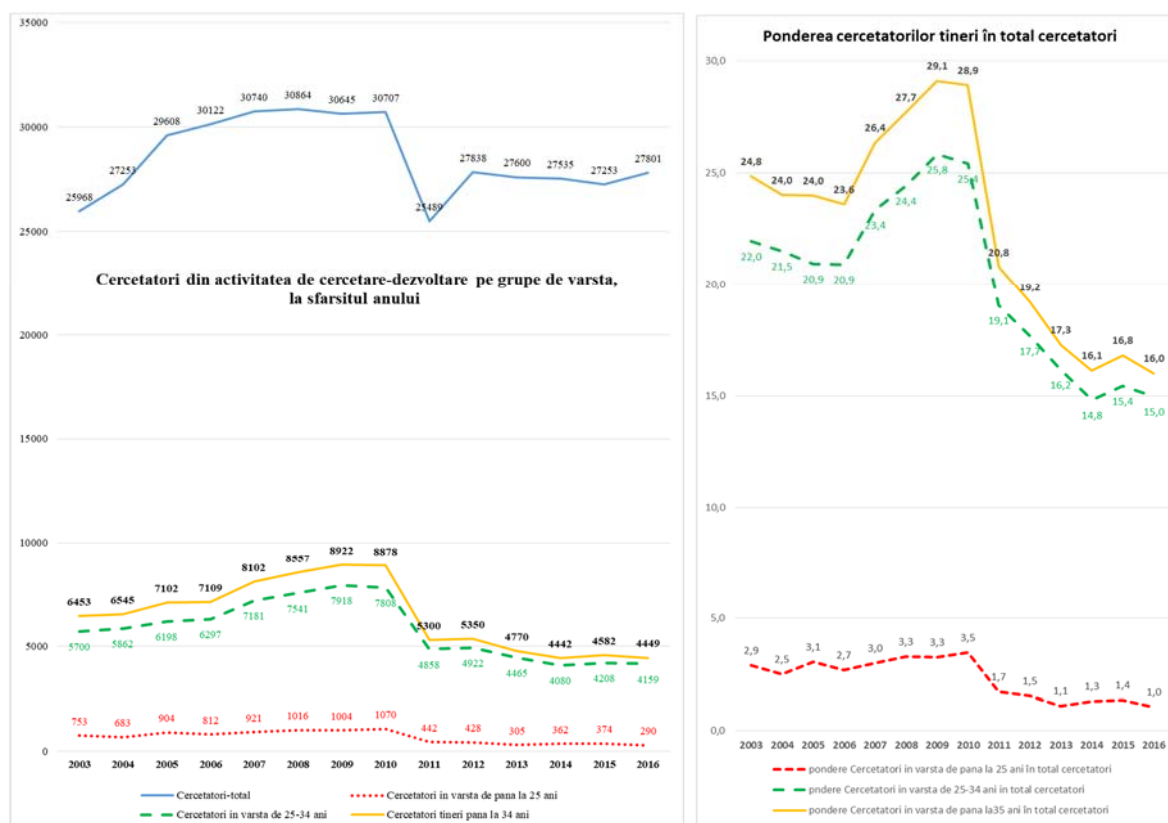
Research activity is a long term team work. Gingras et al., (2008) finds for US that “the average age at which U.S. researchers receive their first grant from NIH has increased from 34.3 in 1970, to 41.7 in 2004”. Blau and Weinberg, (2017) establish in 2017 a “steady-state mean age 2.3 y higher than the 2008 level of 48.6”. The authors signal as effects of researcher ageing the risk of decreasing the scientific production coupled with extension of the age exit from the labour market for the old one.

In Romania the total researcher gather 27.8 thousand in 2016, higher with 2.5 thousand compared to 2011 and less with 10 thousand compared to 2008! Youth researchers, below 34 years old counts in 2016 around 4.4 thousand from which 290 are aged less 25 years old. In 2009 with 8.9 thousand was reached the maximum of total youth researchers (with age less than 35 years), while the youth researcher’s accounts more than one thousand. The loss of youth in research is dramatic, following the shock from 2010.

The number of youth researches (15-34 years old) halved in 2016 since 2008. There is a more accentuate process for the youth researcher’s ages 15-24 years old, which decreased tree times in 2016 compared to 2010. (See Figure 1)

The speed of youth researchers decreasing is vital for the policies.

Figure 1. Researchers from the research-development activity by age group at the end of the year and their share in total researchers, during 2003-2016



Sursa date: INS / TEMPO / CDP102H - Researchers from the research-development activity by age group at the end of the year

According to EIS 2018¹ database Romania has a low coverage in terms of:

-The percentage population aged 25-34 having completed tertiary education with 25.6% in 2017 higher with 0.2pp than the level from 2011. Its rank is 34/34, the lowest performance, at 65% only form the EU average;

¹ <https://ec.europa.eu/docsroom/documents/30282>

-New doctorate graduates per 1000 population aged 25-34 years old decrease from 2 in 2011 to 0.85 in 2016. This decrease is very sharp, the number of new doctorate graduates in 2017 is 42% only from the level in 2011. EU tendency reverse, new doctorate graduates per 1000 population aged 25-34 years old increasing from 1.5 in 2011 to 2.01 in 2016, or in absolute terms with 1/3 in 2017 compared to 2011.

-Foreign doctorate students as a % of all doctorate students is 3.8% in 2016 for Romania, higher with 0.8 compared to 2011. At EU average the doctorate internationalization is 26.1% in 2016, higher with 1.6pp than 2011. This positive trend fail to fill the gap of 85% compared to the EU level for 2016 performance.

2.2. Knowledge production

Following the developed countries model, the development countries build strategies to create comparative advantage. This process request more and more to increase the adoption of the technologies on the background of exponentially increasing of the technological rate of changes. Freeman, (2010) found that scientific and engineering talent are globalised. He also points 5 types of the manifestations in which “Globalization of scientific and engineering has proceeded: (1) expansion of mass higher education worldwide; (2) growth in number of international students; (3) immigration of scientists and engineers; (4) non-immigration trips: academic visitors, conferences; (5) greater international co-authorship and co-patenting.”

Knowledge production is decreasing for theoretical publication and improved in applied intellectual protection mechanisms (patents, trademarks and designs).

International scientific co-publications per million population increase for Romania with 50.4 % growth rate form 120.9 in 2011 to 181.8 in 2019, representing 35.1% from the average EU performance. At EU level this rate was 42.5% reaching 517.5 international scientific co-publications per million population in 2017.

Scientific publications among the top 10% most cited publications worldwide as % of total scientific publications of the country confirm the negative trend for Romania with 4.8 in 2015, with 0.21 less than the performance from 2011.

The impact of scientific of Romanian publication compared to EU average decrease from 47.8% in 2011 to 45.4% in 2015. This indicator is slightly higher with 0.07pp in 2015 at 10.57 scientific publication compared to 2011 level.

Public-private co-publications per million population is 3.7 in 2017 for Romania, less 1.4 publication than 2011.

In EU this indicator is 40.9 in 2019, higher with 1.4 than the level from 2011.

PCT patent applications per billion GDP (in PPS) is 0.22 in 2015 for Romania, slightly higher than the 2011 level of 0.21. At EU average the PCT patent application decrease form 3.87 in 2011 to 3.53 in 2015, contraire tendency to Romanian one.

Trademark applications per billion GDP (in PPS) increase in Romania with a growth rate of 16.7% in 2017 compared to 2011 while in EU average this rate was only 12.8%, reaching only 33.6% from the EU average. In 2017 Romania have 2.64 Trademark applications per billion GDP (in PPS) wile EU average is of 7.9.

Design applications per billion GDP (in PPS) boosts in Romania with 158.4% growth rate in 2017 compared to 2011 while at EU average the growth rate is -1.9%. Even is an important

development of design application in Romania covers only 29.4% from EU average in 2017, from 11.9% in 2011.

2.3.R&D expenditure

In Romania in 2016, R&D intensity fell slightly to 0.48 % of GDP. In the 2018 budget, the R&D allocation was increased by about 15 % compared to the budget executed in 2017 (Source: 2018 European Semester Country Report, p .42-43).

According to EIS 2018¹ :

- In the **public sector** (% GDP) is 0.21 in 2016, decreasing with 0.1pp compared to 2011. EU in 2016 make 1.32% GDP expenditure in the business sector, increasing with 0.13pp
- **In the business sector** (% of GDP) is 0.27 in 2016, increasing with 0.9pp compared to 2011. EU in 2016 make 1.32% GDP expenditure in the business sector, increasing with 0.13pp

2.4.Regional innovation performance is decreasing visible

2017 Summary Innovation Index (SII) is for Romania 0.157, present a negative change of -14 for SII during 2017-2010. The same tendency is evident for human resources sub index, from 0.089 in 2017 present an accentuated negative change of 18.3 in 2017 compared to 2010. We mention that 2011 SII was 0.223.

At regional level in 2017 all regions are included in the modest innovators performance group, with a negative trend in relative performance to EU in 2011. This status is available to Bucharest – Ilfov region, labelled as a modest innovator but with a positive trend. (Table 1)

RII's values reflects the innovation crises in Romania, losing pace towards EU tendency in 2017 to 2011.

Table 1. Regional Innovation Scoreboard 2017 - Relative performance to EU in "2011"
Corrected version of 21 September 2018: results for Chemnitz and Dresden swapped.

	Macro regions	RII2011	RII2017	RII2017- RII2011	"2017" - score relative to EU 2017	Performance group
RO12	Centru	39,1	31,5	-7,6	30,7	Modest -
RO41	Sud-Vest Oltenia	34,2	23,9	-10,3	23,3	Modest -
RO42	Vest	46,5	35,9	-10,6	35,0	Modest -
RO31	Sud - Muntenia	38,6	27,6	-11,0	26,9	Modest -
RO32	Bucuresti - Ilfov	62,1	48,5	-13,7	47,2	Modest +
RO11	Nord-Vest	44,2	29,1	-15,1	28,4	Modest -
RO22	Sud-Est	45,0	27,1	-18,0	26,4	Modest -
RO21	Nord-Est	44,3	23,7	-20,7	23,0	Modest -

Source: <https://ec.europa.eu/docsroom/documents/31644>

¹ <https://ec.europa.eu/docsroom/documents/30282>

3. Youth policy aspects focused on youth attraction in R&D&I

3.1. Youth Researchers in the EU policy

The main EU documents regarding youth policy are: "EU Council Approves EU Youth Strategy 2019-2027", the "Regulation on European Solidarity Corps 2021-2027" and the "Conclusions on the role of youth work in the context of migration and refugee matters."

The 6th cycle of the EU Youth Dialogue –

Youth in Europe, create the European Youth Goals, in the framework of Youth Strategy 2019-2027, based on the Council Resolution of 26 November 2018:

- 1) "Connecting EU with Youth
- 2) Equality of All Genders
- 3) Inclusive Societies
- 4) Information & Constructive Dialogue
- 5) Mental Health & Wellbeing
- 6) Moving Rural Youth Forward
- 7) Quality Employment for All
- 8) Quality Learning
- 9) Space and Participation for All
- 10) Sustainable Green Europe
- 11) Youth Organisations & European Programmes"

Recently EU launched the initiative „The Pool of European Youth Researchers –PEYR, which “represents a contribution of both the Council of Europe and the European Commission to evidence based policy-making in the field of youth”¹. Krzaklewska, (2016) identifies in the context of PEYR an Europe-centric perspective in youth research with specific domains: inequality, health and mental health, attitudes and norms among young people, well-being, and citizenship. Also, there are identified new research topics with request funding such as inflow of refugees and the rise of nationalism while other topic decreases in its importance (i.e. migrant integration).

Stafseng (2001) in his reflections on the development of Agendas for European Youth research points that the general problem of younger researchers is the “reality of academic slavery”. Intellectual career is specific, request both cooperation and competition among peers. Staffseng (2001) emphasis that problem “for youth researchers is the organisational orientation – between policies based networks and academic networks”. Policies based networks block the research career development and transform them in administrative functionaries. The academic networks are “gerontocratic” by nature and based on merits and hierarchies. There are problems to access a research field, to tasks and projects and develop its peer relations. Staffseng, (2001) These conclusions are confirmed by Krzaklewska, (2016). Krzaklewska found that from the

¹ <https://pjp-eu.coe.int/en/web/youth-partnership/peyr>

EU perspective the number of researchers is relatively high but “in most cases youth research has limited resources and little impact on national youth policy.” Kovacheva, (2001) identifies as a common changes for the youth research in East Central Europe “the pressure of reduced state funding, fact that generate a competition for limited resources” which shapes the youth research community in the region.

In regard research spill over and regional innovation policy approach Guastella and van Oort, (2015) support in the EU case both strategies approaches place based policy strategies alongside with place-neutral (people based) policy strategies. Both types of strategies are important for innovation policies intended to promote research cooperation and dissemination.

3.2.Youth Policy in Romania

European Commission (EC, 2017) regarding youth policies in Romania reports that the National Strategy for Research Development and Innovation (2014-2020) “supports measures to attract young people to science, in formal education and beyond, through measures such as:

- Attracting talented young people to the research career by organizing competitions with prizes for innovative solutions.
- Establish a Science City in the proximity of an innovation cluster or major infrastructure.
- Organizing tours, exhibitions, open days, to promote science to the public, including and promoting the outstanding results of Romanian research.
- Promote interest in science and innovation in pre-university education by including recent findings in textbooks and electronic didactic materials by including in the curriculum some elements of education on innovation-based entrepreneurship through collaboration with technical magazines addressed to pupils and publications popularization of science.

Fostering innovation through non-formal and informal learning and youth work

Fostering innovation through non formal and informal learning and youth work is only targeted through the Erasmus + granted projects implemented by nongovernmental organizations.”

We have to emphasize, that at this moment, by our knowledge there is no specific youth policy in Romania dedicated to attract youth in R&D.

4. Method

Using microdata from 2011 RPL data provided by INS we build LISA (local indicator of spatial association) maps. These maps allow us to make an analysis for spatial distribution of the employees from M 72 CAEN Rev 2 at NUTS5 level in 2011 by the following groups: total, tertiary level of education and youth (15-24 years) total, men and females.

Patachini and Rice, (2007) uses Exploratory Spatially Data Analysis (ESDA) to analyse patterns of spatial association for different indicators of economic performance. ESDA has the Local Indicator of Spatial Analysis (LISA) technique useful to select clusters Low–Low and High-High - spatial cluster hot spots, in GeoDa and Arc Gis Desktop (Anselin, 2010).

This is a technique of LISA allows the decomposition of global indicators like Moran's I into the contribution of each individual observation.

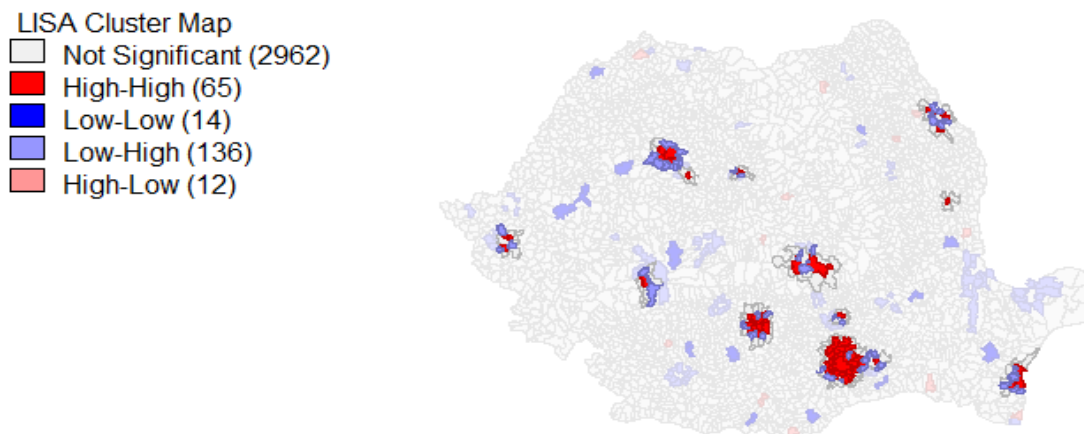
These statistics served “to identify local pockets of no stationarity or hot spots and to assess the influence of individual location on the magnitude of the global statistics and to identify outliers” (Anselin, 2003. 2005, 2016).

With this technique, we could answer the research question **if the identified pattern for the employed person the sector M72 is random or clustered distributed**. We apply Queen Contiguity weight rule of first order. Moran's I Spatial Autocorrelation Statistic is a cross-product statistic with inference based on permutation estimation (Anselin, 2018, GitHub); a Moran's Index value near +1.0 indicates clustering, while an index value near -1.0 indicates dispersion.

5. Results

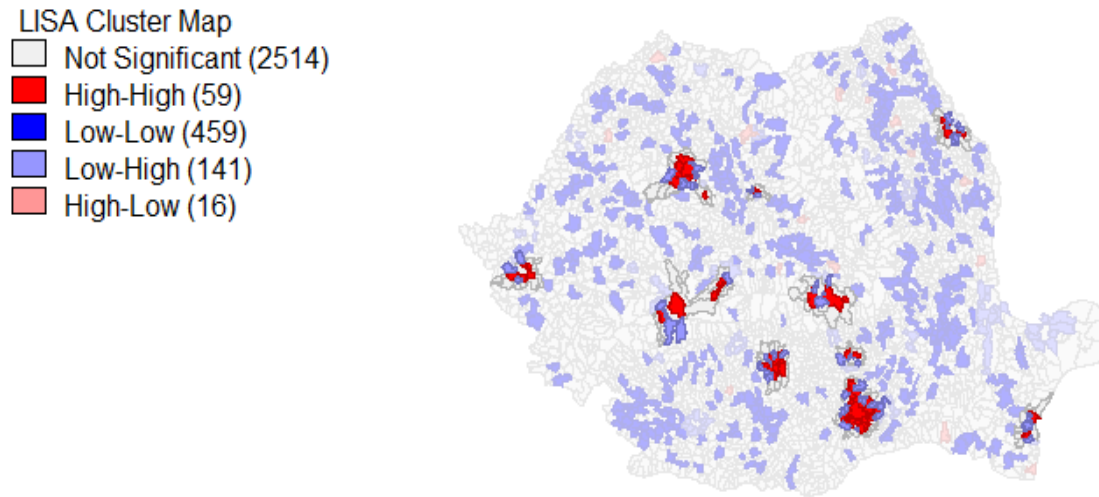
Employees form M 72 NACE Rev.2 at NUTS5 level in 2011 are agglomerated / spatially clustered in 65 locations HH level (location with high level of employees in R&D surrounded by locations with high level of employees) see Figure 2. These locations are agglomerates in urban areas Bucharest, Cluj, Constanta, Brasov, Pitești, Timisoara, Iasi, Hunedoara and Bacău.

Figure 2. *LISA (local indicator of spatial association) analysis for spatial distribution of the employees from M 72 CAEN Rev 2 at NUTS5 level in 2011, (RPL / INS data)*



Employees with tertiary level of education form M 72 NACE Rev.2 at NUTS5 level in 2011 are agglomerated / spatially clustered in 59 locations HH level (location with high level of tertiary employees in R&D surrounded by locations with high level of tertiary employees) see Figure 3. These locations are agglomerates in urban areas mentioned in the case of Figure 2, with exception Bacău.

Figure 3. LISA (local indicator of spatial association) analysis for spatial distribution of the tertiary employees from M 72 CEAN Rev 2 at NUTS5 level in 2011, (RPL / INS data)



	E[I]	-0.0003										
	A05Ps3	Moran's I	pseudo p value	mean	sd	Z value			N0 NH			Rank cluster
3Ps	Act2_72	0.0183	0.005	-0.0003	0.0025	7.3521	reject NH	Clustering tendency	59	Cercetare-dezvoltare	72	10

Figure 4. Spatial distribution (LISA analysis - hot spot) for young people in the research sector M 72 CAEN Rev 2 - 15-24 years clustering tendency: Bucharest, Timisoara, Cluj, Pitesti, Buzau, Ploiesti, Braila,

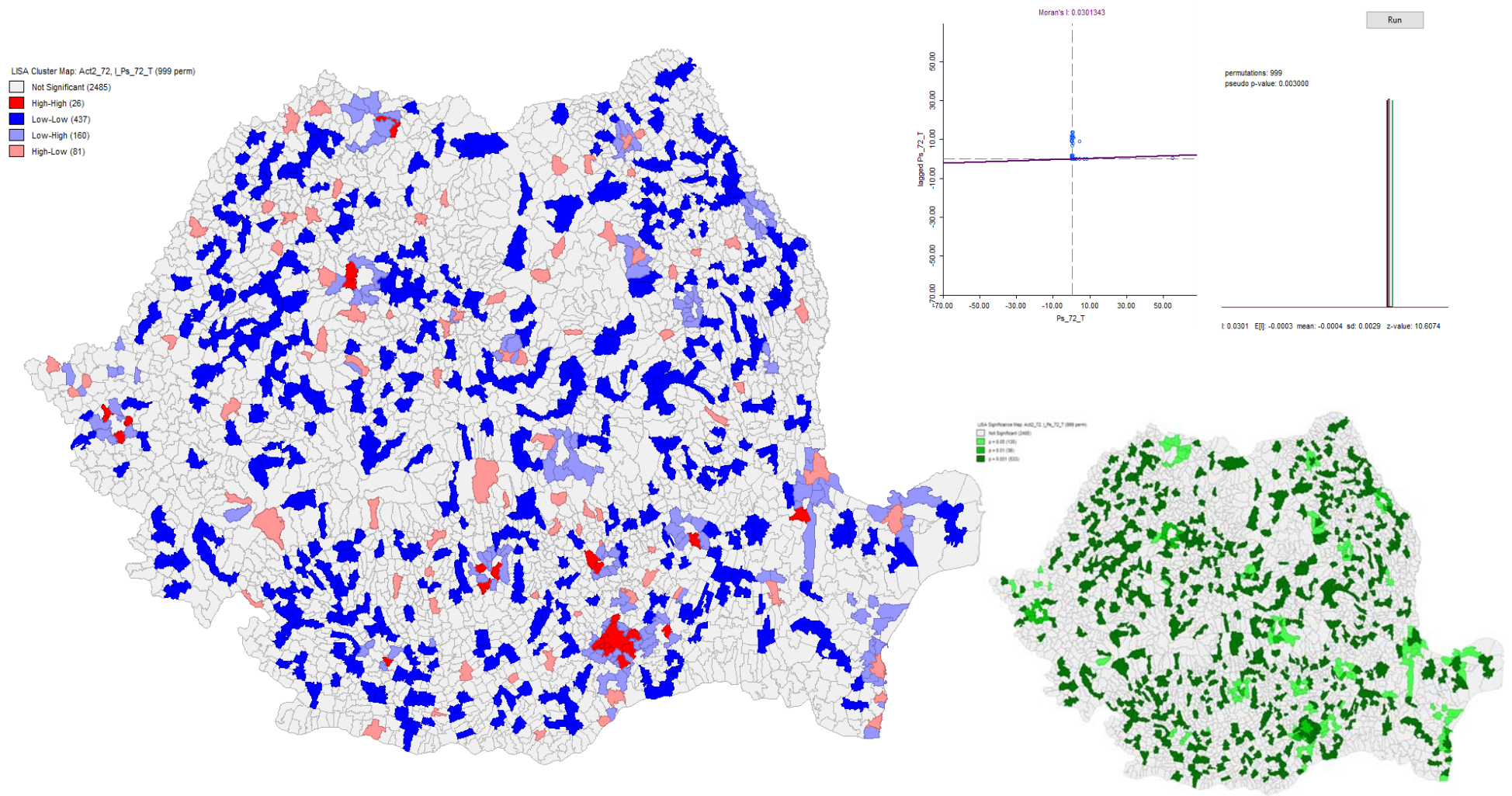


Figure 5. Spatial distribution (LISA analysis - hot spot) for young female's employees in the research sector M 72 CAEN Rev 2 - 15-24 years. Clustering trend: Bucharest, Timisoara, Cluj, Buzau, Ploiesti, Galati, Arad, Baia Mare

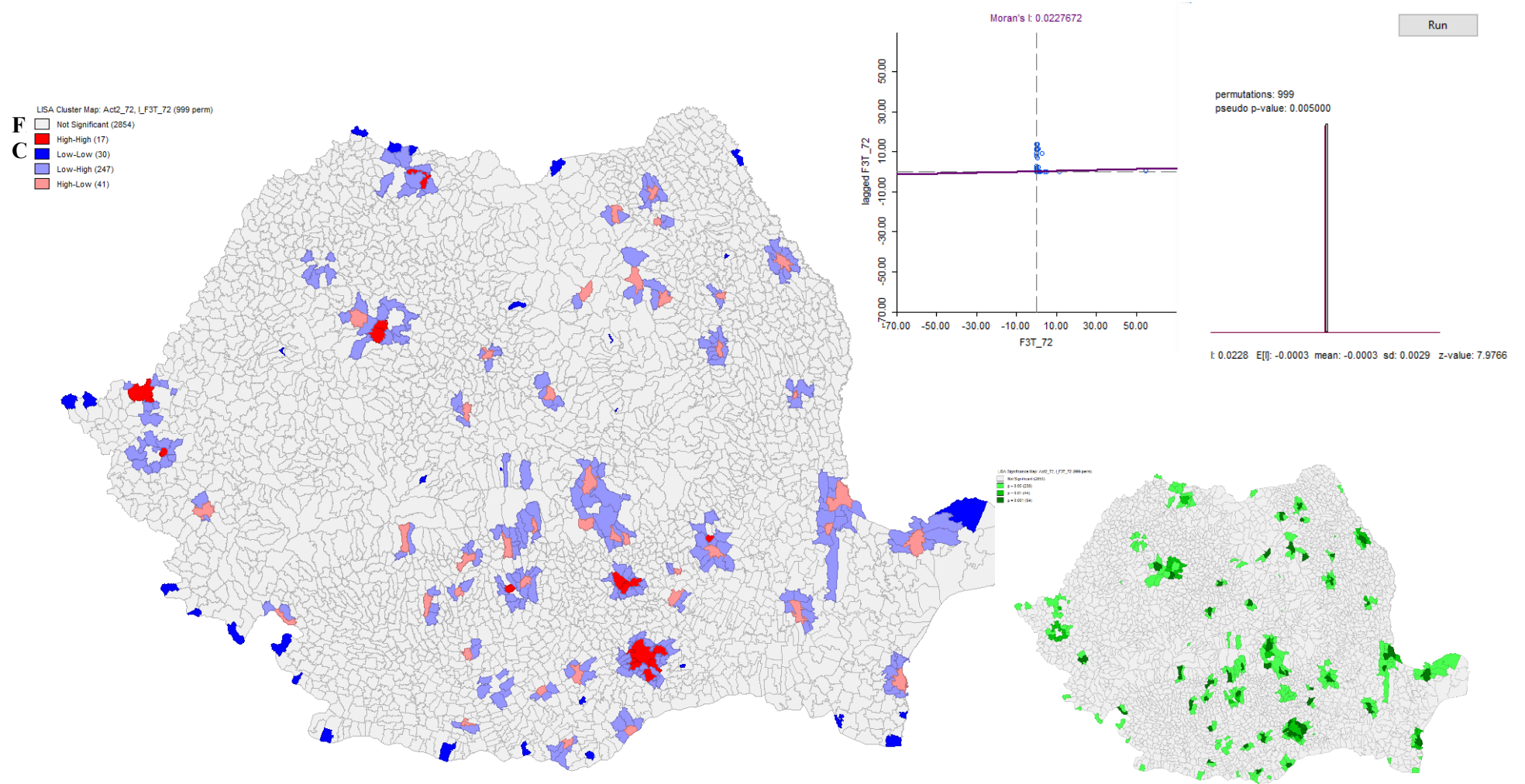
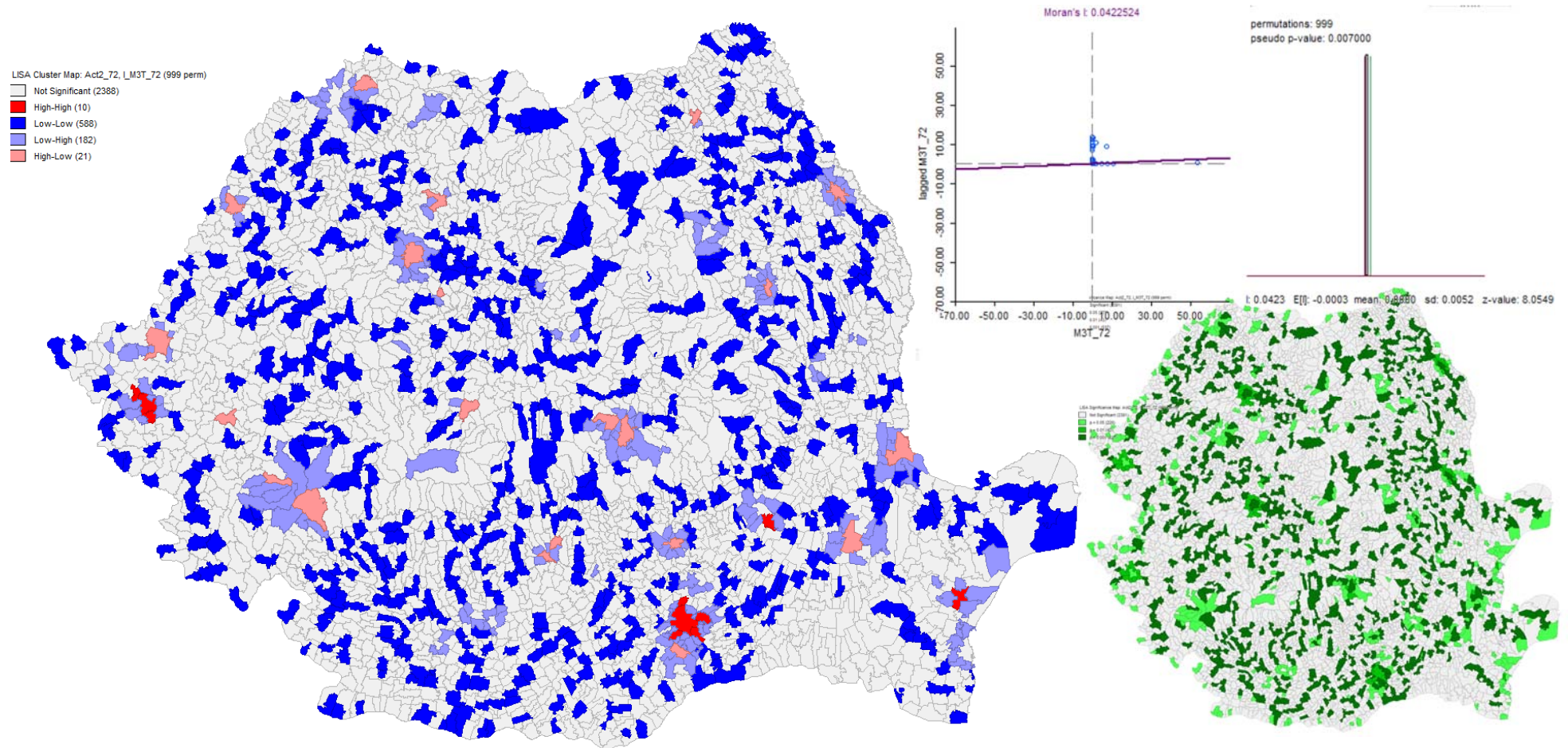


Figure 6. Spatial distribution (LISA analysis - hot spot) for young people (men) employed in the research sector M 72 CAEN Rev 2 - 15-24 years. Clustering trend: Bucharest, Timisoara, Buzau, Galati, Constanta



Employees aged 15-24 years old form M 72 NACE Rev.2 at NUTS5 level in 2011 are agglomerated / spatially clustered **in only 26 locations HH level** (location with high level of youth employees in R&D surrounded by locations with high level of employees) see Figure 3. These locations are agglomerated in urban areas Bucharest, Timișoara, Cluj, Pitești, Buzău, Ploiești, Brăila.

Female Employees aged 15-24 years old form M 72 NACE Rev.2 at NUTS5 level in 2011 are agglomerated / spatially clustered in **only 17 locations HH level** (location with high level of youth employees in R&D surrounded by locations with high level of employees) see Figure 4. These locations are agglomerated in urban areas Bucharest, Timișoara, Cluj, Buzău, Ploiești, Galați, Arad, Baia Mare.

Male Employees aged 15-24 years old form M 72 NACE Rev.2 at NUTS5 level in 2011 are agglomerated / spatially clustered **in only 10 locations HH level** (location with high level of youth employees in R&D surrounded by locations with high level of employees) see Figure 5. These locations are agglomerated in urban areas Bucharest, Timișoara, Buzău, Galați, Constanța.

Brașov and Iași do not present youth R&D agglomerations. Bucharest is cluster for both females and males youth researchers. Arad and Cluj are locations only for youth females employed in RD. Constanța, Timișoara and Buzău are locations only for youth males employed in RD.

6. Discussion and conclusions

The spatial analysis of human capital involved in R&D activities in Romania is heterogeneous spatially distributed with presence in towns/ urban environment. The presence of researchers and of youth researchers in agglomeration is explained by the heterogeneity R&D allocation funds, differences in regional R&D infrastructure development and life infrastructure quality. In some scientific fields is a high infrastructure dependence (engineering and technical domains) and in others – socio-economic fields is a high dependency on academic /social networks.

In important urban centres like Brasov and Iasi do not presents youth researchers entrances in 2011. This fact could be explained through differences in the life quality infrastructure (housing, water, gases, heat roads, transport, pollution, leisure areas, etc.). Cultural model and its life quality infrastructure is more and more, in the globalised era, the choice criteria, overpassing the pecuniary offer some times, fact emphasized also by Ghosh, (2011). Romania lose in the global completion the race of high quality of life infrastructure, especially for the 25-34 years old youth R&D, their decrease is not compensated by foreign researchers.

Youth inclusion in RD is not enough. There is need more and more strongly connected youth R&D with local community. In Romania, is need to empower youth research, concordant conclusion with Krzaklewska, (2016). This is the bi-univocal solution to “address key social issues and revitalize communities and the organizations and individuals within them” (London et al., 2003). London et al (2003) advocates for a youth empowerment through youth-led research, evaluation, and planning, in community development framework. Lundberg, (2006) Both solutions are at the tip fingers of the policies: to hunt talents, the most global mobile human capital, with high quality of life infrastructure or to build intergenerational bridges and empower youth through active involvement in the community decision.

The clock is ticking ruthless, if the youth high human capital is not attracted, retained and empowered then the vicious circle of losing growth is unstoppable. Failing to replace the losses of high human capital (by relocation in developed metropolises, exit from labour market, exit from research, etc.) sharply decreases the capacity to attract funds, to produce knowledge and not at least to be competitive in a global world. Winners are gathered in competitive cities, locations that controls the three “sources of growth: expansion of existing firms; creation of new firms; and attraction of investors” (World Bank, 2015).

Our main conclusion is, that, especially in the case of youth researchers is need to combine both strategies approaches blind space and place based strategies, in line with Guastella and van Oort, (2015).

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LEVEL / STANDARD OF LIVING AND BRAIN DRAIN

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Summary

The migration of workers from one country to another has been known for a long time. In search of an acceptable job, people go abroad, in other regions for stay there for a long period. It is enough to recall the migratory flows of labor force from Portugal, Spain, Italy and Ireland, ex-socialist countries, CIS, etc. While in the European Union, labor migration has led to socially advantageous employment policies that have in turn facilitated the improvement and modernization of social security systems, by encouraging the free movement of persons, the migration of highly qualified labor force reduced economic capacity of countries and innovation and development processes. Migration has generated a number of issues related to the social rights of citizens abroad, such as the right to a social security and health insurance system, and jobs. The phenomenon of migration has social, economic and demographic implications at the national and international levels. It involves discrepancies in the demographic structure of society by age, gender and occupation. Low wages, stagnant economy and lack of confidence in tomorrow are just some of the basic premises of mass migration. Germany is not only one of the richest countries in Europe but also among the top five of the most prosperous countries with a high standard of living, being the target of the flows of migrant and refugees from Europe and the whole world. The life in Germany has significant advantages and disadvantages compared to other regions. The aim of the research is to investigate the dependence between countries' economic condition its standard of living and brain drain.

Key words: migration, living standard, pay, labor remuneration, income, pension level, labor market

JEL Classification: F23, J61; M21, O17, R12; R21

Introduction. Migration has seen a significant growth due to several factors. The facilitation of migration has become possible due to the liberalization of free movement of persons, human rights (Universal Declaration of Human Rights, adopted on 16 December 1948), differentiation of income levels by countries and regions, etc. The attitude of the local population towards foreign workers is ambiguous. The employers are willing to use cheap labor force, and local people gossip, complaining about the criminal situation. Such a pattern can be observed throughout the world - both in Europe and in other countries. But, regardless of our desires, labor migration continues to gain momentum and slowly change the face of the world, as shown by the statistics of people's migration on the Globe in 2019 [23].

The aim of the research is to investigate the dependence between countries' economic condition, standards of living and brain drain.

Results and analysis. Every day, thousands of citizens decide to leave their home place in search of a better life [7]. Poverty, lack of employment opportunities, low wages and the unstable economic situation - all these factors make the population leave their country year after year.

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Although Germany is among the leaders with a high standard of living, besides positive aspects, there are negative ones. The disadvantages of the fiscal system include a wide variety of taxes. The taxes have a fairly convenient and optimal structure. The entire tax system comprises more than forty different taxes paid by legal and physical persons. Most of the country's total budget is precisely due to the revenue from the tax system. In spite of high taxes covering all spheres of life, this approach allows Germany to maintain its socially developed sector. The taxes contribute to maintaining social guarantees and protecting all segments of the population.

Table 1. Standard of Living in Some Countries [1]

Nr.	Country	GDP (PPP) per capita, USD	
		2018	2023
1.	Qatar	128.702	158.117
2.	Macau	122.489	172.681
3.	Luxembourg	110.870	127.321
4.	Singapore	98.014	117.535
5.	Ireland	79.924	97.936
6.	Brunei	79.726	121.576
7.	Norway	74.065	84.736
8.	UAE	68.662	75.547
9.	Kuwait	66.673	76.465
10.	Hong Kong	64.533	79.770
11.	Switzerland	63.379	71.613
12.	USA	62.152	71.805
38.	Israel	37.673	43.932
	Globally	18.089	22.562

The state tries to distribute taxes in such a way as to equalize the difference between richer areas and the regions with a very low profitability. The tax system as a whole tries to avoid double taxation. For individuals, taxes may range from 19 to 53%, everything depends on the level of income. The maximum rate is used if a person gets an income from one hundred and fifty thousand euros and more. In addition, taxes can be withdrawn at a family rate on a special preferential basis. Thus, if a married couple has an income of up to sixteen thousand, it will in total pay no more than 23%.

Table 2. Level of Taxes in Some Countries [7; 12; 14]

Over 50%	%	40-50%	%	30-40%	%	15-30%	%
Belgium	56	France	49,2	Turkey	39,7	Japan	29,05
Hungary	54,2	Austria	48,8	Poland	39,7	Switzerland	29,5
Germany	52	Italy	46,5	Slovakia	38,9	Iceland	28,3

Over 50%	%	40-50%	%	30-40%	%	15-30%	%
		Holland	45	Spain	37,8	Australia	26,9
		Sweden	44,6	Norway	37,7	Ireland	22,9
		Finland	43,5	Portugal	37,6	New Zealand	21,3
		Czech Republic	43,4	Luxemburg	35,9	South Korea	20,3
		Greece	42,4	Great Britain	32,8	Mexico	15,1
		Denmark	41,2	Canada	31,3		
				USA	30,1		

The standard of living in Germany is high, but by estimating the income of the Germans, they are not the biggest compared to other countries in the Schengen area, although they are still high. The salary of a German depends largely on his/her profession and qualifications, the location of his job, etc.

Table 3. The Minimum Wage in Germany, 2019 [8; 12; 14]

Period, duration	Euro
1 hour	9,19
1 day (8 hours)	73,52
1 month (160 hours)	1470,40

Naturally, in more advanced and larger regions, income is much higher than in small provinces. The average income of an average German is about two and a half thousand euros a month. But this is not net income, this amount should still be taxed. In the first months of their work, immigrants can count on a thousand and a half euros. This is considered a normal minimum salary, slightly higher. On average, this is how much trade employees earn in Germany. The best paid job in Germany is that of a doctor, that receives, on average, up to fifteen thousand euros. Germany attracts nursing staff that are able to perform their work - for example, highly qualified nurses (Germany is in charge of attracting surgical nurses, medical staff to work with mentally ill citizens).

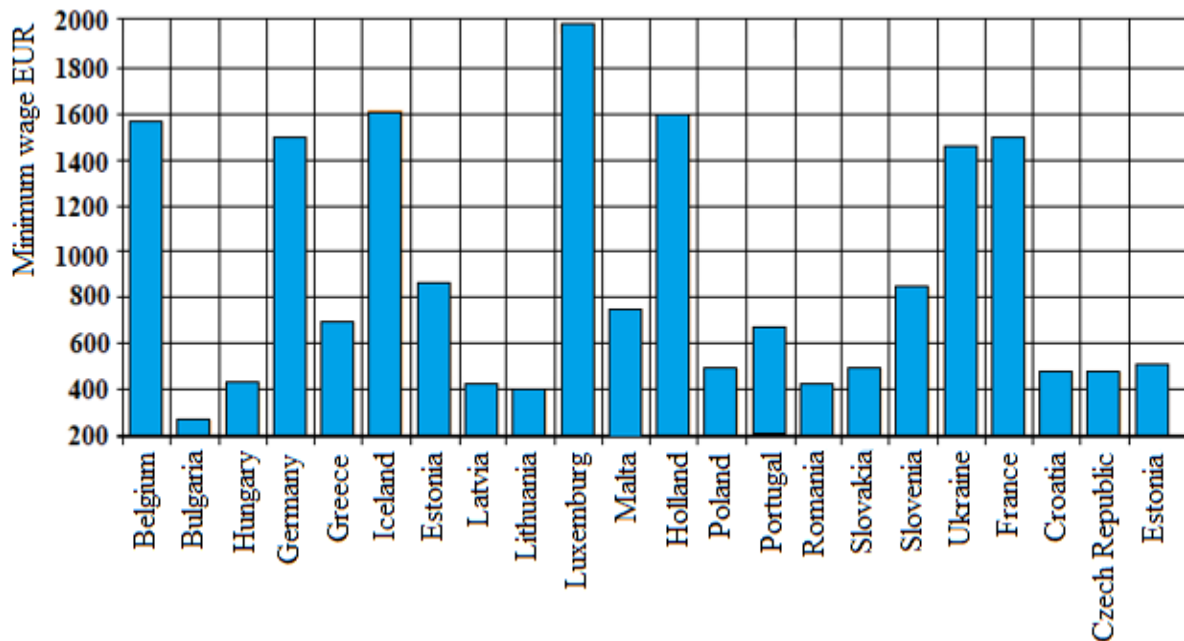


Fig. 1. Minimum Wage in Some Countries of Europe, 2018 [4; 8]

In Germany, a person whose job is a computer technician, can get more than an office clerk or economist. The teachers receive from six thousand euros, but these are not all categories, the majority have only 2500 EUR. Engineers in the construction and engineering industries are better paid compared to programmers or bus and taxi drivers; their salaries reach 1500-2000 USD. Life in Germany is measured taking into account only one job without perks and additional income.

The cost of living and the prices of many products are high, labor productivity is high, but based on the quality of products and services, it is worth it. Prices in Germany vary according to the region and its significance (West and East). The amount of the pension in Western Germany is up to 950 USD / month, in the East - 700 USD / month. In order to live decent (paying for public utilities, food, using public transport, relaxing in the bar, excursions, daily expenses are 150 EUR. If food is to be served in fast food cafes, the expenses will be up to 60 USD a day. Fuel prices reach 2 EUR. The price for beer varies between 1 and 3 EUR [13].

Given the rapid growth of the population on the Earth (Fig. 2), the competitive struggle for agricultural land (foodstuffs), deposits and raw materials intensifies to migrate to other regions with a higher standard of living, with good pay, with services impeccable social, decent pensions, secured jobs, shelter, social-political and economic security. Under these conditions, there is the brain drain and the migration of high-skill specialists to the countries with better conditions than those of residence. Reception countries prefer intelligent people, qualified specialists, innovative and experienced people.

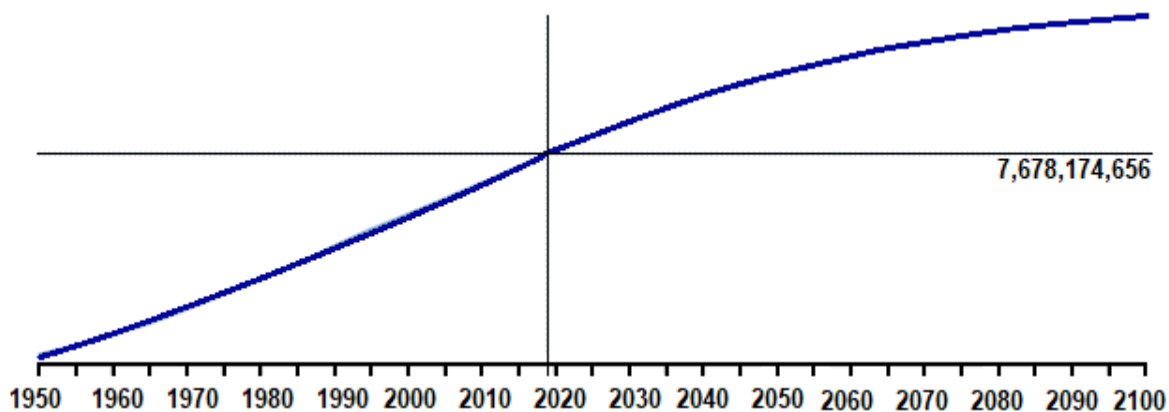


Fig. 2.The increase in population numbers on the Globe, a. 1950-2100 [3; 20]

Education in Germany takes place in kindergartens and schools. But the strong point in the education process is the performance and characteristics of the teacher. The cost of education for students, who are native citizens, consists of ancillary expenses (the cost of the home, rent, transport, etc.), because there is no tuition, they study for free.

Every citizen in Germany has to make deductions to the retirement fund, 19.5% of the monthly income. Half of the amount is paid by the employer. The retirement age is 67 years. One can retire until the retirement age if breaks have been made regularly in the last 5 years.

Table 4.The Amount of Pensions in Some Countries, 2018[18; 21]

Country	Average amount of pensions, USD/month	Country	Average amount of pensions, USD/month
Denmark	2800	Hungary	400
Finland	1900	Poland	380
Norway	1542	Lithuania	298
Israel	1350	Russia	285
Germany	1200	Bulgaria	280
Spain	1190	Kazakhstan	210
USA	1164	Azerbaijan	202
Switzerland	874	Belarus	175
Sweden	833	Ukraine	142
Japan	717	Latvia	128
Great Britain	700	Argentine	96
France	700	Moldova	80
Canada	667	Uzbekistan	55
Italy	583	Georgia	40

One of the factors that attracts the migrants is the amount of the pension. For middle-aged people, this indicator is quite important. The author's research shows that in Russia in

families, where one of the members has higher education, the income is 20% higher than the average. If there are no people with higher education in their families, their well-being is $\frac{1}{4}$ below the average [5].

In New Zealand, people with higher education receive 7 USD/hour more than school leavers [22]. In the USA, people with higher education receive 1.7 times more, with Master degree - 2.1, with Doctor degree in science - 3.1 times. [5].

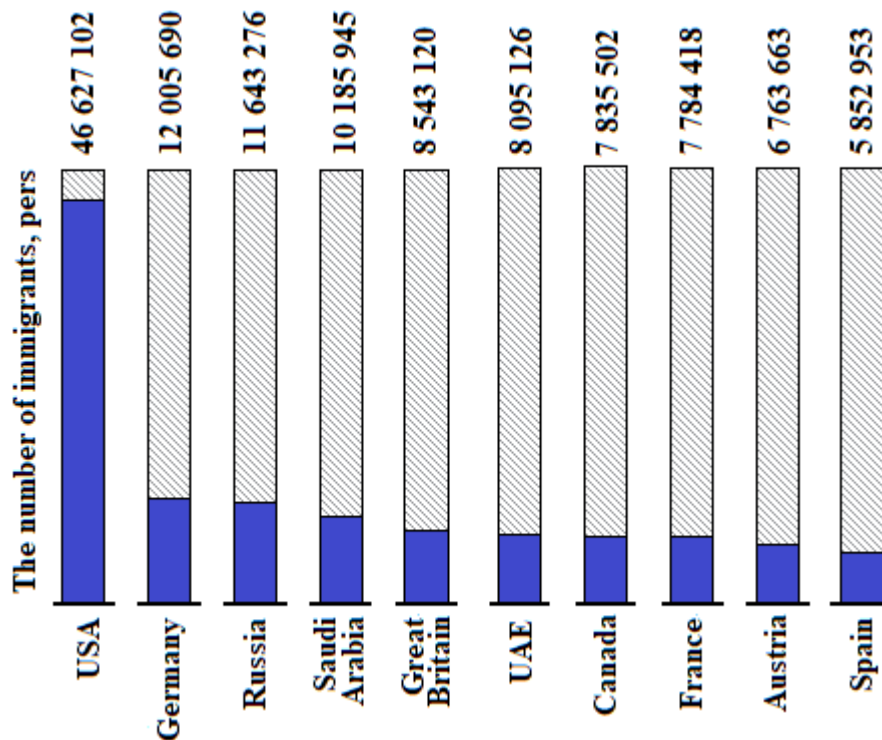


Fig. 3. Number of Immigrants from Some Developed Countries [2; 4; 22]

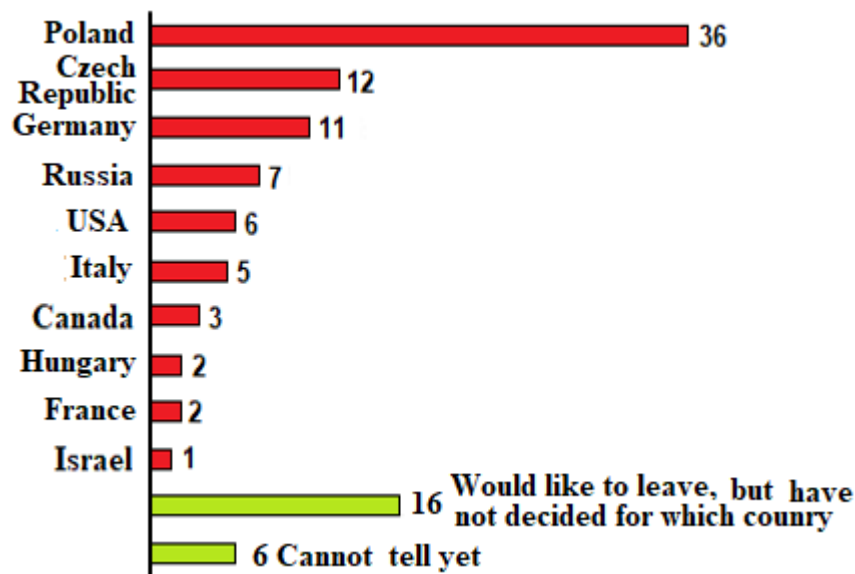


Fig. 4. Top Migration Destinations from Ukraine, 2018, % [13; 14]

The author would like to note that the population of some countries migrates to higher developed countries and migrants from other and poorer countries arrive instead. Most

respondents surveyed, 86% do not want to travel abroad in the next period for a long-term stay, and another 6% responded that they had not decided yet. The most popular country among potential immigrants is Poland (36%). 12% and 11% of the respondents chose the Czech Republic and Germany respectively. 7% of respondents chose Russia, and the US - 6%. 5% and 3% of respondents will go to Italy and Canada for a long stay. Those who chose Hungary and France made 2%. Israel [11; 12] is at the bottom of the list of the most preferred ten countries for emigration (1%).

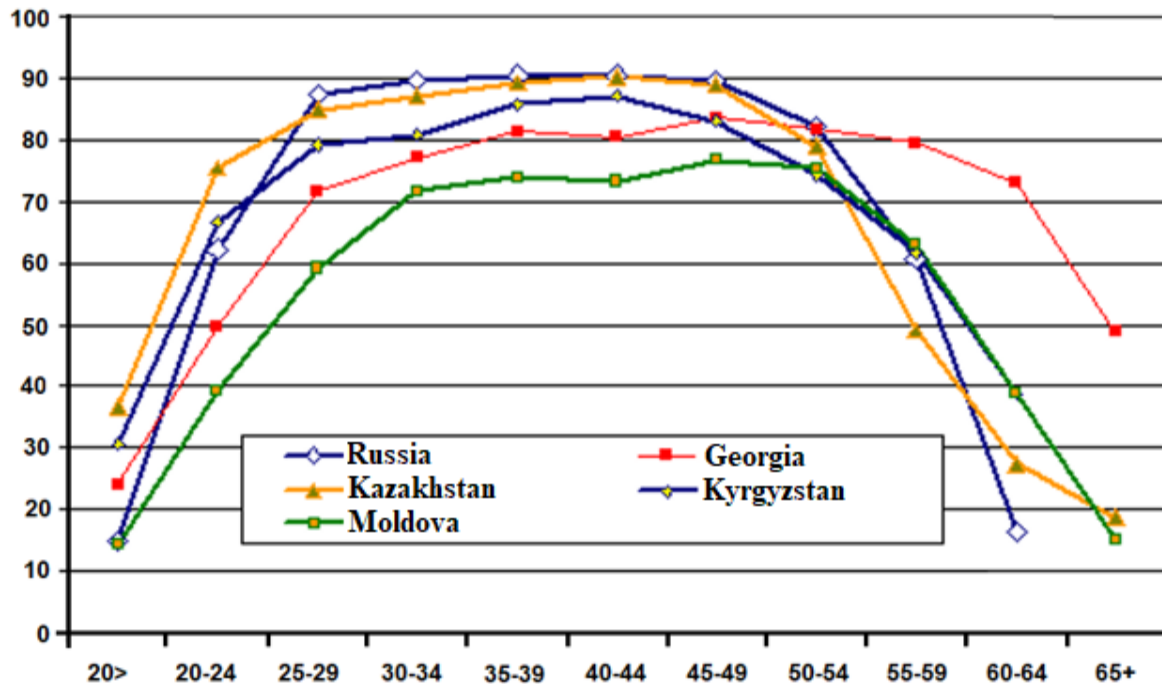


Fig. 5. Age Profile of Economic Activity of the Population in Some CIS Countries [4]

According to the statistics [10; 15], the extremely low levels of economic activity and employment (lower than the values of these indicators in many CIS countries) in the Republic of Moldova are characteristic only for young and middle-aged people. The peak of the level of economic activity and employment among Moldovans is in working age (over 45 and up to retirement age). The values of these indicators, calculated for the age of 50-54 years, show the smallest differences compared to the values of similar indicators in other CIS countries. Of course, the levels of economic activity and employment of retirement-age people diminish (but not as fast for Moldovans as for residents of other CIS countries).

As a result, for the retirees, the levels of economic activity and employment are "in the middle" compared to other CIS countries. Higher (or equal) indices are characteristic for the countries with low living standards and significant employment problems of population, while lower indicator values are typical for countries that have experienced economic growth in recent years and the situation on the labor market is not critical. For example, Kyrgyzstan and Georgia have higher and equal levels of economic activity with the Republic of Moldova, while Kazakhstan and Russia have lower levels.

The authorities have a negative reaction to labor migration, because instead of working actively in the country, applying their knowledge (in which much has been invested) in

practice, contributing to the GDP and the welfare of the country, migrants acquire knowledge and skills in other countries.

It is no surprise that wealthy countries actively attract high-skilled and innovative migrants (ready-made people), while in the country of residence there is a shortage of personnel. There are some programs applied in Australia, the USA and Canada, whereby visa applicants need to accumulate points. The candidate needs to know English perfectly.

Knowledge of the language is necessary to make sure you can communicate with local people and authorities. Furthermore, the authorities want to make sure you can communicate with them - for example, so that in court proceedings you do not need to look for a translator from an exotic language or dialect. It is not surprising that immigration involves a certain level of knowledge of the state language. The candidate must find a job with a salary three times as much as the average in the region. The age plays an important role: people of 18-21 years of age - receive 6 points; 22-25 years - receive 8 points; 26-30 years - receive 10 points; 31-35 years - receive 8 points; 36-40 years - receive 6 points; 41-45 years - receive 4 points; 46-50 years - receive 2 points; Candidates under 18 and over 50 years do not receive any points.

Studies are also important: the average school leaver gets 1 point, a person with a bachelor degree - 5 points (for the US diploma - 6 points), a person a master's degree in science - 7 points (US diploma - 8 points) – a person with a doctor’s degree -10 points (US diploma - 13 points). People whose knowledge of the language is at the level of 60% do not get points, 60-80% - 6 points, 80-90% - 10, more than 90% - 11 points, 100% - 12 points. If there is a job offer with the wage of 150% from the average salary per family in the area, a person gets 5 points. If the wage offer is 200%, a person gets 10 points, 300% - 13 points. For outstanding performances, international awards, the Nobel Prize a person receives 25 points, for the Olympic Games medalists 15 points are given. The investors in the economy with 1.35 million USD get 6 points, 1.8 million USD - 12 points [9].

In Canada, the following professions are in demand, specialists being accepted without confirmatory qualifications, only with job experience: waiters, drivers, vendors, etc.; low-skilled jobs: housemaids, field workers, road-harvesters, etc.

Table 5. In 2019 Canada Requires Employees [17]

Sphere	Category	Profession
Management	Type 0	Public top-level civil servants
		Top managers (in all spheres)
		Managers (in all spheres)
		Management in enterprises and organizations (in many spheres)
	Level A	Human Resources Specialists
	Level B	Administrative Workers
Finance	Level A	Accountants and audit specialists

Sphere	Category	Profession
		Analysts (on financial investments)
		Investment agents and brokers
		Professional consultants
	Level B	Accounting assistants
Education	Type 0	Administrators in professional institutions
		School headmasters (in primary and secondary schools)
	Level A	Teachers and university lecturers
		Professional Educational Assistants
		Teachers of professional schools
		Secondary school teachers
		primary school teachers and kindergarten educators
	Consultants in the field of education	
Level B	Teachers for children of the young age group	
Medicine	Level A	Nurses
		Therapists
		Psychologists
		General practitioners and family doctors
		Nutritionists
		Veterinarians
		Dentists
		Pharmacists
		Physiotherapists
		Managers in healthcare
	Level B	Specialists (technicians) in special medicine
		Dental protectors
		Dentists
		Eye specialist
		Specialists in traditional medicine
		Nurses (licensed)
		Medical workers on the ambulance
		Masseurs
Social and municipal sphere	Type 0	Heads of agricultural organizations
		Heads of housing companies
	Level A	Specialists in agriculture
		Social workers

Sphere	Category	Profession
		Workers on conditional release
		Consultants in the sphere of employment
		Marriage consultants
		Specialists in urban planning
		Specialists in social policy development
	Level B	Employees of social and municipal services
		Instructors for people with disabilities
Culture	Type 0	Heads of museums, libraries, archives and art galleries
	Level A	Librarians
		Archivist
		Authors of literary works
		Literary editors
		Translators
		Producers (directors, choreographers, etc.)
		Actors
		Musicians and singers
		Conductors and composers
		Dancers
	Painters and sculptors	
	Level B	Technical experts and specialists in archives and public libraries
		Officials in charge of keeping records of archives and libraries
		Photographers
		Operators
		Specialists in TV and Radio
Announcers		
Designers		
Tradespeople		
Fashion designers		
Sport and recreation	Type 0	Heads of organizations related to sports, rest, recreation and fitness
	Level B	Athletes
		Coaches
		Workers of sports organizations, referees

Sphere	Category	Profession
		Instructors and managers of sports, leisure and fitness programs
		Tourism, travel and hospitality inspectors
		Organizers and creators of wedding ceremonies

According to the author's research based on Knight Frank's Wealth Report, in the years 2014-2016, 6,000 millionaires left Russia (in USD) [24].

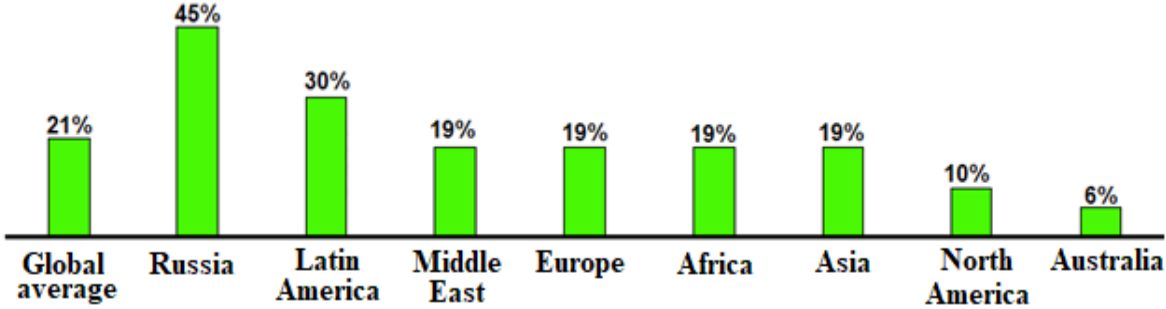


Fig. 6. The Share of Ultra-rich Millionaires Who Plan to Live Abroad [24]

The value of scientists or researchers is appreciated by the number of publications in Anglo-Linguistic journals, category A. Peter Ware Higgs, who received the Wolf Prize in 2004 and the Nobel Prize in Physics in 2013, told The Guardian: I think nobody would consider me productive enough if I started to look for a job in science. (Peter Higgs, the British physicist who gave his name to the Higgs boson, believes no university would employ him in today's academic system because he would not be considered "productive" enough. The emeritus professor at Edinburgh University, who says he has never sent an email, browsed the internet or even made a mobile phone call, published fewer than 10 papers after his groundbreaking work, which identified the mechanism by which subatomic material acquires mass, was published in 1964) [19]. Following his findings of 1964, Higgs published less than ten articles, so today, in his opinion, no university would employ him [16]. The scientific world is full of journals (mostly) in the United States, so no one has to move anywhere to become a participant in this process of brain drain. Research priorities, problems, and methods used by scientists are dictated by the dominant positivist epistemology at the expense of all other alternatives.

Conclusion

The problem of "brain drain" in the country is gaining momentum. In the context of globalization, when the importance of scientific potential, advanced technologies for national development and enhancement of global competitiveness increases, this issue becomes more and more urgent. Scientific migration directly affects national security in its new intellectual component. In these circumstances, the government and society should focus on the problem. The position and status of the country in the world in the near future will directly depend on

this policy. However, only a comprehensive tackling of the problem can lead to a positive result.

The migration of the skilled labor force is often called brain drain. It is no wonder that qualified innovators in developing countries leave their homeland and go to work in richer countries. The number of migrant workers, as it is stated in the official documents, exceeded 214 million people in 2018. If they lived in one country, then it would be fifth most populated country in the world, yielding only to China, India, the US and Indonesia.

These people differ not only by nationality, religion, but also by profession, skills and experience. Highly qualified specialists, of course, are a minority, but a very important one. Most people of this minority group come from other developed countries. Of course, not only people in developing countries are looking for a job in in other regions, although naturally there are more migrant workers in poor countries than in developed ones.

The mass exodus of specialists, qualified professionals, scholars, scientists and businessmen is a serious problem for the development of any country because it is precisely these resources that the country needs to become "a great power from an economic point of view".

The rate of brain drain has accelerated significantly in recent years. We believe that this issue will eventually become the number one threat for countries with aspirations for economic growth.

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THE ASCENSION OF GADGETS ON THE MARKET AND IN LIFE

Alexandru GRIBINCEA ¹

Sergiu GUSILO ²

Summary

Technology companies like Apple, Samsung, Microsoft and more are constantly finding new ways to improve their cutting-edge products, whether it's with stunning new hardware designs, useful software improvements, or by coming up with entirely new products we didn't even know we wanted. A gadget is an often-ingenious object, but almost always useless in the long run. It is a type of present gift during the end of year celebrations. The latest emerging innovation across every major industry takes center, with product launches that propel global markets from automotive, sports and fitness, software, healthcare, entertainment and more. The purpose of the research is to classify and structure smart products on the market.

Keywords: new products, smart products, news, growing market, classification.

Ключові слова: нові продукти, розумні продукти, новини, зростаючий ринок, класифікація.

Ключевые слова: новые продукты, умные продукты, новинки, возрастающий рынок, классификация.

JEL Classification: F23, J41, L86, O34

Introduction. In the 21st century, almost everyone is familiar with the concept of a gadget. These are smart devices that perform specific functions. A gadget is a device that is used in different areas and thus has extensive purposes. However, not all devices are gadgets. A device is an object or instrument used to perform a certain function and achieve a certain result. While the gadget (eng. gadget - affiliation) is a technical device (including digital technology), which has increased functionality, but limited capabilities (specialization). As a result of the recent technological breakthrough, many gadgets of various purposes have been launched on the market. Often, one device performs many functions, which can be attributed to several classes of gadgets at once. To classify these devices into categories is quite difficult, if we take into account many developments. Nevertheless, it is possible to distinguish several main categories, combining gadgets with similar functionality and covering most devices [1].

The purpose of the study is to classify smart new products on the market.

According to the role that they will perform and the principle of action we distinguish:

- **Gadgets of virtual and augmented reality are divided into three specific subspecies of gadgets: augmented reality helmets, video glasses and augmented reality glasses.**

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² Riolitsistem

Video glasses represent a mobile screen, which, as a rule, has a stereo effect and a complex system of lenses that deliver a separate image to each eye of the beholder. Only high quality videos are designed for viewing. The screen is translucent, and on it a picture is additionally superimposed over the real objects.

Virtual reality helmets - a device that allows the beholder to partially immerse themselves into the world of virtual reality, creating a visual and acoustic effect of presence in a simulated space [2].

The main characteristics are: display technology, viewing angle, health effects.

-**3D printers**. This is a peripheral device that uses a layer-by-layer method of creating a physical object using a digital 3D model. Printing can be done in different ways and using different materials, but at the heart of any of them lies the principle of layer-by-layer creation (growing) of a solid object [3]. Printers can be used in construction, toys design, medicine, prosthetics and implant production (fragments of skeleton, skull, bones, and cartilage tissues of donor organs). Key features - printing method, software.

- **Spy Gadgets**. There are a huge variety of different spy devices, from voice recorders in pens and cameras in books to flying radio-controlled dragonfly-sized robots with a camera on board. Due to the number of various types of spyware devices, we divide them into several subcategories:

- Hidden cameras, day and night shooting, video surveillance devices.
- Binoculars, with customizable optics and night vision devices.
- Voice recorders and various listening devices.
- Lie detectors, motion sensors etc.

Advanced technologies have allowed miniaturization of spyware, turning almost every object into a potential threat to our security, but it can also be used for protection. There are devices that can detect “bugs” and hidden cameras, which, in principle, can be used in their own home for video surveillance when the owners are absent.

Key features: miniature size, ability to mimic, security, large memory.

- "**Smart watch**". This is a watch with enhanced functionality, it can be associated with wearable computers. Many models support third-party applications and are controlled by mobile operating systems. They can also act as mobile media players; you can receive phone calls and reply to SMS, and email

Key features: processor power, additional features, Sim.

- **Gaming gadgets**. This is the widest category of gadgets, which include developments created to ensure the most comfortable gameplay. Gaming gadgets can be divided into three main categories:

- The actual devices that provide the gameplay (computer, tablet);
- Components that improve the game world (monitors, speakers, headphones);
- Controllers designed specifically for gaming (mice, keyboards, and gamepads).

-**Smartphone.** This is a mobile phone with a large set of functions. Smartphones differ from ordinary mobile phones in the presence of a sufficiently developed operating system that is open to software development. Features: processor power, screen size, display quality, operating system level.

- **Medical gadgets.** Designed to improve our well-being or treatment (recalls taking medication, reports blood pressure, level of sugar, ammonia, work as thermometers, etc.

- **Fitness trackers.** Devices - trackers monitor the health status of their owners and give them useful tips. The most advanced trackers can read the owner's pulse, perform a blood test, and even perform the role of a "personal trainer." These gadgets should not be confused with the "medical" ones. They cannot solve any health problems, but they can suggest improvements.

"A gadget is a small device designed to facilitate and improve a person's life." But is that really so? Do gadgets really improve our lives? Of course, in their use you can find not only disadvantages, but also advantages. But in order to fairly evaluate the impact of gadgets, it's appropriate to consider all sides.

1. Advantages and disadvantages of using gadgets

Table 1. The SWOT analysis on the gadgets market

Advantages of using gadgets:	Disadvantages of using gadgets:
<p>1. Fast and easy access to information needed. Before in time in order to get information needed we had to go to the library or, at least, go home and access the computer. Now we can do it with the help of Internet.</p>	<p>1. Escape from the reality. In the modern world, people have a lot of fears, complexes and worries, and they literally cannot remain on their own. The feeling of fear makes them run from reality and get distracted with the help of gadgets. Music, games, permanent checking on the social networks help people cover their inner voice and create an illusion that there is nothing wrong in their lives.</p>
<p>2. Saving time. One thing is to plan an activity and then spend time and energy on doing it and another – to do it here and now. With the help of gadgets.</p>	<p>2. Addiction. Yes, addiction with gadgets can be found with most users. Checking email for the hundredth time, scrolling through the news feed of social networks, view photos in Instagram, put likes, write comments. Or, on the contrary, post another photo of yourself in the car, in a cafe, at work, and then every minute checking whether there is a new comment to it. If you</p>

Advantages of using gadgets:	Disadvantages of using gadgets:
	gather all the time that is wasted on such cases, then it turns out that people simply waste a few hours each day. They waste it on their addiction. But life goes on ...
<p>3. Ability to develop and improve. To turn on a training lecture, view a lesson on YouTube, read a book anywhere and at any time. This is convenient for those who spend several hours a day commuting or even worse, get constantly stuck in traffic jams. In this case, the impact of gadgets on a person is clearly positive and it is difficult to overestimate it. But are people taking advantage of this opportunity?</p>	<p>3. Life in the virtual world. To chat with friends not face to face, but via Skype, exchange SMS messages on Viber, get acquainted on a dating site. To keep the status of your page on social networks, edit new and new photos on your profile. To participate in online discussions, blogging... The virtual world has completely captured all our time. And if earlier we devoted to it at least our free time after work/studies, now we are in it every minute. Thanks to gadgets and the internet;</p>
<p>4. The ability to fix a certain point. To take a picture or record on camera. Now all modern gadgets are equipped with an integrated camera. In fact, it is very convenient;</p>	<p>4. Race for new items. The creators of gadgets derive their benefit from such massive addiction by releasing more and more new models. They become more convenient, more functional. But they are not cheap at all. Outdated models go out of fashion, they are removed from sales, and on TV we are shown all the advantages of new technologies. And we get interested, we start to desire them. We work, spend the valuable time of our lives in order to buy a better gadget with our last money.</p>
<p>5. Fast communication. The ability to contact the right person at any time using both mobile communication and the Internet has a positive effect on building business and personal relationships.</p>	<p>5. Degradation of the individual. Many games are not created for the development of logic or the enrichment of intelligence, but for the waste of time. In the network they are called "time-killers". And they consume it, they play. They pass level after level instead of learning about this world, playing sports, developing spiritually after all. A vicious circle of daily "likes" of photos on social networks, useless games, and correspondence with friends "about nothing".</p>

2. Some remarks

With a futuristic tinge, Philips prepares to sell SmartSleep, a headband and eyelet fastener with a mini-helmet that broadcasts white noise – the auditory equivalent of "fleas" in TV broadcasts (in the absence of the audio-video) and can deepen sleep. The sensors are installed on the front and an application collects the sleeping user's data, providing tips for a restful sleep [4].

The personal computer industry dropped 10.9 percent from April to June to 76 million units in the same period of 2018, according to the Gartner market research firm. It is the 5th consecutive quarter in which the market is down as a consequence of the high adoption of tablets and mobile phones. IDC, another research company, even speaks of a more pronounced decline in sales, 11.4%.

The impact of gadgets on our lives is deep and undeniable. Is this just a good influence or a bad one? It depends only on us. Only we can decide whether they will contribute to either our development or degradation. It is up to us.

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