

## REGIONAL DEVELOPMENT IN CROSS BORDER AREAS OF SLOVAKIA IN NEW PROGRAMME PERIOD OF THE EU

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**Abstract:** This article focuses on the cross border rural areas located in the suburban zone of big agglomerations in border regions of Hungary and Slovakia and analyses their regional development possibilities via INTERREG HU SK new programme period projects. Special attention is devoted to demographic processes and phenomena related to these facts pandemic caused. Besides generally acceptable statistical data represents other data collected via field research in communities representing cross-border project expectation survey. It focuses on socio-economic effects of cross-border, analyses its impact on society of suburban inhabitants in Slovakia. There is a comparison between cross-border survey about the rural life standards before and after 2020 to predict current trends influenced by pandemic. Added value can be the results of measuring gap in economic and demographic development in the cross-border regions mainly between Hungary and Slovakia after COVID-19 pandemic in the era of new programme period of the EU 2021-2027 with wide potential of INTERREG HU SK cross-border project developments through innovation.

**Keywords:** regional development, project impact, new programme period, cross-border policy, innovation

### 1 Introduction

The choice of research topic is justified since cross-border agglomeration, which is a common phenomenon of current globalization, is multifaceted and highly relevant today and it got new measure under INTERREG programmes, from this we will be concentrating on INTERREG HU SK (Hungarian-Slovak interregional cooperation) as the longest border of the suburbia of Bratislava has impact on the Hungarian border region.

Interreg was developed as a Community Initiative in with a budget of just 1 billion EUR covering exclusively cross-border cooperation in 1990. Later, Interreg has been extended to transnational and interregional cooperation. For 2014-2020 European Territorial Cooperation is one of the two goals of Cohesion Policy besides investment for Growth and Jobs. Over the years Interreg has become the key instrument of the European Union to support cooperation between partners across borders. The aim: to tackle common challenges together and find shared solutions - whether in the field of health, research and education, transport or sustainable energy. Interreg programmes are funded by the European Regional Development Fund to support the harmonious development of the European Union's territory at different levels.<sup>1</sup>

The choice of research topic is justified since cross-border agglomeration, which is a common phenomenon of current globalization, is multifaceted and highly relevant today and it got new measure under INTERREG programmes, from this we will be concentrating on INTERREG HU SK (Hungarian-Slovak interregional cooperation) as the longest border of the suburbia of Bratislava has impact on the Hungarian border region.

In 2007, following the successful implementation of the INTERREG Community initiative (1990-2006), European Territorial Cooperation, also known as INTERREG, became one of the main goals of EU Cohesion Policy. Consequently, the European Commission highly appreciates all sorts of studies and analyses that concentrate on assessing the implementation of INTERREG programmes, encompassing all three strands: cross-border (INTERREG A), transnational (INTERREG B), and

interregional (INTERREG C). Increasingly popular mechanisms driving the economic and social development of European border and cross-border regions are cross-border development strategies. Such a strategic framework provides a more integrated vision, with prospects for the future, and defines the objectives and development priorities for the region. Moreover, this type of framework allows for planned and integrated action, instead of ad hoc and uncoordinated intervention. In general, cross-border strategies constitute a natural development beyond dealing with daily problems and provide a very useful framework to develop cross-border policies and joint funding programs that are multi-annual and have several financial sources.<sup>2</sup>

During the 2014-2020 period, the Interreg programs funded a wide range of projects aimed at promoting territorial cooperation and regional development within the European Union. These projects covered various thematic areas and addressed challenges such as economic growth, innovation, environmental sustainability, social inclusion, and cross-border cooperation. The funded projects fostered collaboration among different regions, countries, and stakeholders, facilitating the exchange of knowledge, best practices, and experiences. They aimed to overcome territorial barriers and promote the harmonious development of border regions. The funded projects varied in nature and scope. Some focused on promoting entrepreneurship and supporting small and medium-sized enterprises (SMEs) through cross-border networks and business development initiatives. Others targeted environmental protection and sustainable resource management, promoting initiatives such as renewable energy, waste management, and ecosystem conservation. Furthermore, the Interreg programs funded projects in fields like research and innovation, education and training, cultural heritage preservation, social inclusion, and healthcare cooperation. These projects aimed to enhance collaboration and exchange of expertise across borders, driving regional development and fostering a sense of shared identity and cooperation among participating regions. Overall, the funded projects under the Interreg 2014-2020 programs played a crucial role in strengthening European territorial cooperation, addressing common challenges, and contributing to the sustainable and balanced development of the participating regions.<sup>3</sup>

In the new programming period 2021-2027, it is planned to continue INTERREG programmes to promote European territorial cooperation. These programmes will focus on a variety of areas, including crossing borders, cooperation between regions and strengthening convergence and competitiveness. The main priorities and actions of the new INTERREG period are not yet known as the programmes and principles are still being developed. Planning for the new INTERREG period is usually led at the level of the European Commission and national/regional administrations. Moving forward to the new programme period, it is expected that the relationship between changing socio-economic needs and legal obstacles, as well as the promotion of a positive attitude towards cross-border living, will continue to be a priority. The new Interreg programmes (2021-2027) will build upon the achievements of the previous period and further enhance cooperation and integration among border regions. The Interreg 2021-2027 program would like to prioritize strategic objectives such as enhancing competitiveness, supporting the green transition, promoting digitalization, fostering social inclusion, and improving the quality of life in participating regions.<sup>4</sup>

<sup>2</sup> Medeiros, E.: European Territorial Cooperation: Theoretical and empirical approaches to the process and impacts of cross-border and transnational cooperation in Europe. Vol. 54. Cham: Springer, 2018. 269 p. <https://doi.org/10.1080/00343404.2019.1672937>

<sup>3</sup> Interreg Europe: Interreg Europe Programme Manual, 2021. [https://www.interreg.eu/sites/default/files/2022-01/Interreg\\_Europe\\_Programme\\_manual.pdf](https://www.interreg.eu/sites/default/files/2022-01/Interreg_Europe_Programme_manual.pdf)

<sup>4</sup> Interreg Europe. Programme Manual, 2022. [https://www.interreg.eu/sites/default/files/2023-02/IR-E\\_programme\\_manual\\_annexes.pdf](https://www.interreg.eu/sites/default/files/2023-02/IR-E_programme_manual_annexes.pdf)

<sup>1</sup> European Commission, DG Region Urban Policy, 2023. [https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/regional-and-urban-policy\\_en](https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/regional-and-urban-policy_en)

The aim of the project HUSK (Hungary-Slovakia Cross-border Co-operation Programme) is to provide the widest scale of services to Slovak entrepreneurs, that will help them to establish new business cooperation with partners on the Hungarian side.<sup>5</sup>

Interreg programmes have an indirect impact on urbanization and related land-use practices and address some of the big challenges of sustainable development (such as issues related to environmental protection or encouraging sustainable development). The URBACT III expressed support for polycentric urban structures, small- and medium-sized cities, and urban-rural linkages, explicitly calling for coordinated policies for urban renewal and control of urban sprawl. Furthermore, as the overall aim of the programme is to support integrated sustainable urban development, various projects implemented under its funding are expected to contribute in varied ways towards sustainable urbanization, inter alia integrating transport planning and land-use planning, promoting brownfield redevelopment, green infrastructure, urban soil management, etc.<sup>6</sup>

The Added Value from ETC (European Territorial Co-operation) Programmes:

- a European added value arising from the contribution of CBC to the promotion of peace, freedom, security and the observance of human rights;
- a political added value involving the development of European integration, subsidiarity, partnership, and cohesion;
- an institutional added value, involving citizens and authorities, guaranteeing knowledge about the neighbor and long term cooperation;
- an economic added value, mobilising the endogenous potential of cross-border regions, the participation of all economic players, the opening of the labour market and the harmonisation of qualifications, among other things;
- a sociocultural added value reflected in the dissemination of knowledge about the neighbor, its culture, and an extensive knowledge of its language. Only if sociocultural cooperation takes place, can a workable cross-border environment for business, trade and services be established.<sup>7</sup>

EU new programming period is characterised by the Slovak Plan of Innovation. (Plan of innovation, Plán obnovy, 2023)<sup>8</sup> EU Commission devotes new regional strategy for cross-border territories, also influenced by local and microregional policies, based on cohesion policy. (European Commission, DG Region Urban Policy, 2023) Cross-border strategy in influences by Innovation, programmes, topics as the long version of Interreg programme states.<sup>9</sup> The consequences of the coronavirus pandemic will have a fundamental impact on the economic, political and social spheres of our society in cross border region and influence further regional development and innovation in the field of projects. The coronavirus pandemic has revealed specific and general problems of the EU, Slovakia and cross-border region and the global society.

Impacts and innovation growth on long-unseen challenge, burdening the entire social system with a variety of difficulties from problems associated with physical diseases to problems associated with social and economic development. Consequences are unknown and unpredictable, the likely economic, political, and social consequences of the current pandemic are already demonstrating their essence.

More and more scientists and experts are expressing the opinion that humanity has entered a new stage in the formation of the world order. What will become a society of cross-border after pandemic in new programme period? How will socio-economic disparities develop in 2021-2027? How will bilateral and cross-border society react and arise in terms of project awareness and willingness to participate?

## 2 Literature review

In terms of Hungarian and Slovak cross border region it is easy to find two other dimensions of regional development, one is suburbanisation and the other is periphery and core theory. Concepts and definitions of the suburbanisation process vary in the literature. Suburbanisation is most often understood as the process of relocation of populations and institutions from the inner city to the periphery of the city and to the suburban zone. In accordance with the concept of inner-city urbanisation as defined by us, this process can be characterised as an increase in the degree of urbanisation of areas located on the outskirts of the city and in the suburban zone.

Ratzel's theory (1896), developed alongside Friedman (1969 and 1974), states that centres (cores) are regions that are characterized by very significant development potential and the ability to generate innovation, while peripheries are stagnant and very slowly developing areas that depend on centers. Therefore, peripheries are not only geographical peripheries, but also economic peripheries. Peripheries and suburban zones are complex spaces that do not have universal definitions. An attempt to define suburban areas in space was made by Burgess (1925),<sup>10</sup> who developed the peripheral-concentric model. The essence of this model is the theory that the strength of the economy is concentrated in the centers and the peripheries show inferior signs of development. The periphery boundaries can therefore be defined not only geographically but also economically.

Hoyt (1939)<sup>11</sup> argued that urban space does not form concentric spheres but expands along major roadways. Most authors agree that there is a very strong link between rural and urban centers. In the literature we find different opinions on whether the tendencies of suburbanisation of the surroundings of our cities coincide with the tendencies in Western Europe (Tímár, Váradi 2000).<sup>12</sup> In general, the tendencies of urban development are similar, to some extent they are also characterized by peculiarities typical for Central Europe, which result from the historical development of the given area, from the socio-economic development of the cities or from its temporal shift (Enyedi 1988, Rechnitzer 1994).<sup>13</sup> Another but no less interesting question in the case of Hungarian authors is precisely in what way the suburbanization of rural towns within Hungary differs from the processes in the vicinity of Budapest and vice versa.

The driving forces are the same, but the emerging problems are in many ways similar to those in other countries. As COVID-19 developed holiday homes in rural areas of Bratislava, the rural environment has been given a more varied image through suburbanization, especially in the last year of pandemic. Such research originates back to the principal idea that a certain geographical space, a settlement, or a landscape, means much more than just a simple element of space. The motivation for moving from big cities to rural suburban regions can be currently twofold, the regular suburbanisation process and the pandemic caused changes.

<sup>5</sup> BIC Bratislava, Projects. <https://www.bic.sk/en/projects>

<sup>6</sup> Reitel, B., Wassenberg, B., Peyrony, J. (2018). The INTERREG Experience in Bridging European Territories. A 30-Year Summary. In: Medeiros, E. (eds) European Territorial Cooperation. The Urban Book Series. Springer, Cham. [https://doi.org/10.1007/978-3-319-74887-0\\_2](https://doi.org/10.1007/978-3-319-74887-0_2)

<sup>7</sup> Guillermo-Ramirez, M. (2018). The Added Value of European Territorial Cooperation. Drawing from Case Studies. In: Medeiros, E. (eds) European Territorial Cooperation. The Urban Book Series. Springer, Cham. [https://doi.org/10.1007/978-3-319-74887-0\\_3](https://doi.org/10.1007/978-3-319-74887-0_3)

<sup>8</sup> Plan of Innovation, Plán obnovy <https://www.planobnovy.sk>

<sup>9</sup> Interreg Programme Document 2021–2027 <https://www.skhu.eu/programme/interreg-husk-2021-2027>

<sup>10</sup> Burgess, E. (1925) The Growth of the City An Introduction to a Research Project. In Park, R.E., Burgess, E.W. and McKenzie, R.D., Eds.

<sup>11</sup> Hoyt, H. (1939): The structure and growth of residential neighborhoods in American cities. Washington, DC: Federal Housing Administration

<sup>12</sup> Váradi Timár, J. (1992) The Main Features of Suburbanization in the Great Hungarian Plain. Landscape and Urban Planning 22 (2-4): 177-187.

<sup>13</sup> Enyedi Rechnitzer, J. (2010) „Enyedi, a regionális tudomány alapítója”. Tér és Társadalom, 24(3), o. 9–10. doi: 10.17649/TET.24.3.1828. .

From economic point of view, the negative impact of the coronavirus epidemic is measured not only by the number of people infected and sick, but also by the economic consequences that have arisen in connection with it. Thus, the coronavirus affected all global markets, which led to a drop in stock prices and bond yields. In addition, this epidemic has led large institutions and banks to lower their forecasts for global economic growth. However, the European Commission (further as EC) has lowered its forecast for the global economic downturn due to the COVID-19 pandemic in 2020 to 3.8%.<sup>14</sup>

The EC also lowered expectations of economic recovery in 2021 to 4.7%. In the spring, a decline of 2.9% in 2020 and a subsequent recovery of 5% in 2021 were forecast.<sup>15</sup>

The epidemic had a negative impact on the service sector, retail trade, tourism, and brought sharp restrictions on various types of transportation, which could not but affect the economics and business in many countries. The consumer market has been significantly reduced.<sup>16</sup>

In general, on the outskirts and periphery of a big city as Bratislava outlines processes that take place in the so-called rural-urban fringes. Regarding functionality, there is a debate as to whether suburbanization (building a new city) or urban sprawl is taking place. Regardless, the results are newly established residential districts around the city.<sup>17</sup>

Indicators of the process are migration growth, housing and housing stock. These are both quantitative and qualitative increases, moreover the consequences are better in the field of technical infrastructure, higher land and real estate prices, changes in the structure of society segregation of houses.

Suburban growth creates a population between the central city and the suburbs, leading to changes in the demographic and sociological indicators of the suburban population (socio-demographic approach) and the spatial structure of the suburbs. New constructions in the suburban environment<sup>18</sup> can be defined as modern uninformed residential areas that are ready for family homes or individual construction on plots offered by an investor or massed new development areas<sup>19</sup> with possible individual house construction on vacant plots as part of existing installations.<sup>20</sup>

Survey on satisfaction with inter-fraud suburbanization and reducing of urban vulnerability in other perspective<sup>21</sup> examined satisfaction with the services and institutions provided by the municipalities, majority of the residents do not to their satisfaction. Based on previous research this predominantly complaining layer for their villages is mainly lacked by services like health care provider, post office, pharmacy as factor for regional differentiation.<sup>22</sup>

Lack of schools in cities arose during COVID-19 as home-schooling was provided as only option. In the survey group as well, the responses of residents here are clear complaints in this area. Bratislava preference is more significant because the correlation is high. As a result of research, it was planned to achieve that by evaluating the present situation in the most

“suburbanized” localities get questions and answers with the intention of meeting the current needs of the residents make recommendations to decision-makers during the survey.<sup>23</sup>

In micro-region of Bratislava - Győr suburbia all the answers should be taken into account when defining long-term plans, it is important that the residents themselves can help to create a regional image for suburban development.<sup>24</sup> Cross-border suburbanization is one an extremely delicate process of spatial development with poor and less bad solutions are born because of the opportunities.<sup>25</sup> Prices in the housing market and the surrounding countries all offer contribute to the decision and further to the number of implemented projects in the calls of 20214-2020 Interreg HU SK.<sup>26</sup>

### 3 Research problems and goal

Through the COVID-19 virus crisis and the high preventive measures that accompanied it and based on the massive use of social networks, it is imperative for each user to adopt positive social behaviour such as sympathy, sharing and cooperation in order to overcome this crisis. In addition, the individual should highly prove being a valid citizen by carrying out the duties of citizenship through this change of permanent address from the real place of origin to the suburbia.

The research identified its problem as studying the role of suburbias and pandemic in particular in promoting changed positive behaviour to deal with the COVID-19 pandemic as a crisis experienced by all members of society and its institutions amongst a sample of inhabitants changing permanent addresses, which is an economic, social and identity related issue. This shift of official seat usually comes with taxation, social dependence and belonging status to the land and region in border land.

Coming back to INTERREG HU SK options in new programme era, the programme manual focuses on the impact of pandemic and selected social contributions in terms of Priority Axis SO.

The importance of this article stems from the importance of the topic itself as it deals with, both the positive behaviour and the pandemic and social -economic crisis and their related variables. In fact, they got great interest and care by specialists, especially with the unbridled growth of project interest and project brief change from the capital toward the suburbia, smaller towns and periphery, focusing on this global pandemic, which has affected profoundly all economic and social joints of life.

The importance of the study is also determined from an applied point of view in transforming its results to a set of recommendations. These conclusions may contribute to enlightening those interested in this crisis, from various social, economic and political institutions to the reality of positive behaviour through the change to enhance its role in a better way through programmes designed to face this crisis.

Accordingly, this study set its objectives as follows:

- *Identifying the relationship between changing socio-economic needs, as legal obstacles, eligible applicants, public, academic and business sector and their interest, as well as promoting positive attitude to cross – border living during the old programme period*
- *Interpreting the differences in the level of changed socio-economic behavior through suburbanisation during the COVID19 crisis according to the variables of before and after new programme period (2020 and 2023)*

<sup>14</sup> European Commission Official Webpage of Strategy Development (2022) Strategy and Policy COVID 19 [https://commission.europa.eu/strategy-and-policy\\_en](https://commission.europa.eu/strategy-and-policy_en)

<sup>15</sup> Burns, Yu. (2020). The European Commission has lowered its forecast for a global economic downturn in 2020. November 5, 2020. European Commission

<sup>16</sup> Šveda, M. (2011). Suburbanizácia v zázemí Bratislavy z hľadiska analýzy zmien krajiny. In: Geographical Journal ISSN 0016-7193.

<sup>17</sup> Bouregard, RA (2006): When America Became Suburban Paperback – August 25, 2006 ISBN 0816648859

<sup>18</sup> Šveda, M. (2011). Suburbanizácia v zázemí Bratislavy z hľadiska analýzy zmien krajiny. In: Geographical Journal ISSN 0016-7193.

<sup>19</sup> Kadri L. (2007) Residential Suburbanisation in the Tallin Metropolitan Area, University of Tartu, Journal of Rural Studies, Vol. 5, 123–136.

<sup>20</sup> Jablonczay T.- Grajczár T. (2014) Területi identitás stratégiák I. ISBN 978-963-08-6949-2

<sup>21</sup> Katreen A.T ( 2010 ): Reduction of Urban Vulnerability. Coldwar History Volume 2, Frank Class

<sup>22</sup> Balizs- Bajmócy. 2018. Rajka – Rapid changes of social, architectural and ethnic character of a cross-border suburban village, Tér és Társadalom 32. évf., 3. szám, 2018. <https://doi.org/10.17649/TET.32.3.3046>

<sup>23</sup> Malhorzata Flava - Liszieszky Maik. 2000. Demographic Consequences of suburbanization in selected towns in the eastern borderlands of Poland, online: <http://apez.umk.pl/czasopisma/index.php/BGSS/article/viewFile/v10089-010-0011-4/1549>

<sup>24</sup> Ministry of Foreign Affairs SR, Ministerstvo zahraničných vecí. <https://www.mzv.sk/cestovanie/covid19/obmedzenia-nahraniciach>

<sup>25</sup> Pawera R.-Bott D.L.: 2020. Suburbanizácia a identita, 2018, FutuReg, QUAERE, Volume 4, Hradec Králové, Česká Republika

<sup>26</sup> List of Funded Projects INTERREG HU SK <https://www.skhu.eu/funded-projects/infographics>

#### 4 Methods

As for research methods qualitative interviews and quantitative survey forms were distributed. We tested a hypothesis as follows. This is one of the forms of the organised scientific analysis and description of a specific phenomenon or problem in reality, describing it accurately and expressing it by classifying, organising information, seeking to understand the relationships of this phenomenon or problem with other phenomena or problems, and reaching conclusions that contribute to development of the studied reality. This survey was conducted between May – June 2023.

Project impact analysis based on current 2023- Priority Axes in in current call as follows contribute to 3 topics Protection and preservation of Nature, Social Cooperations and Joint Risk Management.

Image 1. Financial Framework Correlation between cross-border policies and project awareness

Priority Axis	Pearson correlation coefficient (R)	Impact Size	Amount in Mil Eur
<b>Protection and preservation of Nature</b>	0,35	1,6	13,08
<b>Joint Risk Management</b>	0,28	0,06	15,4
<b>Social Cooperations</b>	0,35	0,6	21,7

The study survey conducted on local community represents cross-border applicants who are living in cross-border region in the area of INTERREG projects (Trnavský kraj, Bratislavský kraj, Győr-Ménfőcsanak Megye).

The research sample was taken using the purposive sampling method and it consisted of ( $N=200$ ) individuals. After that, the study tool was designed, which is the online questionnaire via the Google Forms application. To verify the psychometric conditions of the tool, the apparent honesty of the tool was ascertained by presenting it to a group of arbitrators with science, experience and knowledge in the fields of scientific research and sociology for evaluation.

The internal consistency was checked by calculating correlation coefficients between the grade of each phrase and the total score of the questionnaire. It was found that the correlation coefficients of each of the scale phrases and the total score of the scale were all statistically significant at the level of significance ( $0.01$ ), which indicates the availability of a high degree of internal consistency of the scale. To verify the stability of the search tool, the researchers used the Cronbach Alpha standard and the total reliability coefficient of the questionnaire was ( $0.82$ ). These high values of the reliability coefficient indicate the validity of the tool for application and the reliability and validity of its results. To achieve the objectives of the research and analyse the collected data, One-Sample T Test, One – Way ANOVA to determine the size of the sample effect.

#### 5 Results and discussion

The results of the study showed the following hypothesis were tested and proved. The first question: *What is the level of willingness to live in one settlement (SK) or other (HU) during first programme period (2014-2020) suburbia?* To answer this question, the statistical method represented by the arithmetic average and the One-Sample T Test was used at the level of significance ( $\alpha = 0.05$ )

Tab 1. Willingness Limits

Willingness Limits	Range	Limits
Strongly disagree	1.00 -1.8	Very Low
Disagree	1.81- 2.60	Low
Neutral	2.61-3.40	Average
Agree	3.41-4.20	High
Strongly agree	4.21-5.00	Very High

The arithmetic average was 4 and freedom axis 500. and T value 11.48. Added to that, the nature of their interaction of the move from one country to other or within the region, in terms of the passed period that was characterised by staying at home due to quarantine, reducing outdoor hours, working remotely, which provided a tremendous opportunity for inhabitants to highlight their positive behaviour reaching the percentage of consensus and high approval. Thus, they achieved their quest for a sense of community, breaking the feeling of loneliness in capital city and social isolation, satisfying psychological needs and bonding with members of the group in the suburban towns. It may also be attributed to the extent of the expansion of reliance on that between 2021-2022 the large number of implemented projects and registered cooperations in the suburbia. (Local Governments, 2022) As for the approval of (11.4%) of inhabitants, this may be attributed to the multiplicity and diversity of unofficially registered suburban addresses were characterised by reliability and high rates compared to the rest of the inhabitants.

Another question was: *Is there a statistically significant relationship between the implementation of INTERREG HU SK projects, suburbanisation and the period of new programme period?*

Tab 2. Correlation between cross-border policy and project awareness

Relationship between project numbers and the Eligible Applicant	Pearson correlation (R)	Impact Size	Sig P value	Sector
Relationship between project awareness in municipalities and crossborder project implementation	0,35	1,6	0,00	PUB
Relationship between school and educational institution activities in crossborder project implementation	0,28	0,06	0,00	EDU
Relationship between crossborder business and crossborder project implementation	0,45	0,6	0,00	BUS

From the above results, it is clear that there is a positive, medium-strength, correlation between move of homes, schools and offices and with the effect of COVID-19 crisis. This means that the greater the more inhabitants move, the greater the fear of the pandemic the COVID-19 crisis to a moderate degree is, and vice versa.

The effect size was (0.154), which means that permanent address changes (15.4 %) have relative high impact on COVID-19 crisis. Along the with statistics by regional development data we compared the origin of the regions, where the cross-border citizens come from the capital and southwestern region. Therefore, we tested their willingness to implement projects during pandemic.

From the previous One-Way ANOVA analysis of the administrative region variable, it is clear that there are statistically significant differences in the opinions average of the sample members about the willingness to change their permanent address to their holiday home, suburban home in promoting positive behavior due to the variable of the administrative region. The impact size is (0.027), which is a weak impact. (2.1%) of the changes in the level of positive pandemic growth.

*The third question was how is there a correlation between the region of origin of inhabitant and the willingness to participate in INTERREG HU SK projects in cross-border region?*

Tab 3. One Way ANOVA analysis of the administrative regions

Region	Administrative Region	Average	Standard Deviation	F value	P value
Capital City Bratislava	66	3.38	0.74	3.17	0.013
Eastern Region	4	3.61	0.89	3.17	0.013
Southern (original region Trnavsky, Trenčiansky, Bratislavsky)	104	3.36	0.85	3.17	0.013
Western Regions	12	3.39	0.75	3.17	0.013
Northern Regions	14	4.04	0.662	3.17	0.013

This correlation was not proved by strong relationship. While asking about the missing services and projects in suburbia in 2019 respondents answered health care and education as priority, in 2020 schools and services became the focus of the interest and in 2023 healthcare providers and basic malls and services as well as natural heritage and risk management of the region was missing. For motivation to move into projects for institutions and eligible newcomer applicants presented the closeness to capital and rural countryside. There was no point to implement projects directly in capital and implement changes in 2020-2022, as they were the highest closures, this was supported by slighter shift of project stand-by regimes.

In 2019 survey (open question quantitative part) there were three common "mindmap" associations created about Slovak – Hungarian cross-border area, there were the followings: closeness of Bratislava, workmarket and logically lower prices of services as in the capital. Controversary, in year 2022 these advantages became more flexible in terms of home-offices and dominated quiet place, lower prices, family houses. There were several environmental qualities in quality of life mentioned on rural countryside as pure drinking water and natural treasures, but on the other hand, unfortunately, the most common answer here is just moving to cross-border the most economic prices of properties around Rajka region and Bratislava's closeness. Inhabitants, possible applicants of the smaller settlements, proved to be more culturally, socially and publicly active during interviews and opened questions. Another assumption is thus the relationship between Hungarian and Slovak residents examined the importance of the micro-regional economy, it can be concluded that expected accordingly, the micro-regional economic level and local companies are rather important for indigenous peoples. Meanwhile, the capital city's presence is important for having shared centers, multinational companies are more important for those who have moved to cross-border region. It also appeared several times in survey, how they describe themselves as for definition point of view. Before pandemic the places were called sleeping cities, satellite towns, garden towns, suburbias and it turned out that their lives changed due to pandemic and they became to call it home, small towns cross border residencies, close to the capital.

## 5 Discussion

Slovak and Hungarian cross-border projects became even more complex based on pandemic facts, there is no relevant prognosis available towards demographic grow, neither the population trends nor the covid effect is calculable. There is a different nature, administrative, legal and rural history of the region between two programming periods.

The number of peripheries in the region in the field of trade, and agriculture, intensive care of countries, regions and cities grow significantly. This includes sustainable development, regional and management strategic development and font-based documents, including local authorities, provide information and

advice on how to provide information, for whom are interested in one of the most important projects and suburban areas number of inhabitants.

The comparative study carried out in the Hungarian and Slovak languages, in the north of Austria. This is a natural and important forecast in the framework of the European Community, which is subject of the European Union's programming for INTERREG. Moreover, in the field of sustainable innovation, development of cities and five special characteristics from applicants and inhabitants' profile, the majority comes from Capital City, and Southern region, there is no correlation between the origin of the applicant and cross border willingness to implement projects.<sup>27</sup>

In another comparative method for mobility mapping it was also found that in similar spatial study by monitoring permanent address a study of doubly constrained gravity model was estimated using generalised linear mixed - effect models for journey-to-work flows in Montevideo, Uruguay.<sup>28</sup> This work-flow model was via implemented projects of INTERREG HU SK not proved in our survey.

Wider study has found out the same journey used without moving permanent address. Under the mixed model by framework Poisson and negative binomial regression models were estimated to find a better fit for the last distribution used.<sup>29</sup> The model specification improves the parameter estimation by up to 15% which means for our research a comparative result, as our sample of the survey was willing to solve cross-border related issues spatially in 20% based on the willingness and cross-border priority changes.<sup>30</sup> These priorities can be further evaluated by the segment of education, public and business, where innovation motivates more the business sector as for the rate of co-financing and feasibility study of projects.

The results were also compared with a generalized linear model GLM<sup>31</sup> of the same study, where specification improved showing that consideration of origin regions as fixed effects are insufficient to predict independence among flows.<sup>32</sup> We can close this comparative method deduction as slightly similar to the hypothesis findings in other territorial and time-specific level with increasing number of cross-border project number movements after pandemic.

## 5 Conclusions

In conclusion, administrative regions are "thinking" more cross-border in terms of western and southern part of cross-border especially in the neighborhood of Bratislava. Relationship between project awareness in municipalities and cross-border project implementation is selected to be a prior evaluation form to give response to the possible future prognosis, outstanding with the high initiative in eliminating administrative obstacles. For business Relationship between project awareness in companies creates the highest value of expectancy for proper cross-border project implementation. Thirdly, Relationship between project awareness in institutions, especially in educational institutions were decreasing due to other pandemic related priorities, most probably as online education and cross-border project implementation was not strengthened.

<sup>27</sup> Sadiq, M. (2020). Policing in pandemic: Is perception of workload causing work-family conflict, job dissatisfaction and job stress? J Public Affairs. e2486. <https://doi.org/10.1002/p.a.2486>

<sup>28</sup> Jablonczay T.- Grajczár T. (2014) Területi identitás stratégiák I. ISBN 978-963-08-6949-2

<sup>29</sup> Sadiq, M. (2020). Policing in pandemic: Is perception of workload causing work-family conflict, job dissatisfaction and job stress? J Public Affairs. e2486. <https://doi.org/10.1002/p.a.2486>

<sup>30</sup> Chun, Y. 2008 Modelling network autocorrelation within migration flows by eige spatial flitterint Journal of Geographical Systems 10: 317-344

<sup>31</sup> Bavaud, F.-Kordi, M.-Kaiser, C. :2018. Flow autocorrelation a dyadic approach, In: Annals of Regional Science

<sup>32</sup> Anderson, J.E: 2015 Fitting linear mixed effect models using IME4 Journal of Statistical & Software 67 (1), 1-48

These include thinking about the area, including its attachment to neighboring settlements, neighboring countries. The second added value of the research article is the comparison of sociologic and geographic aspects caused by COVID-19. Epidemic trends as a new viewpoint for suburbanization and the inhabitants' perception in the field of regional development research identify negative traits, but solutions were not changing forward in the last programme period. This involves new priority axis as Green Europe, Joint risk management, Joint social cooperation in the field of education, business and public governance.

Correlation between forms of applicant and numbers of projects and services to suburbia was higher during COVID-19 as it was shown. Data correlated with the year after pandemic and the growth of population, growth of numbers of project and eligible applicants in terms of territory other than only cross-border. The density of project on infographics is not always a positive decision point, but the concentration of relatively skilled service-based centralized work market, business, institutions and innovative public sector could be therefore centralized more extensively.

Main added value of this article is that at least 20 % higher interest rate of INTERREG HU SK shift in cross-border area of Hungary and Slovakia could have been based on data caused by demographic growth in suburbia official form at this moment are wider due to new cross-border programme territory, they are present positively for the capital city and neutrally to the cross-border surrounding region, which can be a new challenge towards ISG (Innovation Sustainability and Governance) of the new programme period.

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#### Primary Paper Section: A

#### Secondary Paper Section: AH, AE, AO, AP