

SOCIO-ECONOMIC DISPARITIES CAUSED BY PANDEMIC IN CROSS-BORDER AREAS OF SLOVAKIA

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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. Special attention is devoted to demographic processes and phenomena related to these facts. Besides generally acceptable statistical data represents other data collected via field research in communities representing suburban survey. It focuses on socio-economic effects of suburbanisation, analyses its impact on society of suburban inhabitants in Slovakia. There is a comparison between cross-border survey about the suburbanized rural life standards before and after 2020 to predict current trends influenced by pandemic. Added value is the results of measuring gap in economic and demographic development in the cross-border regions mainly between Hungary and Slovakia during COVID-19 pandemic

Keywords: regional development, disparities, socio-economic impact, suburbanization, pandemic

1 Introduction

The choice of the 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.

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.

The consequences of the coronavirus pandemic will have a fundamental impact on the economic, political and social spheres of our society. The coronavirus epidemic has revealed specific and general problems of the EU, Slovakia and cross-border region and the global society.

It sent a 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 suburbs after pandemic? How will socio-economic disparities develop? How will bilateral and cross-border society react and arise?

2 Literature review

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%.¹

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.²

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.³

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.⁴

Indicators of the process are migration growth, the 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.⁵ New constructions in the suburban environment can be defined as modern uniformized residential areas that are ready for family homes or individual construction on plots offered by an investor or massed new development areas.⁶

With this form of possible individual house construction on vacant plots as part of existing installations and crate identity of the region and its inhabitants.⁷

Survey on satisfaction with inter-fraud suburbanization and reducing of urban vulnerability in other perspective examined satisfaction with the services and institutions provided by the municipalities, majority of the residents do not to their satisfaction.⁸

Based on previous research from Hungary this predominantly complaining layer for their villages is mainly lacked by services like health care provider, post office, pharmacy as factor for regional differentiation.⁹

Lack of schools in suburban settlements and cities arose during COVID-19, because home-schooling was provided as only option. In the survey group as well, the responses of residents

¹ European Commission: *Strategy and Policy COVID- 19*. Brussels: EC, 2022. [online]. [cit. 2022-01-03]. Available at: https://commission.europa.eu/strategy-and-policy_en

² Burns, Yu. *The European Commission has lowered its forecast for a global economic downturn in 2020*. [online]. [cit. 2022-01-03]. Available at: https://commission.europa.eu/strategy-and-policy_en

³ Bouregard, R.A. *When America Became Suburban*. New York: 2006 . p 3.

⁴ Šveda, M. *Suburbanizácia v zázemí Bratislavy z hľadiska analýzy zmien*. Bratislava: SAV, In: Geografický časopis, vol. 63, no. 2.2011.

⁵ Šýkora, L. *Proměny postsocialistických metropolí*. In: Geografické rozhledy 23 (4), 2014. p 65. ISSN 1210-3004

⁶ Kadri, L. *Residential Suburbanisation in the Tallin Metropolitan Area*, Tartu: University of Tartu, In: Journal of Rural Studies, Vol. 5, p.123-136X

⁷ Jablonczay T.- Grajczár T. *Területi identitás stratégiák*. Dabas: Felső-Homokhátság Vidékfejlesztési Egyesület. 2014.p 56.

⁸ Tobin, K.: *Reduction of Urban Vulnerability*. Coldwar History Volume 2, New York: Frank Class

⁹ Balizs - Bajmócy, B. *Rajka – Rapid changes of social, architectural and ethnic character of a cross-border suburban village*, In :Tér és Társadalom 32. évf., 3. szám, 2018.

here are clear complaints in this area. Bratislava's 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.¹⁰

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.¹¹

In the case of Microregion so called "Rye Islands" in Slovak „Žitný ostrov“ geographically built as natural river-island created inbetween Danube near Bratislava, there were found great differences between the natives and the emigrants in our opinion, if we want to compare the border residents with the Indigenous people of Rajka its dissatisfaction could be paralleled.

In contrast, Austrian example is not delivered, however it is possible to find a questionnaire survey following the similar cross-border identity, with local content analysis. It can be argued that the residents of Bratislava living there are more distant they complained from the Austrians, but there was no shortage of services. Based on the projects, we see that the Danube connects, but the borders still separate, the however, there is no limit to suburbanization. Cross-border suburbanization is one an extremely delicate process of spatial development with poor and less bad solutions are born because of the opportunities.¹²

The prices in the housing market and the surrounding countries all offer contribute to the decision.¹³

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 contacts in suburbia, it is imperative for each user to adopt positive social behaviour such as moving workplace, 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 during 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 or permanent address usually comes with taxation, social dependence and belonging status to the land and region.

The importance of this article stems from the importance of the topic itself as it deals with, both the positive behaviour and the COVID-19 pandemic crisis and their related variables. In fact, they got great interest and care by specialists, especially with the unbridled growth of permanent address change from the capital toward the suburbia, smaller towns and periphery, focusing on this global pandemic of COVID-19 virus, 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 of changing permanent address to promoting positive behaviour during the COVID-19 crisis.*
- *Interpreting the differences in the level of changed socio-economic behavior through suburbanisation during the COVID-19 crisis according to the variables of before and after covid (2019 and 2022)*

4 Methods

As for research methods qualitative interviews and quantitative survey forms were distributed. We tested a hypothesis as follows. This survey was conducted between June- September the year 2022 on local community represents suburbians who moved during, after or due to COVID – 19 withing cross-border suburbia and changed address.

The research sample was taken using the purposive sampling method and it consisted of ($N=500$) 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 (0.952). 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 move the permanent address from one settlement (SK) to other (HU) during pandemic to 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 -1.80	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 Bratislava surrounding. 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

¹⁰ Malhorzata F.– Liszieszky, M. *Demographic Consequences of suburbanization in selected towns in the eastern borderlands of Poland*, online: <http://apcz.u.mk.pl/czasopisma/index.php/BGSS/article/viewFile/v10089-010-0011-4/1549>

¹¹ Ministry of Foreign Affairs SR, *Obmedzenia ministerstva zahraničných vecí (Restrictions of Ministry of foreign affairs)*, 2014.

¹² Pawera R.-Bott D.L., *QUAERE 2020 Volume 4*, Hradec Králové : Magnaminitas , Česká Republika ISBN, 978-80-87952-32-0.

¹³ Van den Berg L. *Urban Systems in a Dynamic Society*. Aldershot, UK: Gower.Gower PubCo. ISBN-13: 978-0566052514 ISBN-10: 0566052512

opportunity for inhabitants to highlight their positive behaviour toward moving to suburbia from their original address 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 social, economic and service-based 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 shifting permanent addresses were noted and registered in the suburbia.

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 move from capital city (Bratislava) to suburbia and the period of COVID-19 crisis?*

Tab 2. Correlation between suburbanisation and pandemic decisions (change address, educational institutions, office move)

Axis	Pearson correlation coefficient (R)	Impact Size	Sig P value
Relationship between permanent address change and pandemic crisis	0,33	1,5	0,00
Relationship between moving school and educational institutes during pandemic crisis	0,27	0,06	0,00
Relationship between moving offices and pandemic crisis	0,33	0,5	0,00

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 appeared to be 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 suburban citizens come from the capital and southwestern region. Therefore we tested their move 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 behaviour 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 and the willingness to move to suburbia?

Tab 3. One Way ANOVA analysis of the administrative regions

Region of Origin of Inhabitants	Number of Inhabitants	Average	Standard Deviation	F value	P value
Capital City Bratislava	106	3.38	0.74	3.17	0.013
Eastern Region	44	3.61	0.89	3.17	0.013
South-Western regions (original region)	336	3.36	0.85	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 service in suburbia in 2019¹⁴ respondents answered health care and hobby as a priority, in 2020 schools and services became the focus of the interest and in 2021 health provider and basic food shops and services, as well

as closeness to nature. For motivation to move into suburbia the newcomers presented the closeness to capital and rural countryside. There was no point to move into capital and travel every day in 2020-2022, this was supported by slighter shift of permanent address.

In 2019 survey¹⁵ there were three common “mindmap” associations created about Slovak – Hungarian crossborder suburban area, there were the followings: closeness of Bratislava, workmarket and logically lower prices of immobilities 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 of life mentioned on rural countryside as pure drinking water and natural treasures, but on the other hand.

Surprisingly, the most common answer were just cheap housing and Bratislava’s closeness. Inhabitants 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 suburbia. It also appeared several times in survey, how they nominate themselves. Before pandemic the places were called sleeping cities, satellite towns, garden towns, suburbanias and it turned out that their lives changed due to pandemic and they became to call it „homes“ and „small town“.

5 Discussion

Slovak Republic suburbanization 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, there is a mountain and rural history apartments. On the other hand, the name of the other Member State shall be subject to the spring, the railway station always has a special position in Bratislava and Győr, it is very important to change the quality of the research.

The number of peripheries in the region in the field of trade, in the field of trade and agriculture, intensive care of countries, regions and cities. 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 shall be 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 Community, which is the subject of the European Union's programming, and, in the field of sustainable innovation, development of cities and five specials for each other.¹⁶

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

¹⁴ Bott, D.L. Cross-border suburbanisation of Bratislava. In: CER Comparative

¹⁵ European Research 2020 of the 14th Biannual CER: Vol. 7, no. 2. – London. SCIENCE, 2020. - p. 60-64 [online]. - ISBN 978-1-9993071-6-5

¹⁶ Sadiq, M. Policing in pandemic: Is perception of workload causing work-family conflict, job dissatisfaction and job stress? In: Public Affairs. Vol 2. Harvard Press:2020

estimated using generalised linear mixed - effect models for journey-to-work flows in Montevideo, Uruguay.¹⁷

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. 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 move spatially in 10% based on migrations and home changes.¹⁸

The results were also compared with a generalized linear model GLM of the same study, where specification improved showing that consideration regions as fixed effects are insufficient to predict independence among flows.¹⁹

We can close this comparative method deduction as slightly similar to the hypothesis findings in other territorial and time-specific level.

5 Conclusions

In conclusion, it is highly recommended that local governments observe the regulatory principles of environmental economics using spatial planning tools as some of them complained about infrastructure, transportation and mobility, as well and take care of security in terms of pandemic and provision.

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 are moving not forward in the last 10 years.

Correlation between changed permanent address and shift of the services to suburbia was higher during COVID-19 as it was shown. Data correlated with the year after pandemic and the growth of population. The density of population is not always a positive decision point, but the concentration of relatively skilled service-based centralized work market could be therefore centralized more extensively.

Main added value of the research article is that at least 10 % high permanent address shift in cross-border area of Hungary and Slovakia was based on data caused by demographic growth. The move in official form at this moment are wider due to suburbanization, they are present positively for the capital city and negatively for the surrounding suburban region.

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