

## **The process of residential suburbanisation as a factor influencing the financial management of municipal budgets: case study of population-small municipalities of the Czech Republic**

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**Abstract:** *The influence of residential suburbanisation on the financial management of municipalities is evident. The main goal of the research was to evaluate whether the process of residential suburbanisation proves a financial threat or an opportunity for specific small municipalities in the suburban zones of core cities in the Ústí Region of the Czech Republic. The research evaluates the financial status of the municipalities under review, using a combination of qualitative and quantitative research methods (interviews with mayors, multidimensional indicator, income and expenditure analysis, balance calculation). The results show that the process of residential suburbanisation is a financial threat to affected municipalities. The influx of a new population forces municipalities to increase the capacity of local public goods and services, thus creating greater capital expenditure, with rising costs adding to the budget deficit. The situation results in conflict between the central level and municipalities. The central level requires municipalities to be more self-sufficient in procuring the necessary resources themselves. However, municipalities have limited tax jurisdiction, which they do not utilise due to moral barriers of social closeness to their citizens. As the administrative process for obtaining subsidies is demanding, the capacity building of public goods and services is most often financed by bank loans.*

**Keywords:** *budget, deficit, financial management, municipality, suburbanisation*

### **Introduction**

The process of residential suburbanisation is considered as one of the phases of the urbanisation process when a population leaves the core city on its periphery and moves to independent municipalities located beyond the administrative boundary of the core city, which remain functionally connected to the core city. These independent municipalities are located in what are called “suburban zones” of core cities. Territorial units affected by the process of residential suburbanisation are thus referred to as suburbs (Šilhánková et al. 2007). Although the population leaves the core city within the aforementioned process, the connection of the inhabitants to the core city remains (e.g. commuting to work, school, etc.).

The process of residential suburbanisation is not homogeneous. It is not uniform in terms of the influence and intensity on developmental processes, social composition and *financial* management of affected territorial units, but also in terms of the time in which the process of residential suburbanisation affects the relevant territorial units (Gerten et al. 2019, Macešková, Ouředníček 2008). The continent of Europe is a good example to show the time mismatch. Traditionally, capitalist European states have been struggling with the process of residential suburbanisation for a long time (Gerten et al. 2019, Guerrero, Proulhac 2016). For this reason, in some countries, there is even another phase of the urbanisation process, which is called “re-urbanisation”, or the re-settlement of core cities by people from the suburbs or rural areas

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(Carlucci et al. 2018). In the case of post-socialist European states, the current practical effects of the process of residential suburbanisation have only roughly been manifested since the 1990s (Nestorová Dická et al. 2019). The Czech Republic was chosen for this research, as a representative of a post-socialist European state, for which the issue of the process of residential suburbanisation is still topical. A group of municipalities was selected as the basic unit of research, according to the nomenclature of “territorial statistical units” classified on the LAU 2 level. These municipalities are part of a higher territorial self-governing unit of the Czech Republic, specifically the Ústí nad Labem Region, which, according to the nomenclature of territorial statistical units, is classified on the NUTS 3 level. Selected municipalities are classified in the category of municipalities of up to 2 000 inhabitants, according to size categories and the number of inhabitants. Such a community is considered “small” for purposes of this research.

The *financial* management of the affected territorial units is one of the areas within which the process of residential suburbanisation does not manifest itself uniformly. From the point of view of the expenditure side of general budgets, it usually has a negative effect. The population growth in the affected territorial units adds to the pressure to increase the capacity of local public goods and services, which are provided in the aforementioned affected territorial units for their population (Ouředníček et al. 2008). From the point of view of revenue, however, the process of residential suburbanisation may have a positive effect. Specifically, municipalities in the Czech Republic are largely dependent on tax revenues from shared taxes. The decisive criteria for the distribution of the national revenue from shared taxes to municipalities are 97 %, based on the number of inhabitants with permanent residence in the municipality. This is either in the form of a simple figure of the adjusted number of inhabitants according to size coefficients of municipal categories, or the number of children and pupils attending kindergarten or a primary school established by the municipality (Act No. 243/2000 Coll.). However, newcomers can retain their place of permanent residence in the core city, which eliminates the positive effect on the revenue side of municipal budgets and increases the negative effect on the expenditure side of municipal budgets (Macešková, Ouředníček 2008).

For this reason, the main goal of the research is to evaluate whether the process of residential suburbanisation is a financial threat or an opportunity for the small municipalities in the Czech Republic, which are located in the suburban zones of the core cities of the Ústí Region. In addition to the main goal, working hypotheses were set for the research:

- Municipalities in the suburban zones of the statutory cities of the Ústí nad Labem Region affected by the process of residential suburbanisation manage a surplus or a balanced budget, as they receive a larger volume of tax revenues due to the influx of a new population.
- Even after the arrival of new inhabitants, the municipality has no problems in fulfilling its economic functions, i.e. to provide local goods and services.

A multidimensional indicator (Kopáček, Horáčková 2018), secondary data concerning the expenditure and revenue side of selected municipal budgets (Monitor 2020), and data on the number of inhabitants in municipalities (Czech Statistical Office 2020a) were used to answer the main goal of the research and the working hypotheses. Last but not least, to obtain practical feedback, interviews were conducted with mayors of the municipalities in question as mono-crat bodies of the municipality, one-member representatives of municipalities in the Czech Republic, and representing the municipality in question externally (Act No. 128/2000 Coll.).

## **Financial management of municipalities in suburban zones**

The process of residential suburbanisation is generally considered as a phenomenon in which there is a change in spatial settlement. The population, mostly of the social middle class, migrate to the outskirts of the core city, or beyond its administrative boundary to separate municipalities, which, however, are still functionally connected with the core city (Kopáček 2019a). Although the connection of the population to the core city is maintained, whether in the form of commuting to work, school, for healthcare, etc., the usage of the core city changes as a result of the process of residential suburbanisation and because the community basis is changing.

### **Positive influence of the process of residential suburbanisation on the financial management of municipalities**

The influx of new inhabitants into suburban zones results in financial positives for the affected municipalities, in the form of an increase in the volume of tax revenues in their budgets. These municipalities thus gain an advantage in the form of receiving a larger amount of funding for the daily municipal operations, as well as for its further development (Grandclement, Boulay 2021, Pontarollo, Serpieri 2020, Richiedei, Tira 2020, Smutek 2017). Czech municipalities are no exceptions. An important criterion, based on which municipalities receive a certain share of the national revenue from certain taxes, is the number of inhabitants with permanent residence in the municipality (Provazníková 2015). Based on this fact, municipalities in suburban zones are allocated more tax revenues than municipalities that are unaffected by the process of residential suburbanisation (Pontarollo, Serpieri 2020, Smutek 2017).

Income Tax and Value Added Tax are traditional types of shared taxes, the revenue from which is divided and partly also flows into municipal budgets. These kinds of taxes form the most voluminous part of Czech municipal revenue. However, there are also discussions about sharing or entrusting the revenue of environmental taxes to the budgets of municipalities. This is because, for example, inhabitants living in the affected suburbs are more burdened by environmental taxes than inhabitants of core cities. The reason is the need to buy fuel for heating of houses when, in suburbanised municipalities, the proportion of built-up residential areas is larger and thus the municipality is exposed to negative externalities in the form of environmental damage. For this reason, revenue from environmental taxes could at least be partially redistributed to the affected suburbanised municipalities, which could subsequently finance expenditure related to the Low-Carbon Policy (Beck et al. 2016, Dyszy 2018).

Property Taxes also flow into Czech municipal budgets, the revenue of which is often entrusted only to municipal budgets. The revenue of Property Tax is too small and forms only a small part of Czech municipal budgets. To increase this revenue, some Czech municipalities in suburban zones purposefully spend money to increase the quality and capacity of local public goods and services. This is for the purpose of attracting a new population and thus increasing municipal income. Municipalities also use their land reserves in their cadastral area for this purpose, offering many vacant plots for conversion and subsequent development, with the prospect of profiting from higher Property Tax revenues. There is also profit from the one-time capital income from the sale of building land and local fees (Horáčková, Kopáček 2019). It is municipalities in suburban zones that are most likely to attract new residents by such efforts. Such municipalities subsequently become more financially self-sufficient than other municipalities (Provazníková 2015, Hortas-Rico, Solé-Ollé 2010, Pontarollo, Serpieri 2020, Richiedei, Tira 2020).

As an example, Czech municipalities have only limited tax jurisdiction. They can only minimally regulate the Property Tax rate and increase the Property Tax burden by using a local and municipal coefficient. Finally, they can introduce and collect local fees (local taxes) in their territory. A total of seven local fees are available. The municipality can only slightly regulate the rate of local fees, with the remaining local fee elements being defined by law (Act no. 565/1990 Coll.).

## **Negative influence of the process of residential suburbanisation on the financial management of municipalities**

Newcomers relocating from core cities to municipalities, not only for housing but also to spend their free time, demand some local public goods and services that they have been used to in the core city. With their arrival, these inhabitants change the public interest in the municipality, as they demand the provision of completely new local public goods and services, which original villagers did not require. This may conflict with the interests of the original residents. The presence of newcomers increases the number of inhabitants in the affected village, which generally creates pressure to increase the capacity of current local public goods (Horáčková, Kopáček 2019, Hortas-Rico, Solé-Ollé 2010, Kovalcsik et al. 2021, Pontarollo, Serpieri 2020, Richiedei, Tira 2020). However, for a capacity increase, it is first necessary to incur capital expenditures. The maintenance of the goods and services in question subsequently increases the municipality's current expenditures over time, with some of them being converted into what are called "mandatory expenditures". The result is an increase in the expenditure sides of the budgets of the affected territorial units (Richiedei, Tira 2020, Quinby 2011). Czech municipalities in suburban zones provide local goods and services for their citizens, which are: the creation of technical facilities for housing (connections), protection of citizens' health, administration of local transport infrastructure, administration of kindergartens and primary schools, care of cultural monuments, ensuring the safety of the municipality (Act No. 128/2000 Coll.).

In general, traffic is the most affected area. A quality transport infrastructure is very important to inhabitants of municipalities in suburban zones of core cities, as they still have a strong connection with the core city. However, it is the connection to the core city in the form of the daily usage of road networks by inhabitants of municipalities, whether in the form of commuting by individual car or by public intercity transport, that increases municipal expenditures. On the one hand, these are direct expenditures, which can be considered as expenditures on the maintenance of roads in the municipal administration. On the other hand, there are also indirect expenditures. Indirect expenditures are e.g. the daily commuting of residents to the core city, as emissions from passenger vehicles worsen the environment in the suburbs (Bole et al. 2012). Municipalities are thus beginning to lose their benefit in the form of good environmental quality, which was the motivation for residents to leave the core city and to relocate to municipalities in its hinterland. To improve the situation, it is proposed to strengthen public transport capacity and to reduce transport costs, in order to motivate people to leave their cars at home. Reducing fares and increasing public transport capacity are acceptable to municipalities only in collaboration with the core city. Nevertheless, it is a significant expenditure threat to municipalities (Argenbright 2019, Tscharaktschiew, Hirte 2012). Transport costs have thus become a forced priority for affected municipalities and, at the same time, a constant threat that can destabilise their basic mission at any time, which is to provide local public goods and services on their territory and to help in reducing the consequences of market failure (Brueckner, Franco 2018, Kristóf 2018, Smutek 2017).

Increased expenditure on the maintenance of local roads (streets, pavements, cycle paths) is also as great a threat to Czech municipalities as to business owners. In the conditions of the Czech Republic, public intercity bus transport is provided by regions, not by municipalities (Horáčková, Kopáček 2019).

Education is another important area for newcomers. Young families or young couples who want to start a family in a new residence most often move to municipalities in suburban zones (Kopáček, Horáčková 2018, Kopáček 2021). The quality and availability of school facilities is the second-most important criterion that plays a role in the selection of a particular municipality in the suburban zone of the core city (Boustán 2013, Richiedei, Tira 2020). To increase the capacity of school facilities, it is necessary to make capital expenditures. For small municipalities with minimal available funds, this represents a pitfall in the form of finding additional funds (Feld, Matsusaka 2003, Pontarollo, Serpieri 2020). The increase in the capacity of school

facilities is also a possible expenditure threat to Czech municipal budgets, as municipalities are the founders of kindergartens and primary schools in their territory (Provazníková 2015).

Healthcare is also an important area for newcomers. This is a type of public service that needs to be provided in suburbs, as the newly relocated as well as the current population require that they receive at least basic healthcare near their places of residence. Post-socialist states often do not have a problem, with healthcare centres providing at least basic healthcare. Healthcare centres were frequently located on their territory, as well as in core cities (Kristof 2018, Smutek 2017). Czech municipalities are thus often spared the expense, as they do not have to expend capital on the construction of healthcare clinics or local surgeries. However, the staffing of these medical facilities is a common problem (Horáčková, Kopáček 2019).

## Research methodology

Research, from the point of view of the nomenclature of territorial statistical units (NUTS), is based on the NUTS 3 level. In the Czech Republic, this is represented by 14 “higher territorial self-governing units”, referred to as regions (Constitutional Act No. 1/1993 Coll.). Only one region was chosen for this research, namely the Ústí nad Labem Region, which is located in the north of the Czech Republic. The Ústí nad Labem Region is polymodal in terms of settlement and functional links between settlements. There are five important cities in it, which according to Czech legislation, are referred to as “statutory cities” (Act No. 128/2000 Coll.). In the Ústí nad Labem Region, these are namely the statutory cities of Děčín, Chomutov, Most, Teplice and Ústí nad Labem. These are cities with approx. 50 000 or more inhabitants. Statutory cities themselves are not key to the research, as it is mainly municipalities located in the suburban zones of statutory cities which are considered core to this research. From the point of view of nomenclature of territorial statistical units, the key level for research are the basic territorial LAU 2 self-governing units, which are referred to as “municipalities” in the Czech Republic. The Ústí nad Labem Region has a total of 349 municipalities (out of the total number of 354 municipalities in the Region, 5 municipalities were excluded, as they were core statutory cities). Only those municipalities were included in the research which, in terms of driving distance by car from the central municipality to the statutory city centre, are not more than 25 minutes away.

The time allowance for the driving distance was determined according to the model of the Smutek Study (2017) and adjusted, based on the specific settlement of the Ústí nad Labem Region. Municipalities above the set distance limit were excluded from the research, because with increasing distance, a higher degree of the rural character of municipalities can be expected, and conversely a lower rate of monitored residential suburbanisation (Kopáček, Horáčková 2018). The set time allowance for driving distance thus defined the width of the suburban zones adjacent to the statutory cities in question (Smutek 2017). The Mapy.cz application was used to determine the set of municipalities that met the time condition of the driving distance. If any municipality was located in two suburban zones of a statutory city, it was included in the suburban zone of the statutory city to which the travel time was shorter. If it was found that a municipality in the defined suburban zone of the statutory city is already located in the cadastral territory of another region or is even located outside the Czech Republic, such municipality was excluded from the research (Kopáček 2019a). Out of the total 349 municipalities of the Ústí Region, only 50.4 % of municipalities met the condition, i.e. 176 municipalities in absolute terms. 29 municipalities from the suburban zone of the statutory city of Děčín, 51 municipalities from Chomutov, 34 municipalities from Most and Teplice, and 51 municipalities from the suburban zone of Ústí nad Labem fulfilled the condition.

Other indicators should be used to define the extent of suburban zones adjacent to statutory cities. One such indicator is the indicator of commuting of municipal inhabitants to work or school, which, compared to the selected indicator, would more precisely define the extent of suburban zones. However, in the Czech Republic, data for this indicator are collected only once every 10 years, during the national census of dwellings, which last took place in the Czech Republic in 2011. Data for this research are outdated (Hlaváček et al. 2019).

The 176 municipalities in question, located in the suburban zones of statutory cities, were subsequently subjected to an analysis of the degree of intensity of residential suburbanisation. The intensity of residential suburbanisation was calculated, using a multidimensional indicator (Kopáček, Horáčková 2018, Kopáček 2019a, Hlaváček et al. 2019), which consists of four sub-indicators (tab. 1).

**Tab. 1.** Description of partial indicators forming apply of the dimensional indicator

| Partial indicators                         | Description of the sub-indicator   |
|--|--|
| Population change                          | This indicator reflects the relative change in population over ten years, from 31 December 2007 to 31 December 2017, with 2007 as the starting point (100 %).  |
| Change in land area of urbanised character | The calculation of the indicator is based on the calculation of the change in the share of the urbanised area in the entire area of the municipality for ten years from 31 December 2007 to 31 December 2017, paying attention to land components that can be described as urbanised built-up areas and courtyards, gardens and other areas (Šilhánková et al. 2010).  |
| Intensity of housing construction          | The calculation of the indicator is based on the average of ten annual values, which are the share of the total number of completed dwellings and the number of inhabitants in the municipality, from 2007 to 2017.  |
| Change in the number of economic entities  | The calculation of this indicator is analogous to the calculation of the population change, but with the difference that the basic basis of calculation (100 %) was 2014. The calculation of the indicator for a ten-year time series was not possible in this case, due to a change by the Czech Statistical Office. However, because this indicator has a rather complementary character for the subject matter, a shorter time series is not an obstacle to the research. |

Source: Kopáček and Horáčková (2018), Kopáček (2019a), Hlaváček et al. (2019)

The values of individual sub-indicators were normalised. The standardisation is based on the conversion of the absolute values of individual sub-indicators to a scale from 0 to 100. The value 0 is assigned to the municipality whose absolute value of the given sub-indicator was the lowest of the whole set of municipalities. The value 100 is assigned to the municipality whose absolute value of the given partial indicator was the highest of the whole set of municipalities. The conversion of absolute values to normalised values is thus based on the following formula (Kopáček 2019a, Hlaváček et al. 2019):

$$NV = \frac{x_{iv} - y_{min}}{y_{max} - y_{min}} * 100 \quad (1)$$

where  $NV$  is the standard value of the sub-indicator of the municipality from the scale of 0 to 100,  $x_{iv}$  expresses the absolute value of the sub-indicator of the municipality,  $y_{max}$  is the maximum absolute value of the sub-indicator in the whole analysed file (between all municipalities) and  $y_{min}$  is the minimum absolute value of the sub-indicator in the whole analysed file (between all municipalities). For each municipality, out of the 176 municipalities in question, the individual standardised values of the partial indicators were calculated in this way.

The normalised values of individual sub-indicators were subsequently multiplied by the appropriate weight, which expresses the importance of the sub-indicator about the determined level of development dynamics. The group of normalised values of each subject in question was then inserted into the formula for calculating the multidimensional indicator (Hlaváček et al. 2019):

$$PI = \frac{(NV_o \times 0,5) + (NV_p \times 0,2) + (NV_{ib} \times 0,3) + (NV_{es} \times 0,1)}{4} \quad (2)$$

where  $PI$  is the value of the multidimensional indicator,  $NV_o$  is the standardised value of the partial indicator of population change,  $NV_p$  is the standardised value of the partial indicator of urban land change,  $NV_{ib}$  is the standardised value of the partial indicator of housing intensity and  $NV_{es}$  is the standardised value of the partial indicator of economic change entities.

The 176 municipalities in question were ranked in descending order, according to the value of the pole dimension indicator, i.e. according to the degree of intensity of residential suburbanisation in the municipality. The first place was taken by the municipality with the highest value of the pole dimension indicator. On the contrary, the last place was taken by the municipality with the lowest value of the pole dimension indicator. The resulting file was then used as a basis for addressing mayors to obtain an interview on the topic of the research issues.

From June 2018 to March 2019, requests for interviews were sent to the mayors. A total of 25 municipalities with the highest value of the pole dimension indicator were contacted. A total of 17 municipalities responded to the request, but in the final sum, only 15 of them managed to participate in the interview. An average 30-minute semi-structured individual interview was conducted with each of 5 mayors. The questions are based on studies discussing the impact of residential suburbanisation on municipal *financial* management (tab. 2).

**Tab. 2.** *Questions posed to the mayors of municipalities during the interview*

| Area        | Order of question | Wording of the question   | Literature   |
|-------------|-------------------|---|--|
| Income      | 1.                | How do growth processes caused by residential suburbanisation affect municipal income?  | Beck et al. (2016); Hortas-Rico, Solé-Ollé (2010); Smutek (2017)   |
|             | 2.                | As a result of growth processes, do you increase or decrease the number of local fees or the local coefficient for Real Estate Tax?       | Hortas-Rico, Solé-Ollé (2010); Pontarollo, Serpieri (2020); Richiedei, Tira (2020)                                   |
| Expenditure | 3.                | Has the process of residential suburbanisation affected current expenditure?  | Feld, Matsusaka (2003); Richiedei, Tira (2020);  |
|             | 4.                | Has the process of residential suburbanisation affected the number of capital expenditures?   | Feld, Matsusaka (2003); Pontarollo, Serpieri (2020)  |
|             | 5.                | As a result of growth processes, was it necessary to spend more money on the capacity of civic amenities or the technical infrastructure? | Argenbriht (2019); Bole et al. (2012); Bousttan (2013); Kristóf (2018); Smutek (2017); Tscharaktschiew, Hirte (2012) |

*Source: Own elaboration*

The entire interview was designed so that the mayors could comprehensively evaluate the impact of growth processes on the *financial* management of their community. To ensure the unified conduct of the interview, the interviews were conducted by only one interviewer. In the remaining two municipalities, despite the initial interest, the interview could not be conducted, due to the high workload of the mayors or deputy mayors of the municipalities (tab. 3).

**Tab. 3.** *Municipalities in which the interview took place*

| Suburban zone | Name of municipality | Population size (date of 31.12. 2018) | LAU 2 code | Date of interview | Number of years in office of mayor |
|---------------|----------------------|---------------------------------------|------------|-------------------|------------------------------------|
| Děčín         | Kámen                | 239                                   | 546453     | 17. 7. 2018       | 8 years                            |
| Chomutov      | Domašín              | 183                                   | 563048     | 26. 6. 2018       | 20 years                           |
| Chomutov      | Droužkovice          | 813                                   | 563056     | 21. 6. 2018       | 28 years                           |
| Chomutov      | Hrušovany            | 547                                   | 563072     | 9. 7. 2018        | 8 years                            |
| Chomutov      | Spořice              | 1512                                  | 563340     | 28. 8. 2018       | 8 years                            |
| Chomutov      | Strupčice            | 934                                   | 563358     | 11. 9. 2018       | 14 years                           |
| Chomutov      | Výsluní              | 377                                   | 563498     | 26. 6. 2018       | 4 years                            |
| Teplice       | Háj u Duchcova       | 1 208                                 | 567523     | 18. 6. 2018       | 16 years                           |
| Teplice       | Hrobčice             | 1 393                                 | 567566     | 18. 6. 2018       | 8 years                            |
| Teplice       | Srbice               | 397                                   | 567833     | 1. 8. 2018        | 12 years                           |
| Ústí n. L.    | Lhotka nad Labem     | 408                                   | 565113     | 30. 7. 2018       | 2,5 years                          |
| Ústí n. L.    | Tisá                 | 939                                   | 568309     | 8. 6. 2018        | 8 years                            |
| Ústí n. L.    | Vlastislav           | 171                                   | 565873     | 11. 6. 2018       | 4 years                            |
| Ústí n. L.    | Volevčice            | 101                                   | 546437     | 21. 3. 2019       | 1 years                            |
| Ústí n. L.    | Žim                  | 181                                   | 567884     | 18. 7. 2018       | 16 years                           |

*Source: Own elaboration; Note: dates as of the date of the interview*

Municipalities in which personal interviews with mayors were conducted were also subjected to an analysis of income and expenditure, to obtain information on their *financial* management. The “type classification” of the budget structure was chosen for this research, which is the basic classification of revenue and expenditure of municipal budgets in the Czech Republic.

The type classification divides all monetary operations of territorial budgets into three basic categories, which are revenue, expenditure, and financing (Provazníková 2015). Within the type breakdown, income is considered as non-refundable funds received from a domestic or foreign entity credited to the bank account of the municipality. Revenue also includes received donations or subsidies provided to the municipality. Expenditure is understood as non-refundable payments spent on investment and non-investment purchases of the municipality, either repeated or one-off. Revenues and expenses do not include collections and costs associated with the municipal debt service (Decree of the Ministry of Finance No. 343/2019 Coll.). Financing means a set of stock data on changes in the balance of funds in bank accounts. Within the classification, the individual groups are further divided into four layers, where the widest layer is called the class and the most detailed layer is called the item (Provazníková 2015). The research only worked with the category of income and expenditure up to the level of classes (tab. 4).

**Tab. 4.** *Classification of budget structure into the level of classes*

| Category    | Class level | Name of class        |
|-------------|-------------|----------------------|
| Income      | 1.          | Tax Revenues         |
|             | 2.          | Non-tax Revenues     |
|             | 3.          | Capital Income       |
|             | 4.          | Subsidies Received   |
| Expenditure | 5.          | Current Expenses     |
|             | 6.          | Capital Expenditures |

*Source: Own elaboration; Decree of the Ministry of Finance No. 343/2019 Coll.*

The revenue category is divided into four classes, according to the type classification of the budget structure. The first class, referred to as Tax Revenues, includes revenue from taxes, social security contributions, and tax accessories related to breaches of tax administration obligations. The second class, referred to as Non-Tax Revenues, includes non-capital income other than from taxes and transfers. Capital Income forms the third class, which includes income from fixed assets and financial assets of an investment nature. Subsidies Received forms the fourth class, in which all subsidies and donations from domestic and foreign governments and institutions are grouped. Expenditure categories are divided into only two classes, namely the fifth class Current Expenses and the sixth class Capital Expenditures. Current Expenses means non-capital expenditure, i.e. expenditure other than the acquisition of fixed assets, the nature of which is recurring. Capital Expenditures, on the other hand, means capital expenditure, i.e. expenditure incurred for the acquisition of fixed assets, the nature of which is usually one-off (Decree of the Ministry of Finance No. 343/2019 Coll.).

The analysis of revenue and expenditure was performed, using secondary data taken from the Monitor database set up by the Ministry of Finance of the Czech Republic, which is part of the SMART governance programme (Monitor 2020). The data contained in the Monitor database are taken from the Integrated Information System of the State Treasury of the Czech Republic and the Central Accounting Information System of the Czech Republic, which guarantees the reliability of the data (Monitor 2020). To analyse the budget structure, the Territorial Monitor was first used to verify the identification data of the municipality, especially the LAU 2 code and the ID number of the municipality, to prevent the municipalities in question not being confused with municipalities of the same name. Subsequently, the analytical part of the Monitor database was used, which allows the creation of data reports for



selected time series. For each municipality, a report was created, containing a category of income and expenditure classified for the years 2010 to 2019. At the time of the research, complete annual data for 2020 were not available, which are key to this research. For this reason, 2020 was not included in the research. The initial year of 2010 was chosen, to guarantee data collection according to a uniform methodology. For previous years, the uniformity of data cannot be guaranteed. For this analysis, final data on municipal expenditure for individual years are also needed. For this reason, the analytical part of the portal will use a group of data called the “Budget” after changes that meet this condition. As the number of inhabitants in the 15 municipalities in question differs, the secondary data taken over were subsequently recalculated per 1 inhabitant, to guarantee the comparability of the data. The database of demographic data for municipalities of the Czech Republic thus searched for data on the status of the population in the municipality at the end of each year for the period 2010 to 2019 (Czech Statistical Office 2020a). The upper limit of the time series was chosen because of the last interview having been conducted in 2019.

The analysis of revenue and expenditure was used to calculate three types of municipal budget balances. These were the total average balance, the current budget balance, and the capital budget balance per capita for the periods 2010 and 2019 for each municipality in question. To eliminate possible annual fluctuations, the resulting annual values for individual balances for each municipality were summed up and averaged over the number of years. By this procedure, the average balance per capita for the period from 2010 to 2019 was obtained for each municipality in which the interview took place.

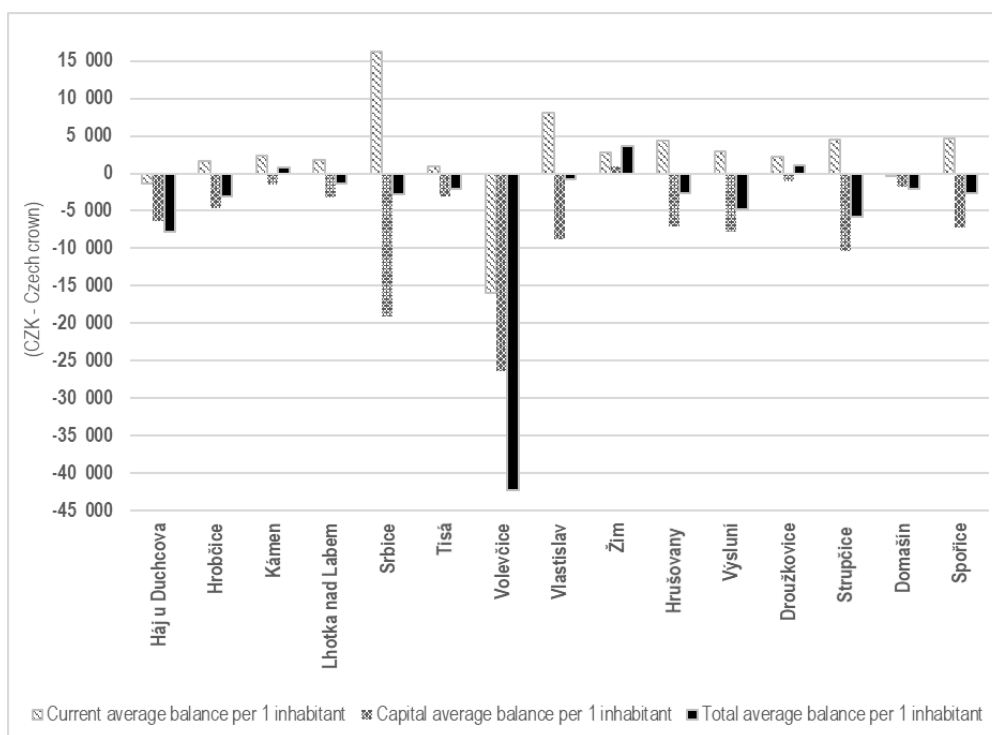
The total balance was calculated as the difference between all income (sum of classes 1 to 4) and total expenditure (sum of classes 5 and 6). The current budget balance was calculated as the difference between income and expenses related to the operating non-investment activities of the municipality (current activities). The Income category was calculated as the sum of the values of classes 1, 2, and 4, except for items 42xx classifying investment subsidies received. The category of Expenditure consisted only of class 5. The balance of the capital budget was calculated as the difference between revenue and expenditure related to the investment activities of the municipality (capital activities). The Income category was calculated as the sum of Class 3 and Class 4 values, consisting of only items 42xx (investment subsidies received) (Pavlas 2015).

## Results

For Czech municipalities whose financing is predominantly based on the number of inhabitants with permanent residence in the municipality (Act No. 243/2000 Coll.), the influx of new inhabitants is a positive phenomenon. It can thus be expected that the municipalities affected by the process of residential suburbanisation will cope without major difficulties due to the acquisition of a larger volume of tax revenues, i.e. they will maintain a balanced or positive balance (Grandclement, Boulay 2021, Pontarollo, Serpieri 2020, Richiedei, Tira 2020, Smutek 2017). This hypothesis was verified by calculating three types of municipal budget balances (total, average, and capital average balance), with the revenue and expenditure of the municipalities in question analysed in more detail.

The values of the total budget balances in the 12 monitored municipalities did not confirm the assumption of managing a balanced or positive balance (fig. 1). The mere increase in the volume of tax revenues, in combination with own and capital revenues and further accepted transfers, are not a sufficient source of coverage for the municipalities in question of their total expenditure burden. The first working hypothesis was not confirmed in most of the municipalities in question. The reason is the negative balance of the capital budget, where only one of the total number of monitored municipalities managed a surplus within the capital activities. This is

a worrying phenomenon. Based on the negative balances of the capital budget, it is clear that the capacity increase of local public goods and services must be covered by municipal reserves created from current budget surpluses from previous years, or they are forced to use external sources of financing (e.g. bank loan). It is necessary to count on an increase in expenditure on the maintenance of a larger volume of local goods and services. However, this fact will become apparent only later. Therefore, although for up to the three municipalities in question, a positive current budget balance is now shown, these surpluses may decrease in the future.



**Fig. 1.** Average balances of municipal budgets for the period from 2010 to 2019, in which an interview with the mayor took place; Source: Own elaboration and calculations according to Czech Statistical Office (2020a) data

From the interviews with the mayors, it was possible to identify specific expenditures that are associated with the process of residential suburbanisation, and which thus additionally burden the budgets of the municipalities in question. It was not possible to use the second classification of the budget structure to determine the closed nature of the identified expenditure, as this classification does not classify expenditure by purpose, but only by type. To find out more detailed characteristics of the identified expenditure, the CZ-COFOG classification was chosen, which is based on the international COFOG standard (Classification of Functions of Public Entities) – an integral part of the System of National Accounts from this area (Provazníková 2015). The individual expenditures, identified from the interviews with mayors, were first classified according to the CZ-COFOG classification into the lowest and, at the same time, the most detailed level, referred to as a class, and then into the highest and broadest level, called a section (Czech Statistical Office 2020b). The middle stage has been omitted, as its designation is often identical to the designation of the lowest stage. The total list is recorded in tab. 5.

**Tab. 5. Identified expenditures classified according to CZ-COFOG classification**

| CZ-COFOG     |                                   |            |   | Identified expenses   |
|--------------|-----------------------------------|------------|---|---|
| Section code | Code name                         | Class code | Class name                                    |   |
| 01           | General public services           | 01.1.1     | Legislative, executive, and other legislators | Local government activities (4; 26.67 %)  |
| 04           | Economic affairs                  | 04.5.1     | Road transport                                | Management of policies and services in the field of road transport: roads, pavements, parking areas, parking lots, and bike paths (9; 60 %) |
| 05           | Environmental Protection          | 05.1.0     | Disposal of waste, other than wastewater      | Waste collection: a collection of municipal waste and care for appearance of the village (7; 46.67 %)                                       |
|              |                                   | 05.2.0     | Wastewater disposal                           | Drainage and treatment of wastewater and sludge management (11; 73.33 %)  |
|              |                                   | 05.3.0     | Pollution control and pollution reduction     | Changes in heating technology: gasification (3; 20 %)   |
| 06           | Housing: social infrastructure    | 06.4.0     | Street lights                                 | Public lighting (5; 33.33 %)  |
| 08           | Recreation, culture, and religion | 08.1.0     | Recreational and sports services              | Sports facilities owned by the municipality (3; 20 %)   |
| 09           | Education                         | 09.1.1     | Pre-primary education                         | Kindergartens (10; 66.67 %)   |

*Source: Interviews with mayors, Own elaboration; Note: the absolute and relative amounts of positive answers are given in parentheses (Kopáček 2019b)*

During the interviews with the mayors, obstacles were also identified that prevented municipalities from obtaining more money. One-third of the contacted mayors blame government officials for the insufficient allocation of tax revenues that flow into municipal budgets. According to the mayors, it is not possible to provide local public goods and services at the municipal level, of sufficient quality and scope. They demand that the municipalities increase the percentage of national tax revenue, from which they could then more easily finance the necessary investment projects. Some mayors see another problem with tax revenues as an indirect relationship between tax revenues and the growing population in municipalities. The tax revenue does not necessarily increase for the municipality with a growing number of inhabitants. This situation occurs if the new inhabitants retain their permanent residence in the core city. At that moment, the new citizen consumes local public goods and services, but the municipality does not obtain any funds for their provision on behalf of the citizen. However, the municipality does not have to rely only on the number of allocated tax revenues based on the budget determination of taxes, as it can try to increase this amount.

Based on a generally binding decree, it may introduce and collect what are called “local fees” from selected activities or services (Act No. 565/1990 Coll.) in its cadastral territory, which is classified in the Tax Revenue class according to the type breakdown of the budget structure.

A total of 11 out of the 15 mayors surveyed said they were not considering introducing or increasing local fees because they feared the reaction of the population. They believe that the additional financial burden is not bearable for their inhabitants. Some mayors even stated that they reduce or even abolish some local fees in their cadastral area, due to non-payment of fees. The subsequent recovery of the amounts owed by the population is very expensive for municipalities and therefore unprofitable.

Municipalities usually do not have the necessary funds to ensure an investment project. In such a case, the municipality often approaches the effort to obtain an external source, in the form of obtaining a loan or subsidy. From the point of view of the municipal budget, a subsidy is a far easier option, as this is funds donated sometimes only with a certain amount

of co-participation. However, 8 out of the 15 contacted mayors state that obtaining monetary subsidies is administratively demanding for them, and sometimes the grant title is advertised in such a way that it is unrealistic for the municipality to comply with. They state that the municipal council is usually not so numerous and skilled as to be able to apply itself, and they must hire external consultants to have the application processed. In the end, the municipal council approaches a simpler option, and that is the submission of a loan application, which is usually positively settled, but the investment itself is expensive. From the above, it is clear that the second hypothesis, claiming that municipalities in suburban zones of statutory cities of the Ústí Region do not have the problem of fulfilling their economic function even after the arrival of new inhabitants, i.e. to provide local goods and services of the same quality as before the influx of new residents, has not been confirmed. After the arrival of a new population, municipalities have a problem in securing the necessary quantity of local goods and services, due to the low volumes of their budgets and limited opportunities to increase finances for their budgets, mainly for moral reasons.

Specific statements of the mayors are given in tab. 6. The interviews do not numerically correspond to the order of the municipalities in tab. 3. The reason is to leave the possibility for an individual to express himself freely without further possible dispute by a third party.

**Tab. 6.** *Identified obstacles preventing municipalities from obtaining increased financial income*

| Reasons   | Statements of mayors   |
|---|--|
| Increases in local fees not bearable for population (11; 73.34 %)             | "We don't increase (the fees), I don't think people deserve it." (Interview 4)<br>"We try to keep local fees as low as possible - but it's quite a mess for the municipal budget." (Interview 8)<br>"It is not possible to increase (the fees) - about half of the population did not pay fees and it is very difficult for us to enforce fees." (Interview 1)   |
| Administrative complexity associated with obtaining a subsidy (8; 53.34 %)    | "Subsidies are a huge burden for the municipality, because with each subsidy, the rules and conditions are changed during the subsidy title period; there are incredible modifications." (Interview 9)<br>"We want to apply for a subsidy for the construction of sewers, but it is very difficult for a municipality of our size to receive a subsidy for such construction at all." (Interview 15)<br>"We are indebted because of the sewers, so we can't even afford large subsidies, because there is always some percentage of participation." (Interview 13) |
| Low share of national tax revenues for municipalities (5; 33.34 %)            | "Of course, there is the impact of growth processes on the income of the municipality... but it is not as great as we would need." (Interview 1)<br>"Well, the municipality's income is slightly increasing, but it's nothing dramatic." (Interview 3)<br>"We receive less than we have to spend, and that is a deficit for the municipality." (Interview 8)<br>"Certainly, it's not a big municipal income, certainly not in our country." (Interview 13)   |
| Residents not registered as permanent residents in the municipality (3; 20 %) | "We have a problem that a lot of people are not officially registered here. Citizens have almost everything free of charge here, for example, the municipality pays for their waste removal. Even unregistered people benefit from these services, but we get nothing for them." (Interview 8)<br>"A lot of people buy holiday homes in our area and come here for the weekends, so they are not registered here." (Interview 10)  |

*Source: Interviews with mayors, Own elaboration; Note: the absolute and relative amounts of positive answers are given in parentheses (Kopáček 2019b)*

## Discussion

The presented research aimed to evaluate whether the process of residential suburbanisation is a financial threat or opportunity for the small municipalities in the Czech Republic, which are located in the suburban zones of the core cities of the Ústí Region. The purpose was an attempt to verify the assumption of the uneven impact of the residential suburbanisation process on the revenue and expenditure sides of the budgets of the affected territorial units (Ouředníček et al. 2008, Pontarollo, Serpieri 2020, Richiedei, Tira 2020, Smutek 2017).

The subjects of the research were specifically municipalities in the suburban zones of the core cities of the Ústí nad Labem Region, in which the assumption was confirmed. As a result of population growth, these municipalities, as well as similar territorial units in other European countries, have to contend with the capacity of local public goods and services in their territory. The result is an increase in the expenditure sides of municipal budgets, as municipalities are obliged to continuously ensure the uniform benefit of public goods and services at the municipal level (Brueckner, Franco 2018, Kristóf 2018, Saussier, de Brux 2018, Smutek 2017, Quinby 2011). However, the assumption that capital expenditures outweigh current expenditures in suburban zones has not been confirmed, which contradicts the conclusions of Boustán (2013), Feld and Matsusaka (2003), Kristof (2018), Kovalcsik et al. (2021), Pontarollo, Serpieri (2020) and Richiedei, Tira (2020).

In general, the most exploited local public goods due to the process of residential suburbanisation are roads, not only in the form of roads, but also pavements and parking areas (Argenbright et al. 2019, Bole et al. 2012, Brueckner, Franco 2018, Kristóf 2018, Smutek 2017, Tscharaktschiew, Hirte 2012). This is a significant expenditure burden on the affected municipalities, as the daily commute by municipal inhabitants from suburban zones to core cities puts pressure on municipal officials to maintain the proper quality of the roads (Bole et al. 2012, Šilhánková et al. 2007). It is also a pressure to ensure interurban public transport (Argenbright et al. 2019, Tscharaktschiew, Hirte 2012). However, this is not the most pressing expenditure burden on municipalities of the Ústí nad Labem Region in question. From the point of view of public transport, municipalities do not face an increase in expenditure, as intercity public transport is provided in the Czech Republic by regions (NUTS 3). Municipalities pay for connections only in the event of their extraordinary request to intensify connections beyond the planned network. However, this phenomenon is not so common in the municipalities in question. The very quality of the roads connecting the municipality with the core city is also important to inhabitants of the municipalities in question, due to the use of passenger car transport. However, this is again not an expenditure burden on the municipalities in question, as these roads in the Czech Republic are again managed by the region (NUTS 3). Municipalities manage only the local roads, which are e.g. streets in built-up areas of the village, pavements, and public parking areas. The administration of local roads mainly increases the current expenditure of the municipality. This fact contradicts the assumption of Brueckner, Franco (2018), Kristóf (2018) and Smutek (2017) that the largest expenditure burden caused by the process of residential suburbanisation is related to roads.

For the municipalities in question, the largest expenditure burden is associated with the drainage and treatment of wastewater and sludge management, and, in particular, the expenditure of funds to increase the capacity of sewers. The sewerage network in the municipalities in question was not dimensioned for the current number of inhabitants in the municipality. An unfavourable factor is also the rapid growth of the population in a short time. This is a serious problem, for which municipalities need considerable financing, which often exceeds the annual volumes of their budgets.

Further expenditure is related to the relocation of young families, for whom not only the quality of roads is important, but also the level of school and healthcare facilities (Kopáček, Horáčková 2018). The advantage of post-socialist states lies in the availability of civic amenities, at least of a basic quality, even at the hierarchically lowest level of the territories of the units (Boustán 2013, Richiedei, Tira 2020, Smutek 2017). This fact is also confirmed by municipalities in the suburban zones of the core towns of the Ústí nad Labem Region, where it is not necessary to build completely new capacities of civic amenities, but it is necessary to increase the existing ones. Specifically, the main concern is to increase the capacity of kindergartens. Newly arrived young residents also demand the creation or improvement of the quality of public goods and services that they have been used to in core cities as part of leisure activities (Kopáček, Horáčková 2018, Quinby 2011). In the affected municipalities of the Ústí Region, these are mainly

public sports fields and halls. The process of residential suburbanisation creates considerable pressure on the expenditure sides of the budgets of the affected municipalities, due to the need to increase the capacity of existing local public goods and services and to satisfy the wishes of its new residents and to provide new goods and services or at least to increase the quality of existing ones.

Expenditure intensity caused by the process of residential suburbanisation should be compensated for in terms of income. As an example, in some countries with affected municipalities, tax revenues generally increase even from the very influx of new population into the municipality (Grandclement, Boulay 2021, Pontarollo, Serpieri 2020, Richiedei, Tira 2020, Smutek 2017). This fact is also a practice for the municipalities of the Ústí nad Labem Region in question, as the dominant decisive criterion for the redistribution of the national revenue from shared taxes to municipalities is the number of inhabitants with permanent residence in the municipality. However, despite these additional tax revenues, municipalities manage a negative balance. The additional revenues should compensate for all the expenditure intensity caused by the residential suburbanisation process. However, this may not be the case, because newcomers retain their place of residence in the core city, which in turn eliminates the positive effect on the revenue side of municipal budgets and deepens the negative effect on the expenditure side. However, only three interviewed mayors mentioned this factor. The reason for the overall negative balance of the budgets of the municipalities in question is the nature of the identified expenditures. The additional increase in tax revenues is intended to cover mainly current expenditures, but the identified expenditures have the nature of capital expenditures. This is also evidenced by the resulting negative balances of capital budgets, which are the cause of the total negative balances of the budgets of the municipalities in question.

Nevertheless, the central level does not want to further increase tax revenues for municipalities. It demands that municipalities be self-sufficient and cover additional expenses on their own. One method is to introduce local fees in its territory, or to increase the revenue from entrusted taxes by modifying the structural elements of the tax, if the central government has given municipalities this option (Hortas-Rico, Solé-Ollé 2010, Pontarollo, Serpieri 2020). The municipalities in question have the opportunity both to introduce local fees in their territory and to increase revenues from the allocated entrusted tax (Real Estate Tax). But mayors are unwilling to use these tools. The obstacle is the social aspect. The reason is, on the one hand, the elderly residents of retirement age in the municipality, for whom an increase in fees or taxes would be a financial burden. A subsequent barrier is the social closeness of citizens to the leadership of the municipality. Friendship has developed among many, and so the representatives of the municipalities subsequently have moral barriers.

The second option is to obtain a monetary loan (Richiedei, Tira 2020). The mayors of the municipalities in question use this method of obtaining additional funds, but they encounter an obstacle in the form of considerable administrative complexity during the application itself. Municipalities often ask for advice or have requests processed by externalists for a fee. Municipalities also have difficulties in meeting the conditions for obtaining a loan. The most common problem is the participation rate. Municipalities will receive only a proportion of the loan and must pay the rest from their budgets. For municipalities, however, this means several years of investigation.

There is a dispute between the mayors of small-scale municipalities and the central level, which does not want to increase tax revenues for municipalities, forcing them to be self-sufficient. However, the tools for additional income are often dysfunctional for these municipalities. Municipalities affected by the process of residential suburbanisation will as a result have a negative budget balance, which in turn does not benefit the central level either, as the indebtedness of municipalities is reflected in the public debt of the country.

## Conclusion

The process of residential suburbanisation affects both the revenues and expenditures of affected municipalities. For this reason, it is difficult to determine whether the process of residential suburbanisation has a positive or a negative impact on the *financial* management of municipalities in suburban zones of core cities. Using a combination of quantitative, and especially qualitative research, the main aim was to evaluate whether the process of residential suburbanisation is a financial threat or an opportunity for the small municipalities in the Czech Republic, which are located in the suburban zones of the core cities of the Ústí Region.

Research confirmed that the process of residential suburbanisation is a financial threat to the affected municipalities. In the case of the municipalities in question, the reason is that the expenditure sides of the budgets are more burdened, causing the deficit management. This is ultimately reflected in the State public debt. The complexity of expanding local public goods and services thus exceeds the effect of additional tax revenues which municipalities receive, based on the larger number of inhabitants. Thus, the first established working hypothesis was not confirmed, claiming that municipalities in suburban zones of the statutory cities of the Ústí nad Labem Region affected by the process of residential suburbanisation manage a surplus or a balanced budget, as they receive more tax revenues due to the influx of a new population.

This research concludes that municipalities have sufficient funds in terms of covering current expenditures, but that there are difficulties in obtaining funds for one-off investment projects in the form of capacity building of e.g. the sewerage network, or kindergartens. Instruments in the form of monetary subsidies, local fees, or modifications of structural elements of allocated taxes are not feasible. Municipalities have limited tax jurisdiction and cannot use it due to moral barriers arising from the social closeness of their citizens. The increase in the capacity of local public goods and services is thus most often financed by bank loans, as the administrative process for obtaining a subsidy is demanding, making it difficult to obtain the necessary additional funds. Here, however, there is a discrepancy between the representatives of the central level of the State and the mayors of small municipalities, as the central level does not want to increase the allocated tax revenues to municipalities, demanding that municipalities themselves seek opportunities to earn additional funds.

In further similar research, it would be appropriate to focus on a discussion by both parties on this issue. The conclusions of the discussion should result in the improvement of the functionality of the tools, or the definition of new tools, with which municipalities could procure the necessary additional resources themselves. This would pave the way for the greater independence of municipalities in the area of their *financial* management.

From the above, it is clear that the second hypothesis has not been confirmed, claiming that the municipalities in suburban zones of statutory cities of the Ústí Region do not have the problem of fulfilling their economic function, even after the arrival of new inhabitants, i.e. to provide local goods and services of the same quality as before the influx of new residents. After the arrival of a new population, municipalities have a problem in securing the necessary quantity of local goods and services, due to their limited budgets and limited opportunities to increase their income, mainly for moral reasons.

The advantage of this research is the use of personal interviews with mayors, with the help of which it was possible to accurately identify the specific expenditures caused by the process of residential suburbanisation. In this case, statistical analyses have a limited ability, as they only assist in outlining an area of expenditure that could be related to the residential suburbanisation process, but cannot completely filter out all the factors that could skew the conclusions and thus erroneously point to expenditure related to this phenomenon.

In this research, however, it is necessary to bear in mind that the mayors communicated only their own experiences and subjective opinions, which may distort the resulting conclusions. Another limitation of this research is the fact that the current conclusions of the

knowledge on this issue were verified in a population of small municipalities in a region with a specific nature. It is a structurally affected region with a polycentric settlement and functional connections between settlements. Thus, the conclusions of the research cannot be generalised. It would be beneficial if future research with a similar focus tested these conclusions on a similar sample of municipalities in other countries, thus expanding the knowledge of the impact of the residential suburbanisation process on structurally disadvantaged regions.

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