

# Global Impacts of COVID-19 on the Financing of Local Self- Governments: Evidence from Slovak municipalities

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## Abstract.

**Research background:** Until 2004, the financing of local self-government in Slovak Republic was determined annually by the Act on the State Budget. In 2005, the whole philosophy of redistribution of funds for the level of local self-government was changed. The basis of the new system of local self-government financing was the determination of the personal income tax as an only one share tax.

**Purpose of the article:** The income from this tax is distributed between the local self-government, the regional self-government and the state. The aim of the paper is to analyze the incomes from personal income tax redistributed to the level of local self-governments in Slovak Republic in the time period 2009 - 2019, as well as to provide a possible prediction of the development of these incomes.

**Methods:** Basic data for the analysis were obtained from the Ministry of Finance of the Slovak Republic from the state final account. We evaluate the obtained time series by means of MS Excel and we use modelling by means of trend lines. The obtained predictions will be compared with the forecasts presented by the Ministry of Finance of the Slovak Republic.

**Findings & Value added:** However, COVID - 19 also intervened in the predictions of the Ministry of Finance of the Slovak Republic, and therefore we will also compare our models with real data obtained from the state budget in the framework of fulfilling from personal income tax for the time period January to August 2020. Also we will evaluate the expenditures of selected EU countries for local self-government.

**Keywords:** *financing; local self – government; personal income tax; COVID-19*

**JEL Classification:** *H24; H72; C0*

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## 1 INTRODUCTION

The priority of regional financial policy is to ensure the socio-economic development of the region. One of its roles should be the development of local self-government in accordance with its sufficient funding. The volume of funds within the budget is closely linked to the competencies provided by the local self-government [1]. According to Patrzalek [2], the main problem of regional financial policy is the procedures and criteria for allocating public funds to individual local self-governments. According to the author, the result of this process is an excessive dispersion of public funds in the region and the associated doubling of the implementation of public tasks by many institutions, which is reflected in increasing costs for the functioning of public administration. This is also confirmed by Haček [3], who notes that the tasks assigned to the municipalities in Slovenia by the state in the previous two decades were mostly insignificant from his point of view. As part of the transfer of competencies to local self-government in 2006, the state was not willing to relinquish its competences, e.g. in the field of spatial planning, agriculture, industry, etc. Municipalities in Slovenia thus provide a relatively small range of local competencies. According to the author, this situation takes into account the process of decentralization, which is typical for the development of local self-governments in European countries. Related to this is the fact that the financial autonomy of Slovenian municipalities is minimal, as their financing largely depends on the annual budgetary decision of the national parliament. An effective regional financial policy is according to Provazníková [4] a consequence of fiscal federalism, the main task of which is to ensure the optimal allocation of revenues and the division of responsibilities for the provision and financing of public goods. Fiscal federalism is divided into vertical fiscal federalism (applied mainly in the USA, Canada and Australia) and horizontal (cooperative) fiscal federalism (applied in Germany), depending on the model it is based on. However, most countries in the world use a combination of both of these models. This model is also used by the Slovak Republic. In a decentralized model, the law defines for each level the income that can only continue to spend these funds [5]. According to Finžgar and Brezovnik [6], the creation of a decentralized model should provide not only an efficient allocation of financial resources from the national to the local level but also their subsequent responsible use by the local self-government. According to the authors, countries such as France, Germany, Poland and the United Kingdom are achieving a high level of fiscal decentralization. Cibik and Meluš [7], Hudakova [8] recall that the decentralization of the financial system is a very sensitive and complicated process in every country. The transfer of resources and responsibilities to lower levels of government, primarily local self-government, is always country-specific. For example, the authors state that in the Slovak Republic, the implementation of fiscal decentralization in 2005 implemented fiscal decentralization, which started changes in the financing of local and regional entities. At the same time, this process has increased the transparency of financial management and fairness in the redistribution of state budget resources. Martinkova and Banóciová [9], Petrasova and Beresecka [10] note, however, that the implementation of fiscal decentralization, which is associated with the reform process at the local level, represents changes in the transformation of economies into market-oriented economies. This implementation makes it possible to achieve greater democratic participation in the decision-making process, strengthening transparency and accountability of government entities. According to Molotok [11], however, decentralization of expenditures hampers the country's economic development, while decentralization of incomes supports it. These trends need to be taken into account in the development and implementation of fiscal decentralization reform, as well as in countries' innovative policies. These findings can be considered necessary to ensure a balance between the redistribution of power (expenditures) from the central government to a lower level and the financial capacity of the local budget. The results of the author's analysis of local budgets,

conducted on a sample of 12 selected European countries for the time period 2008-2018, showed that the country's innovative development depends very much on local self-sufficiency: lack of financial resources to cover all redistributed central government powers. Increasing the financial capacity of local self-government also creates opportunities not only to finance basic functions, but also to invest in advanced functions, such as innovative development. This is also confirmed by research of Brezovnik et al., [12], in which they examined at the level of Slovenian municipalities the coverage of costs for the fulfilment of municipal tasks, the structure of costs and the degree of connection between budgeted incomes and expenditures of municipalities. Their analysis showed that in the observed time period 2010-2016, the incomes intended for the provision of individual competencies exceeded the expenses associated with the provision of these competencies. Ultimately, this means that municipalities lack financial resources to cover all their competencies. Another negative of financial reform at the level of local self-governments states Chen et al., [13], who note that namely the abolition of local self-government control over local tax incomes and even the ban on creating a budget deficit. Despite the above facts, according to Mura et al., [14], Jakubek et al., [15] any new system of local self-government funding should lead to a stabilization of incomes over a longer period of time and allow for a gradual transition to multiannual financial planning.

The pandemic COVID - 19 significantly affected not only the macro - level economies, but also deeply affected local self-governments. Governments in countries where the pandemic spread has taken measures they deemed necessary, but according to Spânulescu and Gheorghiu [16] some of these measures have proved inadequate, leading to negative effects on the economic system in the form of reduced economic development, increased unemployment due to the cessation of production in several industries, tourism, trade, etc. According to economic analysts, at the end of the first wave of coronavirus in the world there will be about 350 million new unemployed compared to those that existed at the beginning of the pandemic COVID-19. Pandemic Covid-19 outbreak had other effects on the economy. For example, it has encouraged companies to repatriate their supply chains, thus speeding the reorientation of goods production. The introduction of home offices for employees and the organization of online business meetings has created a huge space for outsourcing services. While the virus may discourage trans-global trade between distant economies such as China and the United States, it will also highlight the reality of interdependence and the benefits of different markets and cheaper production. Striving to become more resilient without sacrificing the benefits of integration could encourage investment in the "near abroad" of the world's major economies: Eastern Europe, Central and Southeast Asia, and Central America [17]. Research on the economic impact of previous pandemics has shown that countries, industry and society are suffering significantly from the consequences of a global pandemic. This is due to the current demand and supply shock. Demand is falling as consumers reduce purchases of irrelevant goods and services such as entertainment and travel. Redundancies reduce the company's overall spending capacity. Many service and manufacturing sectors have therefore had to close down. Governments across Europe and the US have implemented first aid financial packages and incentives for businesses. It is already clear that overall state aid, especially in Western countries, will be at levels above all previous crises. By 21 April 2020, the EU and its Member States had invested € 3.4 trillion in rescue/ stimulus packages. These measures were taken on the basis of the first estimates of economic development, which is the deepest decline in the global economy in the last 100 years [18]. Big outbreaks can have a significant economic impact on the affected country, as illustrated by the SARS, MERS and Ebola cases. Measures that are able to mitigate short-term economic risks, depending on the time of the outbreak, include campaigns to support small companies, policy incentives such as subsidies, tax deferrals, reduced mortgage interest rates, restoring market confidence through greater publicity and public control [19]. According to some estimates,

if the current epidemic is overcome within three months, it is likely to lead to a 0.8% decline in real GDP. If it lasts nine months, it will result in a 1.9% drop in GDP. GDP may fall even more significantly if there are widespread restrictions on movement and thus on trade [20].

## 2 METHODS

The aim of the paper is to analyze the incomes from personal income tax redistributed to the level of local self-governments in Slovak Republic in the time period 2009 - 2019, as well as to provide a possible prediction of the development of these incomes.

Until 2004, the financing of local self-government in the conditions of the Slovak Republic was determined annually by the act on the state budget. In addition to the volume of subsidies, the rules for determining the share of local self-government incomes from central taxes also changed from year to year. As of 1 January 2005, this philosophy of redistribution of funds to the level of local self-government changed. The basis of the new system of local self-government financing was the determination of personal income tax as a single share tax, mainly due to the fact that dynamic growth of this tax was expected in the medium term. The share of the yield of personal tax income from state to the local self-government is shown in Table 1.

**Table 1.** The share of the yield of personal tax income from state to the local self - government

Time Period	The share of the yield of personal tax income
01.01.2005 – 31.12.2011	70.3 %
01.01.2012 – 31.12.2013	65.4%
01.01.2014 – 31.12.2014	67%
01.01.2015 – 31.12.2015	68%
01.01.2016 – present)	70%

Source: [21], own processing

However, COVID - 19 also intervened in the predictions of the Ministry of Finance of the Slovak Republic, and therefore we will also compare our models with real data obtained from the state budget in the framework of fulfilling from personal income tax for the time period January to August 2020.

Although fiscal decentralization has taken place within European countries, there has been no full autonomy of local self-government funding. In practice, this means that local self-government is still tied to state funding. So we analyse also the total general government expenditure as a share of GDP issued at local self-government level in selected EU member countries over the years 2009 - 2019. Expenditures of government institutions are defined in ESA 2010 in paragraph 8.100 and Chapter 20 with a reference to the list of items: intermediate consumption, gross capital formation, employee remuneration, other taxes on production, subsidies, property income, ordinary taxes on pensions, property and other benefits, social benefits other than social transfers in kind, transfers - purchased market output, other current transfers, changes in pension entitlements, capital transfers and net transactions in non-produced assets. The data sources for this indicator was obtained from Statistical Office of the Slovak Republic.

We apply the regression method to express the functions of linear modelling (linear trends), which describe trends in the development of the GDP of the Slovak Republic and income from personal income tax. If this coefficient is positive, there is an increase in the values of the variable and then we say that it is a positive (direct) dependence between the values and. On the contrary, if the regression coefficient is negative then it occurs the decrease of the values of the dependent variable, then we say that is negative (indirect)

dependence. According to the shape of the modeling function  $y = f(x)$ , depending on parameter  $x$ , the regression functions can be divided into linear and nonlinear type. In our case, when determining the trend of the development of the indicator - incomes from personal income tax, we will use non-linear estimates and functions created by tools of MS Excel known as “trend lines” In data modeling we apply polynomial trends with the most appropriate grade of a polynomial. Polynomial functions are based around the formula

$$y = ax^n + bx^{n-1} + cx^{n-2} + \dots + m, \quad (1)$$

where dependent variable  $y$  is expressed by independent variable  $x$ ,  $n$  means the grade of a polynomial function and  $a, b, c, \dots, m$  are coefficients of a polynomial.

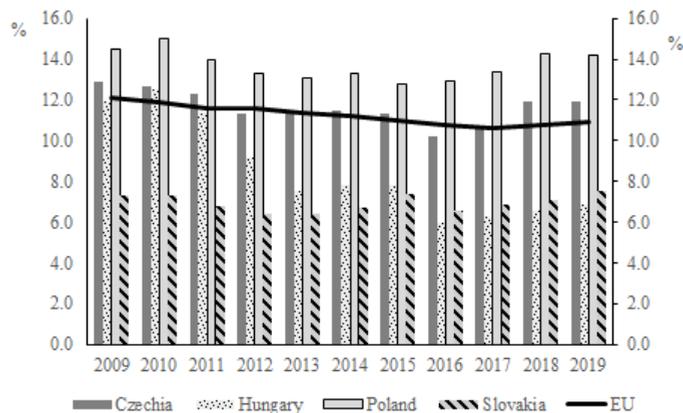
The verification of the correctness of the created regression model results in the calculation of the numerical characteristics, which in an exact form describe the quality of the calculated models. We use a determination index to verify the accuracy of the estimated non-linear function. The determination index is used to explain the regression quality, how much the regression of the actually measured value registers. The determination index has the following mathematics expression:

$$I_{YX}^2 = \frac{S_M}{S_C} = 1 - \frac{S_R}{S_C}, \quad (2)$$

where  $S_M$  represents the theoretical sum of squares,  $S_C$  is the total sum of squares and  $S_R$  is the residual sum of squares. The determinations index can take values from 0 to 1. As the index value approaches 1, the larger part of the total variability is explained by the model [ $y$  depends on  $x$ ]. Conversely, if the determination index is close to 0, the lesser the total variability is explained by the model. The determination index is often used as a criterion of the choice of a particular regression function.

### 3 RESULTS AND DISCUSSION

Expenditures of government institutions at the level of local self-government during the analysed time period ranged within the EU countries from 10.6% to 12.1%. In 2019, the V4 countries, with the exception of the Czech and Slovak Republics, achieved the average government expenditures of the EU countries (Fig.1.).



**Fig.1.** Total general government expenditure as a % GDP issued at local self-government level in V4 countries over the years 2009 – 2019

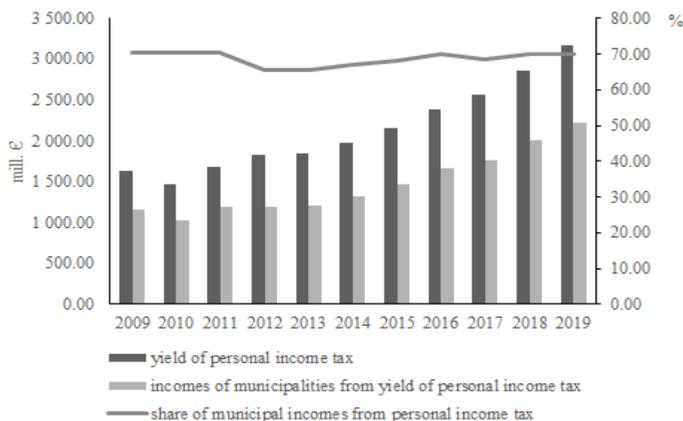
Source: Statistical Office of the Slovak Republic, own processing

During the analysed time period, the Czech Republic showed an almost balanced trend in these expenditures each year. A similar situation was observed in Poland and Slovak Republic. We see the biggest fluctuations in these expenditures in Hungary. While in the

period 2009-2011 these expenditures averaged 11.9%, in 2012 they fell to the level of 9.2%. This declining trend continued until 2019. Compared to 2009 and 2019, these expenditures halved (Fig.1.).

Financing of local self-governments from the state budget is not typical only for European countries Cuny et al., [22] note that in the United States, Congress is directing its financial resources to its constituencies to fund the local self-governments located there. Their research on a sample of 7166 U.S. local self-governments in the time period 1999-2016, which analyzed the relationship between members of Congress and local self-government administration, showed that local self-governments in constituencies who have strong congressmen receive disproportionately more financial resources for own administration. The results of the research showed that such local self-governments have better access to federal funding, and this results in improved quality of services for the inhabitants. This can lead to a reduction in the motivation of local self-government officials as well as the residents themselves to strictly control the management of local self-government. On the other hand, however, such local self-government is likely to be more controlled by Congress through government audits and also through the media to prevent the misuse of federal funds.

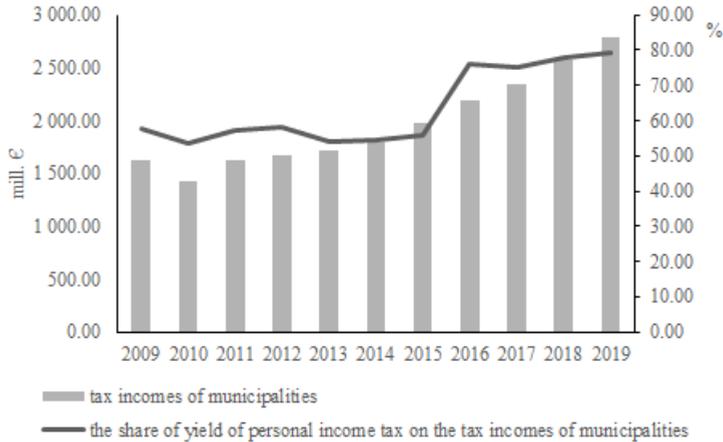
In the conditions of Slovak Republic, the income from personal income tax is redistributed to the level of local and regional self-government. From the implementation of fiscal decentralization in 2005 until 2015, the state also retained a share of these incomes. From 1 January 2016, the whole income from personal income tax will be redistributed to the level of local and regional self-government. With the exception of 2010, the income from personal income tax showed an increasing trend. This positive development confirmed the correctness of the collection of personal income tax as a share tax, which is redistributed to the level of local self-government. The fears of the municipalities, which assumed that they would have less funds from the state as a result of determining this tax as the only share tax, were not fulfilled. This positive trend is also shown in Fig. 2. The total increase of yield of personal income tax in 2019 compared to 2009 was 93.16%



**Fig.2.** Development of selected financial indicators of local self – government in Slovak Republic over the years 2009 – 2019

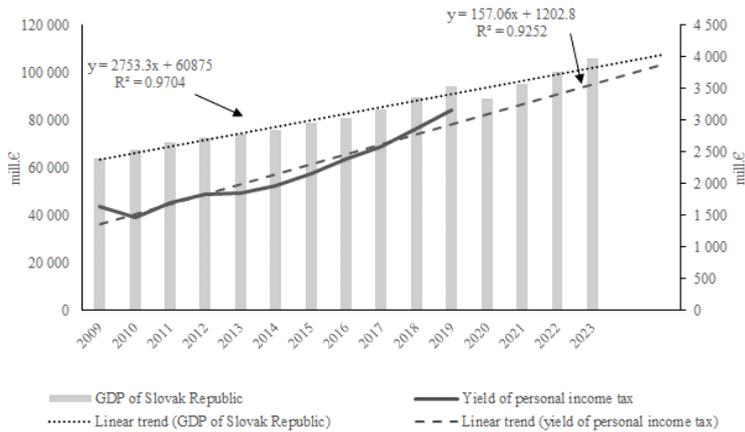
Source: Ministry of Finance of the Slovak Republic, own processing

The fact that fiscal decentralization did not meet expectations regarding an increase in the local self-government's financial dependence on the state is also shown in Fig.3. The yield of personal income tax accounts for an average of 63.61% of total municipal tax incomes. This dependence increased every year during the analysed time period. While in 2009 incomes from personal income tax accounted for 57.73% of local self-government tax incomes, in 2016 it was already 76.15% and in 2019 even 79.39%.



**Fig.3.** Development of incomes of tax incomes of municipalities and the share of yield of personal income tax on the tax incomes of municipalities in Slovak Republic over the years 2009 – 2019  
Source: Ministry of Finance of the Slovak Republic, own processing

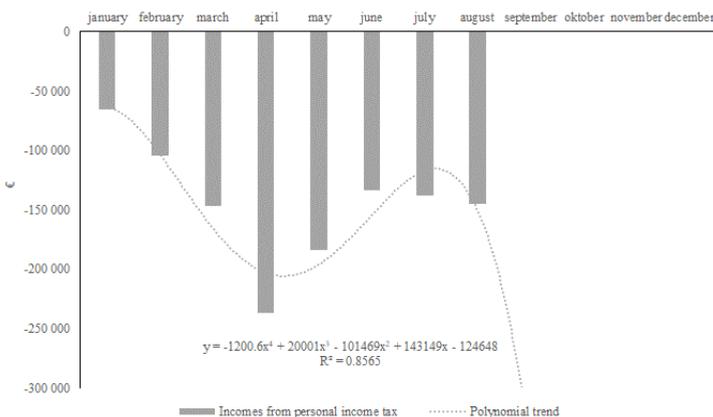
The tax incomes of local self-governments in the Slovak Republic also include incomes from local taxes, which are directly levied by local self-governments on the basis of adopted generally binding regulations in accordance with the act on local taxes. However, the analysis showed that these own incomes account for a much smaller share of incomes in total tax incomes compared to the incomes that the local self-government receives from the yield of personal tax income. However, this dependence of local self-government on the state brings with it the instability of the financial system of local self-governments, especially in bad economic years. It also confirm it Liptáková and Rigová [23] who note that economic conditions severely limit local self-government spending. Therefore, the local self-government should consider in the future how to increase the share of their own incomes. The need for diversification of local self-government incomes is also confirmed by Brüllhart and Jametti [24] who, by analysing the budget incomes of local self-governments in the central region of Ukraine, found that the main source of incomes of local self-governments is income tax, of which almost 80% comes from taxation of wages of employees in private companies and individuals - entrepreneurs. Local taxes and fees provide sufficient incomes for only a small part of local self-governments. And even only 10% of local self-governments generate half of their incomes from their own budget incomes. Different philosophy in setting of the tax rate at the local level works at the level of Swiss municipalities. From research Dub and Hrynychshyn [25] it turned out that a big proportion of Swiss municipalities set tax rates through the direct democratic participation of the citizen, forcing local managers to behave "benevolently". There is a positive relationship between relative "smallness" municipalities and average tax rates: the smaller municipalities, the higher their tax rates. This is consistent with the dominant vertical externalities in the model of tax competition between benevolent jurisdictions in federal systems. The significant impact of fragmentation on taxes means distortion reducing the welfare of (vertical) tax externalities. However, the relationship between fragmentation and tax rates can also become negative (or at least different from zero) for municipalities with delegated fiscal authority. In this case, the government has significantly more space to maximize incomes than the democratic Swiss municipal authorities.



**Fig.4.** Trend of GDP and trend of yield of personal income tax in Slovak Republic

Source: Ministry of Finance of the Slovak Republic, own processing

The trend of GDP of Slovak Republic represents the regression coefficient of 2753.3, based on that it is possible to predict its increase. The coefficient of determination is 0.9704 (it expresses the suitability of the used trend model). Based on this, we can predict that there could be an increase the GDP of Slovak Republic in the coming period (Fig. 4.). The trend of yield of personal income tax represents the regression coefficient of 157.06, based on that it is possible to predict its increase. The coefficient of determination is 0.9252 (it expresses the suitability of the used trend model). Based on this, we can predict that there could be an increase the yield of personal income tax in the coming period (Fig. 4).



**Fig.5.** Trend of incomes from personal income tax in Slovak Republic

Source: Ministry of Finance of the Slovak Republic, own processing

Fig. 5. shows the development of incomes from personal income tax compared to the monthly forecasts. The chart shows that since the beginning of the year, less incomes from personal income tax have been received in the state budget each month than anticipated by the Ministry of Finance of the Slovak Republic. The biggest drop is recorded in the month of April, when there was a lockdown in the Slovak Republic due to COVID -19. Only very slowly is it possible to reduce this negative trend. As we can see in Fig.5 the best trend line model is polynomial of 4th degree from mathematical point of view. Incomes from personal income tax is modelled via the polynomial trend of the 4th degree, where the coefficient of

determination is 0.8565 (it expresses the suitability of the used trend model). Based on this, we can predict that there could be a decline the incomes from personal income tax in the next time period.

## 4 CONCLUSION

The results of the analysis showed that despite the fact that fiscal decentralization has taken place in the V4 countries, local self-government is still dependent on state funding. The dependence of local self-government on incomes from the state brings financial instability to municipalities, which is significantly manifested especially in times of economic crises, which includes the current COVID-19 pandemic. In such periods, local self-governments react extremely sensitively to the deteriorating development of the economy at the state level. In the conditions of Slovak local self - government, the reason for reducing their incomes is the reduction of state incomes from the incomes from personal income tax. This situation thus opens up space for possible changes in the financing of local self-governments. The question of whether it would not be appropriate to consider the financial stability of the local self-government to consider the so-called mix of taxes and not only about one share tax - personal income tax.

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