The structure of the financial system of local government units (LGUs) determines the efficiency of its operation and development opportunities. Such a system should take into account both appropriately assigned sources of its own revenues as well as properly estimated expenditure needs, and equalization transfers.

This paper focuses on the revenue side, more precisely – on the fiscal capacity of local governments. The paper begins by analyzing the concept of fiscal capacity in foreign and Polish literature. Then, three different types of fiscal capacity are distinguished, which is justified by the different purposes for which such capacities can be used.

The remainder of the paper presents the amounts of fiscal capacity of various types of Polish LGUs in 2010-2017. An attempt was also made to identify external factors affecting the amount of this capacity.

Key words: fiscal capacity, fiscal effort, LGUs’ revenues, local disparities.
JEL code: H 70, H 71.

Introduction

Fiscal capacity is important for local government units’ (LGU) financial sustainability and the well-being of their inhabitants. It is used to determine the shape of equalization mechanisms, and to assess the degree of financial (revenue) autonomy of the LGUs. It is also used in various types of comparative analyses, which are the basis for determining policy directions at local and regional levels.

However, fiscal capacity as a determinant of revenue autonomy refers only to its own revenues, often in a very narrow way. Such an understanding of fiscal capacity cannot be the basis for designing equalization mechanisms, nor can it be the indicator for assessing the development possibilities of the LGUs. This diversity of objectives justifies a multidimensional, original approach to the understanding of fiscal capacity.

Theoretical foundations

The concept of fiscal capacity is most often identified with the ability of local governments to raise revenues from their own sources. At the same time, the fiscal
capacity should be distinguished from the so-called fiscal effort. If an LGU with the same fiscal capacity obtains income in different amounts, it is the result of the tax rates applied, allowances and exemptions granted, and also the effectiveness of revenue collection. The fiscal effort refers to the actual utilization of the LGU’s revenue sources.

There are two main approaches to measuring fiscal capacity. One is based on macroeconomic indicators (income approach), the other – on a Representative Tax System (or Representative Revenue System).

The income approach uses various kinds of macroeconomic measures, including primarily the gross regional product, personal income of the LGU (the sum of income received by the inhabitants of the LGU) or disposable income. This approach has many disadvantages, including, for example, disregarding the ability of local governments to export taxes or dependence on data that are often unavailable or published with a long delay.

The Representative Tax System (RTS) was introduced by the Advisory Commission on Intergovernmental Relations (ACIR) in 1962. In accordance with the RTS, the tax capacity of an LGU is the amount of income that the entity could collect if any potentially taxable subject were taxed (without exemptions, exclusions, deductions, etc.) at the so-called representative tax rate. This rate corresponds to the national average, weighted by the tax base of each LGU. According to ACIR, this allows the best comparison of the real fiscal capacity of the units, although it was noticed that the assessment strongly depends on the methodology used to define the tax base.

The RTS methodology has been modified many times. In 1971 ACIR extended the scope of RTS by including non-tax revenues, including: rents, user charges, interest income and proceeds from asset sales. The extended methodology has become known as the Representative Revenue System (RRS).

An unquestionable advantage of the RTS/RRS methodology is its accuracy, because it includes disaggregated data on each type of revenue. However, it is also a weakness because it requires collecting a comprehensive set of information. An attempt to eliminate this inconvenience was made by introducing regression analysis to the methodology, which radically reduces the amount of necessary data. The RTS and RRS methodology also have other disadvantages. It is emphasized that this method does not


A. Shah, op. cit.


ACIR, op. cit, p. 32-33.


take into account potential links between various income bases. It also assumes that changes in tax rates by local authorities do not affect local tax bases. In Polish literature the term ‘fiscal capacity’ is understood in a number of ways. Sometimes this is determined by all revenues that the LGU can accumulate, sometimes – only by its own revenues or only by tax revenues. Nevertheless, most often fiscal capacity appears as a component of broader terms, such as financial capacity or economic capacity, or as a determinant of investment capacity.

A comprehensive analysis of the concept of LGU capacity and methods of its measurement was carried out by B.Z. Filipiak and M. Tarczyńska-Luniewska. The authors present many perspectives of financial capacity by proposing their own approach, according to which financial capacity is both the financial resources (capital, receivables, cash) as well as the possibilities of creating financial resources through active policy of local government authorities or by passive creation of financial resources, e.g. by incurring liabilities.

According to M. Dylewski, the financial capacity determines the possibility of financing the development of an LGUs in its territory, and its size depends on such factors as, e.g. the capacity of the income base, scope of obligatory tasks of the unit and the legal background that determines the possibilities and limitations in the use of debt.

Undoubtedly, the size of the financial capacity depends on the amount of an LGU’s revenues, which in turn is related to the size of its fiscal capacity. Although the concept of fiscal capacity appears quite often in various types of publications, it is rarely defined. Certainly, it refers to the possibility of collecting revenues, but its scope is seldom determined.

One of the few definitions referring to fiscal capacity is the definition of own fiscal capacity, developed by T. Lubińska, S. Franek and M. Będzieszak. According to them, this term includes the sum of inflows from shares in PIT and CIT receipts, real estate tax, agricultural tax, forest tax, tax on transport means and tax on civil law transactions. The own fiscal capacity is one of the elements of the so-called stable current income, constituting the basis for formulating the definition of own investment capacity.

Fiscal capacity can be used to assess the ability of the LGU to incur development expenditures. One of the approaches is based, among other things, on the own capacity, defined as the amount of the LGU’s revenues that can be allocated to financing new development projects. However, such a concept is not the same as the fiscal capacity, because it requires taking into account additional amounts, such as for example current expenditures of the LGU or the expenditures necessary to complete projects already underway.

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9 S. Chervin, op. cit.
Methodology

The analysis of publications devoted to fiscal capacity justifies a multi-dimensional approach to the way of defining and – consequently – measuring fiscal capacity in Poland.

The first dimension of fiscal capacity refers to an LGU’s financial autonomy, and more specifically to one of its aspects – revenue autonomy. The greatest degree of revenue autonomy of an LGU is associated with taxes, local charges and income from property. Measures of the so-understood fiscal capacity focus on the share of own revenues in total income, but they differ in the range of the revenues taken into account.

It was assumed that fiscal capacity as a measure of the LGU revenue autonomy (further referred to as: own fiscal capacity) should not include shares in PIT and CIT receipts, due to the fact that local government authorities do not have influence on the amount of tax rates and applicable reliefs and exemptions. However, it was considered that own fiscal capacity should cover all other revenues classified as own revenues, also those that may be characterized by low stability (eg. income from property), but whose amount is strictly dependent on the local authorities.

The second approach to fiscal capacity (expanded own fiscal capacity) is based on the assumption that it should be an important element of the equalization system, aimed at enabling LGUs with different financial capacity to provide public services of a similar standard. Such a goal means that the equalization should refer both to the revenue and expenditure sides, and its subject should be the gap between the expenditure needs and the fiscal capacity (fiscal gap). Although equalization systems may have other purposes\(^\text{15}\), the starting point in all cases is estimating the LGU’s fiscal capacity.

The expanded own fiscal capacity will be the own fiscal capacity extended by shares in PIT and CIT receipts. At the same time, it should be noted that the equalization mechanisms are often based not directly on the revenues raised by local self-government units (fiscal effort), but on the realizable amounts. However, as only the collected revenues are part of the third dimension of fiscal capacity, such an approach will be used in further calculation.

The widest conceptualization of the fiscal capacity term (developmental fiscal capacity) can be used to assess the development opportunities of local governments, including calculating the LGUs’ ability to co-finance expenditures supported by EU funds. Nevertheless, it should be clearly emphasized that fiscal capacity is only one element determining the development opportunities of the LGUs, as it is necessary to take into account also the expenditure side.

As concerns the revenue side, developmental fiscal capacity should incorporate not only an LGU’s own revenues and shares in PIT and CIT receipts, but also other revenue titles, including certain intergovernmental transfers. It applies to these transfers, which flow into the LGUs’ budgets regardless of their financial status, constituting stable

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Sources of financing local expenditures, namely the educational part of the general subsidy and grants for commissioned tasks.

Although detailed algorithms for transferring the educational part of the general subsidy are changed almost annually, the basic principles remain stable, so that these resources are a very important source of LGUs’ expenditure financing.

Similar features are found in the grants for commissioned tasks. Despite the problem of their underfunding\textsuperscript{16}, these transfers should increase the developmental fiscal capacity, as they are transferred along with the tasks.

Developmental fiscal capacity should also cover grants from the State Fund for Rehabilitation of Disabled People and the Labor Fund. Unfortunately, Polish reporting standards do not distinguish between grants from specific appropriated funds for LGUs. Hence, the development fiscal capacity will be measured as own fiscal capacity extended by the educational part of the general subsidy and grants for commissioned tasks.

The following part of the paper provides the data for different types of fiscal capacity in Polish LGUs. All the calculations were based on LGU reports, in particular the reports Rb-27S (\textit{Report on the execution of the budget revenue plan of the local government unit/local government unit}) and Rb-PDP (\textit{Report on the execution of the tax revenue of gmina/city with poviat rights}). Data from the Central Statistical Office from the Local Data Bank were also used.

\textbf{Results and discussion}

Fiscal capacity can be analysed from various perspectives. Interesting conclusions can be drawn on the basis of analysis in aggregated and disaggregated dimensions, as well as in diversified cross-sections. Some selected results are shown below. The analysis focuses on developmental fiscal capacity as it is the broadest concept, which includes both the own fiscal capacity and the expanded own fiscal capacity.

In nominal terms, the developmental fiscal capacity of LGUs increased by 54.2\% - from 129.4 billion PLN in 2010 to 199.5 billion PLN in 2017. Analysing the components of this capacity, some changes in the structure can be noticed. There is a declining share of own fiscal capacity – it was the highest in 2014 (36.6\%) and in 2017 it fell to 30.3\%, while the share of grants for commissioned tasks increased due to the introduction of the 500+ program.

The highest share of own revenues (excluding shares in PIT and CIT receipts) in total revenues is seen in gminas, which is an obvious dependence, because only these LGUs have been granted the right to municipal taxes, as well as to a large share of fees.

The measure enabling the comparison between LGUs is the amount of fiscal capacity per capita. In 2010-2017, the average amount of developmental fiscal capacity per capita ranged from 238 PLN (voivodships) to 4,679 PLN (cities with poviat rights). Low fiscal capacity per capita was also recorded in poviats (on average 471 PLN), while in rural, urban-rural and urban gminas it was an average of 2,817 PLN (average amount for total gminas, including cities with poviat rights was 3,426 PLN). Table 1 presents the amounts of fiscal capacity per capita in 2017.

The fiscal capacity of all the LGUs in individual voivodships was also examined. In 2017 the developmental fiscal capacity per capita in Poland amounted to an average of PLN 5,190. However, it was lower than that in 11 voivodships. The lowest capacity was noted by the units in Lubelskie voivodship (PLN 4,402), and the highest – in Mazowieckie voivodship (PLN 6,498).

The structure of an average developmental fiscal capacity per capita in 2017 in Poland was as follows:

- own fiscal capacity was 30.3%;
- shares in receipts in PIT and CIT accounted for 26.7%;
- educational part of the general subsidy and subsidies for commissioned tasks - 43.0%.
The lowest share of own fiscal capacity in the developmental fiscal capacity was recorded in the LGUs in the Podkarpackie voivodship (24%), while the highest was in the Westpomeranian units (38.1%).

The relatively high average share of PIT and CIT receipts was the result of high revenues on this account executed by LGUs of the Mazowieckie voivodship. On the other hand, units from this voivodship recorded the lowest share of the educational part of general subsidy and grants for commissioned tasks (33.7%). In the LGUs of the Podkarpackie voivodship, these transfers accounted for 55.5% of the total development fiscal capacity.

Considering the developmental fiscal capacity as the sum of its constituents, it is possible to indicate several dozen parameters, on which the amount of the capacity depends. For a specific LGU there are in particular:

- about 50 parameters used to determine the amount of the educational part of the general subsidy,
- taxable income of the LGU’s residents,
- size and structure of the tax base for real estate tax and other municipal (gmina) taxes, as well as tax and fee rates in a given LGU;
- the amount of LGU shares in revenues in PIT and CIT receipts.

It is obvious that with such a large number of parameters, determining factors that have a significant impact on the fiscal capacity amount are not trivial. Calculation
experiments\footnote{These calculations were made with the help of Wojciech Misiąg, Phd.}, based on Ministry of Finance databases and the CSO Local Data Bank, showed, however, that the amount of the developmental fiscal capacity of all LGUs from one voivodship can be estimated with a high accuracy by using a model with a small number of explanatory variables.

The starting point was the following model:

\[ \bar{F}_i^t = \alpha_0 + \alpha_1 PKB_i^t + \alpha_2 DM_i^t + \alpha_3 DW_i^t + \alpha_4 W_i^t + \epsilon_i^t \]

where:
- \( \bar{F}_i^t \) is the fiscal capacity of LGU in i-th voivodship in year t in million PLN (i = 1,2,..,16, t = 2012, 2013, .. 2017);
- \( PKB_i^t \) is the gross domestic product of i-th voivodship in year t in million PLN (i = 1,2,..,16, t = 2012, 2013, .. 2017);
- \( DM_i^t \) is the number of inhabitants aged 3-19 in urban areas of the i-th voivodship in year t in thousands (i = 1,2,..,16, t = 2012, 2013, .. 2017);
- \( DW_i^t \) is the number of inhabitants aged 3-19 in rural areas of the i-th voivodship in year t in thousands (i = 1,2,..,16, t = 2012, 2013, .. 2017);
- \( W_i^t \) is the average wages in the national economy in the i-th of the voivodship in year t in PLN, (i = 1,2,..,16, t = 2012, 2013, .. 2017);
- \( \epsilon_i^t \) is a random factor.

For 2017 data, the following estimation – using the classic least-squares method – was obtained:

\[ \bar{F}_i^t = -4831.604 + 0.036 PKB_i^t + 17.992 DM_i^t + 14.861 DW_i^t + 1.376 W_i^t \]

\[ (2186.195) \quad (0.005) \quad (2.022) \quad (1.696) \quad (0.532) \]

where the numbers in brackets indicate the standard errors of estimated parameters.

It can be seen, that all the explanatory variables appearing in the model significantly affect the fiscal capacity. The coefficient of determination \( R^2 \) for this model is 0.9986.

Calculations made for other years from the period 2012-2016 showed a similar impact of the model’s factors on the fiscal capacity amount, but the parameter estimates are significantly different than for 2017.

<table>
<thead>
<tr>
<th>Rok</th>
<th>( \alpha_0 )</th>
<th>PKB</th>
<th>DM</th>
<th>DW</th>
<th>W</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>-3347.745</td>
<td>0.038</td>
<td>11.014</td>
<td>8.006</td>
<td>0.917</td>
<td>0.998</td>
</tr>
<tr>
<td>2015</td>
<td>-3967.116</td>
<td>0.038</td>
<td>13.498</td>
<td>11.234</td>
<td>1.346</td>
<td>0.999</td>
</tr>
<tr>
<td>2016</td>
<td>-4409.287</td>
<td>0.037</td>
<td>16.361</td>
<td>13.096</td>
<td>1.356</td>
<td>0.997</td>
</tr>
<tr>
<td>2017</td>
<td>-4831.604</td>
<td>0.036</td>
<td>17.992</td>
<td>14.861</td>
<td>1.376</td>
<td>0.996</td>
</tr>
</tbody>
</table>

Source: author’s own calculations.

Further calculations show that a very similar estimate can be obtained from the model, in which data on average wages are replaced by data on the average amount of
disposable income of the voivodship residents. Significantly lower, however, is the correlation between the fiscal capacity and the unemployment rate or dwellings stock.

**Summary**

Although the concept of fiscal capacity of LGUs is often used in Poland in various publications, it is rarely defined, and the analysis of the foreign literature indicates that it is not uniform. This article introduces an original approach to this term and distinguishes three types of fiscal capacity:

- the narrowest, called own fiscal capacity;
- wider, called expanded own fiscal capacity;
- the widest, the developmental fiscal capacity.

It should be noted that only the own fiscal capacity is a measure whose calculation (after defining the own revenues) does not require additional reservations. When designing equalization mechanisms, it should be considered whether – or to what extent – the potential amounts of revenues should be taken into account. Such revenues could have been collected if the LGU had not implemented tax expenditures as part of its tax policy.

The last of the distinguished fiscal capacities serves to assess the LGU development abilities, but it is only a starting point for such estimates.

The amounts of different types of fiscal capacity are very diversified. Most of the fiscal capacity is generated by municipalities (gminas), with the dominant role of cities with poviat rights. The analysis of the developmental fiscal capacity of different types of municipalities in one voivodship suggests that the mechanisms of shaping this capacity in cities with poviat rights differ significantly from the mechanisms generating the capacity of other municipalities (rural, urban-rural and urban). Therefore, it would be advisable to undertake an attempt to estimate separately the fiscal capacity of cities with poviat rights – this is, however, associated with serious difficulties in collecting the necessary data.

The analyses indicate that GDP in a voivodship is the external factor that has the greatest impact on the amount of the developmental fiscal capacity. Nevertheless, the results presented above should be treated as a preliminary recognition of the problem. It seems recommendable to continue the calculation experiments with the proposed model (e.g. by estimating models for separate LGU groups), and also to consider the possibility of including variables that define the LGU’s necessary expenditures.

**Bibliography**


Różne wymiary potencjału dochodowego jednostek samorządu terytorialnego – przykład Polski

Streszczenie

Konstrukcja systemu finansowego jednostek samorządu terytorialnego (JST) determinuje efektywność jego funkcjonowania i możliwości rozwoju. Taki system powinien uwzględniać zarówno odpowiednio przypisane źródła dochodów własnych, jak i właściwie oszacowane potrzeby wydatkowe oraz transfery wyrównawcze.

Artykuł koncentruje się na dochodach, a ścisłą – na potencjale dochodowym samorządów lokalnych. Rozpoznana go analiza pojęcia potencjału dochodowego w literaturze zagranicznej i polskiej. Następnie rozróżniono trzy różne kategorie potencjału dochodowego, co jest uzasadnione różnymi celami, dla których potencjał może być wykorzystywany.


Słowa kluczowe: potencjał dochodowy, wysiłek fiskalny, dochody JST, zróżnicowania lokalne.

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