




The use of selected tax tools for the implementation of pro-ecological goals in Poland on the example of cities with poviats rights

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Abstract

Motivation: Environmental protection requires action at various levels. Local governments managing the smallest territorially administrative units have been equipped with a number of competences enabling a positive impact on the condition of local natural resources. Their powers include, inter alia, determining the rates of certain taxes along with the possibility of applying preferences that may be aimed at stimulating environment-friendly behavior and the implementation of various pro-ecological goals. Therefore, a research problem can be raised regarding the use of this type of instruments by municipalities to improve the condition of the natural environment.

Aim: The purpose of the article is to investigate whether and to what extent local governments managing communes in Poland use their powers in the scope of applying reliefs and exemptions in local taxes to initiate activities involving the protection and proper use of environmental resources. The study covered 63 cities operating with poviats rights, and the analysis covered the resolutions adopted by the city councils of these units in the years 2019–2021.

Results: As a result of the research, it was found that the local governments of the largest Polish cities rarely applied exemptions from property tax and transport means tax exemptions due to pro-ecological activities undertaken by taxpayers. Local government officials were much more willing to use the statutory right to apply different tax rates on means of transport depending on the type of drive. In the group of the 10 largest urban



centers, only in one case there is no lower tax rate for 2021, and thus no relief for owners of vehicles with a drive that meets certain emission limits or electric power. Importantly, the reliefs were most often accompanied by the reduction or maintenance of the real tax rates at a stable level.

Keywords: tax law; conservation; environment; municipalities

JEL: H71; H23; Q29

1. Introduction

Environmental protection requires actions taken at various levels of management. Local governments, as entities managing the smallest territorially administrative units and having at least theoretically the best knowledge of the processes taking place in the local natural environment, have a large role to play here. The scope of their competences, and thus the possibility of influencing local ecosystems, depends on the legal systems in force in individual countries. Despite the differences in this respect (Mazur, 2011, p. 12), in most countries, local officials have a number of economic instruments at their disposal, including those of an economic nature, which can stimulate entities to act by rewarding or discouraging specific behaviors (Bouwma, 2015, p. 20). This group includes tax tools. As part of the mix policy, tax reliefs may be addressed to companies investing in pro-ecological solutions, on the other hand, additional taxation may be imposed on enterprises that pollute the environment (Postula & Radecka-Moroz, 2020). For example, in the European Union countries, local authorities may apply such reliefs and exemptions from real estate tax because, as indicated in one of the EU reports (European Commission, 2012, p. 23). the levy is collected at local level in practically all Member States.

In connection with the above, a research problem can be raised regarding the influence of local governments on behavior supporting environmental protection through fiscal tools. This problem increasingly interests the world of science, but so far most researchers have focused more on the theoretical dimension of this issue, emphasizing in particular the possibilities offered by the law in this area. However, there is a clear lack of scientific papers in which the authors would analyze specific tax solutions implemented by local governments to achieve goals related to the protection of air, water or land. The gap in this matter should be eliminated all the more because entities operating at the lowest local government level gain, taking into account a sufficiently long perspective, more and more powers along with the process of progressive decentralization, and therefore their importance also as environmental protection authorities will increase.

The aim of the study is an attempt to answer the question whether and to what extent local governments use their competences in the field of local tax reliefs and exemptions to initiate activities favoring environmental protection. In this paper, this issue will be discussed on the example of Poland, where local municipalities have powers in respect of certain taxes. The subject of the analy-

sis were decisions concerning real estate tax and transport means tax taken in recent years by city councils with poviats rights. Regulations concerning these taxes have been included in several legal acts: *Act on local taxes and fees* (1991), *Act on agricultural tax* (1984) and *Act on forest tax* (2002). Each of these documents sets out the rules for determining the amount of appropriate tax rates by the commune authorities (specifically the commune council). These principles are characterized in a general way in Table 1. It should be noted that all acts mention a fairly extensive list of items subject to exemption from tax levies, and additionally the legislator provided municipal authorities with the power to introduce exemptions other than those specified by law.

2. Literature review

The issue of impact through tax solutions should be considered in a broader context of the general activity of local governments in the field of environmental protection. This topic is taken up more and more often by the authors of publications, which is largely related to the popularity of the concept of sustainable development. Some works pay attention to this aspect, emphasizing the special role that local authorities have to play, which should not only pursue important socio-economic goals, but also care for the natural environment within the adopted ecological priorities (Bass & Dalal-Clayton, 2002; Harris, 2000; Kates et al., 2005). However, local officials are not always able to fully implement their tasks properly. For example, the authors of a study published by the Swedish Environmental Protection Agency write that this problem affects some developing countries, where local governments have been delegated more powers, thus increasing their responsibility for the state of the environment, but this was not accompanied by adequate training of officials and adequate funding (Slunge et al., 2012, p. 28). Woźniak (2011, pp. 140–141) points to conflicts that may arise when planning sustainable development at the local level, when individual interests may clash with the goals of local authorities. On the other hand, Falleth & Hovik (2009, p. 230), citing the example of protected areas in Norway, see a possible problem of diverging local political goals with the nature protection goals implemented by the state and recommend taking into account the former to a greater extent in the process of decentralization of pro-environmental measures. In another work on Scandinavian conditions, the authors describe and compare the decentralization processes taking place in the nature protection systems of Norway and Sweden (Hongslo et al., 2016).

Taxes are more and more often perceived in the literature as economic instruments directly improving the condition of the environment. One of the reports says that they can be introduced, inter alia, in the case of the extraction of raw materials from riverbeds, activities in forest areas or the use of artificial fertilizers and pesticides in agriculture, while emphasizing that their level must be appropriate to be the right signal for the burdened entities (Bräuer et al., 2006, p. 31). Binning & Young (1999, p. 17) believe that the benefits of such

protection outweigh the benefits of the potential exploitation of natural vegetation areas, although they admit that it is crucial in this context to treat environmental protection itself as a form of activity generating direct income. Wasiuta (2015, pp. 227–228), referring to the entire group of economic instruments, notes that they are more flexible than others in the field of environmental protection and that they can be modified more easily and quickly and adapted to new conditions.

Local taxes are a special group of taxes. As Ofiarski (2016, p. 266) writes, they should have four features, i.e. they must constitute the sole source of local government budget revenues, their payment should be made directly to bank accounts kept for servicing the local budget, local self-government bodies should be entitled to instruments of tax authority, local officials should be empowered to deal with tax matters. As for tax governance, Filipiak (2015, p. 224) distinguishes in Polish conditions, in relation to the lowest local government level, i.e. a commune, its full, limited and passive variant, when the local government has no influence on the construction of tax elements. Among local taxes, real estate tax arouses relatively the greatest interest of the authors of the publications. Its role in the finances of local governments at the lowest level is emphasized, and at the same time its great potential that can be used in environmental protection and dissemination of good practices in agriculture and forestry (Chizmar et al., 2022; Frey et al., 2019; Kettunen et al., 2017; Podstawka & Rudowicz, 2010). Some works containing the analysis of specific solutions used by municipalities (Adamczyk & Dawidowicz, 2018; Gotze & Hartmann, 2021; Miyazaki & Sato, 2022; Śmiechowicz 2013). An interesting research topic of spatial imitation of property tax policy at the level of local government is proposed in the work of Trojanek et al. (2021). Publications on the tax on means of transport levied on vehicle owners in Poland are dominated by the topic of their importance as a source of income for municipalities and their potential impact on the competitiveness of economic entities (Felis & Rosłaniec, 2017; Giżyński & Burchat, 2017; Suproń, 2018).

On the other hand, the shortage of publications presenting the results of empirical research on the use of tax instruments to achieve pro-environmental goals is clearly visible. The few in this respect include an article published a few years ago, in which the tax system of cities with poviata rights in Poland was examined in terms of the use of pro-ecological tax reliefs and exemptions (Dziuba, 2015) and the second one presents the results of research on the use of forest tax (Dziuba & Życzkowska, 2021). Huterska & Huterski (2014) also wrote about exemptions in property tax treated as an instrument for influencing the city's sustainable development, analyzing the solutions used in the Polish city of Toruń in 2010–2014, and concluding that tax preferences supported revitalization of the Old Town areas in this urban center. In the world literature, the issue of the impact of local taxes on the environment and the possibility of its protection is often discussed on the example of rural areas and on the basis of levies,

which in Polish conditions either do not occur or are of secondary importance (e.g. Fendrich et al., 2022; Kalkuhl et al., 2018).

3. Research methods

In order to achieve the research goal, the method of analyzing selected legal acts was used. The study covered cities with poviats rights in Poland. According to the Central Statistical Office (GUS, 2017, p. 17–27), an institution dealing with the collection and sharing of official statistical data in Poland, there are 63 such cities and at the beginning of 2017 they were inhabited by a total of 12.6 million people, which accounted for approximately 33% of the total population of the country. Due to the specificity of these communes with the city status, the subject of the analysis was narrowed down to the real estate tax and the tax on means of transport. The resolutions adopted by city councils of all cities with poviats status in 2019–2021 were reviewed, focusing on decisions regarding green exemptions. These documents are published in the official journals of Polish voivodships available on the websites. It was adopted as a rule that this group does not include resolutions on exemptions from tax on real estate, land, buildings and structures adopted by city authorities on the basis of the *Act on special solutions related to the prevention, counteraction and combating of COVID-19, other infectious diseases and the emergencies caused by them* (2020). For a more complete picture of the financial benefits resulting from tax exemptions, data on tax rates in the cities applying the preferences have been presented. These rates were also taken from the texts of resolutions of city councils. Additionally, the dynamics of real estate tax revenues in the analyzed period was presented. The amounts were obtained from the Central Statistical Office's Local Database (GUS, 2022).

With regard to the tax on means of transport, the resolutions adopted by local governments of the 10 largest cities were analyzed, in which the rates of this levy applicable in 2021, differentiated depending on the type of vehicle, were determined. The relevant amounts have been converted in such a way as to show the tax preferences for vehicles with the lowest possible exhaust emissions. The following formula has been used to illustrate the reliefs resulting from the application of lower tax rates:

$$U = \left(1 - \frac{X_N}{X_P}\right) \times 100\%, \quad (1)$$

where:

U — relief (in %);

X_N — the amount of the lower tax rate;

X_P — the amount of the basic tax rate.

In one of the summaries, to illustrate the dynamics of the real rates of tax on means of transport, GUS data was used on the annual value of the consumer price index in 2019–2021 and the formula:



$$V_r = \frac{V_n}{CPI} \times 100, \quad (2)$$

where:

V_r — real value,

V_n — nominal value,

CPI — consumer price index.

The texts of the resolutions as well as the data and information contained therein were taken from the Official Journals of individual provinces.

4. Results

4.1. Tax exemptions

In the years 2019–2021, 16 decisions were made in all cities with powiat status, the nature of which can be described as pro-ecological. Out of 63 local government units, the instrument in the form of an exemption from real estate tax or tax on means of transport for the implementation of objectives favoring environmental protection, 11 municipalities decided to use in this period. The local government of Kalisz (3 resolutions) as well as the local governments of Wrocław and Jaworzno (2 resolutions) were relatively more active in this matter. Data on the resolutions are presented in Table 2.

Every fourth decision concerns an exemption from property tax for maintaining the so-called green roof, vertical garden or green facade. The first relevant decision on this matter was taken by the Katowice local government in the Śląskie Voivodeship in mid-2021, while the authorities of other cities (Kalisz, Wrocław, Toruń) did so in the fourth quarter of this year. It should be expected that the trend to green Polish cities in this way will be sustained and that more and more local authorities, especially in larger cities, will follow the example of these centers, the more that in Western Europe such solutions have been used for a long time. According to one of the European directives, green roofs and walls can contribute to the reduction of energy consumption and greenhouse gas emissions (Bibbiani et al., 2018).

In two cities, it was decided to support the development of installations that convert solar energy into electricity, and the local government officials from Kalisz adopted a relevant document twice (in 2019 and 2021), each time specifying the validity period as the time until December 31 of the following year (Resolution of the Kalisz City Council, 2019; 2021). The issue of deadlines was resolved somewhat differently in Wrocław, where the regulation entered into force in the third decade of September 2019 and is to apply until the end of 2025 (Resolution of the Wrocław City Council, 2019).

In one case, the possibility of taking advantage of tax preferences was conditioned by participation in an environmental program with a regional scope.

The City Council in Piekary Śląskie decided in November 2021 to exempt from real estate tax the land submitted to the *Metropolitarne Łąki Kwietne* program, which aims to reduce drought and increase biodiversity in the cities of Upper Silesia. Interestingly, this program has already started, next to Piekary Śląskie, also in Tychy and Sosnowiec, but by the end of 2021 both municipalities decided not to introduce a tax incentive to support the initiative.

Considering the real estate tax rates in force in individual cities applying the exemptions in the analyzed period (Table 3), entities living in the largest centers, i.e. Wrocław, Gdańsk, Katowice had the greatest opportunity to benefit from this tax advantage. From the point of view of the budgets of local government units, this meant losses in own revenues related to this type of financing of pro-ecological projects, however, as shown by the data from 2019–2021 (Chart 1), this financial burden did not inhibit the generally favorable trend in the dynamics of inflows from property tax. Although a significant part of the introduced solutions did not enter into force until the end of 2021, the example of cities such as Wrocław or Kalisz, where the exemptions entered into force as early as 2019, shows that it was possible to maintain an upward trend despite the undoubted decrease in income from this source.

Jaworzno and Jastrzębie-Zdrój were the only cities in which the vehicle tax exemption was applied in the analyzed period. Councilors in Jaworzno for the first time passed a resolution on this matter at the end of November 2019, exempting electric and hybrid vehicles from tax until the end of 2020, and next year they extended the scope of the subject to natural gas and hydrogen fueled vehicles (Resolution of the Jaworzno City Council, 2019; 2020). In Jastrzębie-Zdrój, an exemption from the tax on means of transport for 2018–2020 was adopted for electric vehicles (Resolution of the Jastrzębie-Zdrój City Council, 2017).

4.2. Preferences in tax on means of transport

In the group of the 10 largest cities, only the local government of Bydgoszcz has not introduced a lower, preferential tax rate on means of transport for vehicles with reduced exhaust gas emissions for 2021. In other local government units, owners of trucks, tractors and buses with reduced emissions were taxed with a lower amount compared to the basic option, although the criteria for the reduction of the tax rate were defined differently in individual cities. It is characteristic that in some of them the highest standard of cleanliness included in the resolution was one of the standards of the EURO standard, while in others it was equipped with an electric or hybrid drive. The mildest criterion from the point of view of potential taxpayers was adopted in Gdańsk, where the relief was already applied to vehicles that meet at least the EURO 2 standard (Resolution of the Gdańsk City Council, 2015). On the other hand, in cities such as Poznań and Szczecin, documents have been passed, in which electric drive was considered the highest standard in terms of low emission.

Based on the tax rates set out in the relevant resolutions, it can be stated that there is quite a significant differentiation in the reliefs that owners of vehicles with advanced pro-ecological technology can count on (Table 4). The local government of Szczecin went the furthest in this respect, adopting the same, and at the same time very low, tax rate on all electric vehicles in the amount of 48 PLN (Resolution of the Szczecin City Council, 2019). In 2021, only one group of owners in the studied group of cities used a greater convenience: owners of electric buses in Katowice, who were completely exempted. However, the legal basis here was a resolution adopted in 2017, i.e. in the period not covered by the analysis. Having an electric drive not everywhere guaranteed such a significant reduction in the tax rate as in Szczecin. While in Gdańsk the discount on buses with an electric motor ranged between 52.8–66.7% (depending on the number of seats), and in Poznań it was even higher and amounted to an average of about 83% (Resolution of the Gdańsk City Council, 2015; Resolution of the Poznań City Council, 2018), for example in Lublin its level in 2022 is to be only 29% and 40.7% (Resolution of the Lublin City Council, 2021).

Local governments of large cities apply lower tax rates, and thus reliefs for all low-emission vehicles, but some of them additionally differentiate their approach to particular types of vehicles, quite clearly preferring non-emission solutions in buses. This can be seen first of all in the decisions taken by the authorities of Katowice and Kraków. In both cases, there is no separate, lower rate for owners of electric trucks and tractors. The difference is that Katowice councilors granted a much greater discount to trucks than buses with the same exhaust gas purity standard EURO 5 and 6, but, as mentioned above, at the same time they kept the zero tax rate for buses powered by electricity (Resolution of the Katowice City Council, 2020). In Kraków, on the other hand, two different rates were adopted for buses meeting the EURO 5 and 6 cleanliness standard and hybrid and gas buses (higher relief), but no such distinction was made for trucks and tractors (Resolution of the Kraków City Council, 2020).

The analysis of the dynamics of tax rates in constant prices shows that the application of preferences for owners of environmentally friendly vehicles often went hand in hand with reducing or maintaining a stable level of the real financial burdens imposed on this group. Apart from Poznań and Łódź, where real taxation decreased in 2019–2021 due to the application of the same rates, a good example are Warsaw and Katowice and the amounts adopted there for buses with a number of seats below 22. In both cities, despite annual changes in the amounts, the scale of the tax relief remained at a very similar level, and at the same time the amount of the real rate was subject to very slight fluctuations (Table 5).

5. Conclusions

Local authorities in Poland have instruments to stimulate behaviors conducive to the protection and pro-ecological use of natural environment resources

through fiscal incentives. From this point of view, the most important legal acts show that they not only determine the level of certain taxes, but also may apply more non-obvious solutions in the form of exemptions or other preferences.

An analysis of the activities undertaken by the local governments of the largest cities in Poland operating with *poviat* status shows that in recent years they have very rarely introduced real estate tax exemptions to support the implementation of projects aimed at environmental protection. This could of course have been influenced by the difficult epidemic situation and the related activities foreseen by the so-called the anticovid act of 2020 (Act on special solutions related to the prevention, counteraction and combating of COVID-19, other infectious diseases and the emergencies caused by them, 2020), however, the lack of an appropriate fiscal policy in the field of real estate tax promoting ecology at various levels of activity was already found in the years preceding the COVID-19 pandemic (Dziuba, 2015). Relevant data on revenues to budgets from real estate tax show that in ten cities that decided to introduce an exemption from this tax for entities implementing specific pro-ecological projects, it did not negatively affect the dynamics of revenues from this tax. With regard to the entire group of *poviat* cities covered by the study, it should be stated, however, that they do not use the potential of the property tax, which some authors write about (Kettunen et al., 2017, Podstawka & Rudowicz, 2010). The fact that revenues from this levy constitute a particularly important source of income for municipal budgets (European Commission, 2012; Śmiechowicz, 2013) may also create a certain barrier in the future for the increase in the tendency to introduce layoffs. This is particularly true in cities with more inhabitants, where there is a trend to impose higher property tax rates (Adamczyk & Dawidowicz, 2018).

As for the use of the tax on means of transport for purposes related to environmental protection, it was found that the largest cities of the country use different rates of this levy and charge lower benefits from owners of vehicles with lower emission or no emission drive. It is true that different local governments introduced different criteria and rates, but in each case a tax scale was adopted taking into account various types of pro-ecological solutions according to the principle: lower exhaust emission — lower tax rate. Importantly, the real taxation of vehicle owners did not increase in the analyzed period. It is worth noting, however, that there were sometimes large differences in the requirements for owners of taxed vehicles wishing to take advantage of the preferences: from the EURO 2 emission standard to electric drive. Moreover, it was found that city administrators are generally reluctant to resort to the more radical solution of total tax exemption.

The cost of the policy of reducing tax rates on means of transport (as in the case of property tax) is and will also be in the future the reduction of revenues to communal budgets. Such a situation has been going on for some time. As Felis & Rosłonec (2017, p. 20) write, already in the years 2007–2014 Polish cities were losing more and more potential revenues from tax on means of transport as a result of the introduced tax reductions and exemptions. How-

ever, this cannot be clearly regarded as a symptom of the gradual acceptance of local authorities for incurring costs in the name of environmental protection and appreciating the economic aspect of protective measures, which Binning & Young (1999) wrote about over 20 years ago. It should be taken into account that in Polish conditions, the tax on means of transport, unlike the tax on real estate, has a negligible share in the structure of own income of cities with poviats rights. For example, according to the GUS (2019, p. 91) study on the finances of local government units in 2019, the revenues from the first of the above-mentioned sources this year accounted for only 0.6% of municipalities' own revenues, while real estate taxation gave 16.4% of the total revenues of this type.

The growing importance of local taxes as instruments serving the achievement of environmental objectives may also require changes in the tax system itself. The changes could go, among others, towards the unification of the scope of competences of municipal councils in individual taxes and a different construction of the powers themselves, so that municipal authorities are better prepared to create tax law, including the application of tax reliefs and exemptions (Etel & Dowgier, 2013, p. 22).

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Appendix

Table 1.
General rules for determining the rates of selected local taxes

Tax	The influence of the commune authorities on the amount of the tax rate
from real estate	By way of a resolution, the commune council determines the amount of tax rates, however, these rates may not exceed statutory amounts per 1 square meter. In addition, the commune council may differentiate the rates for individual types of taxable objects.
from means of transport	By way of a resolution, the commune council determines the amount of tax rates, however the annual tax rate for one means of transport may not exceed the statutory amount calculated, among others, on the permissible total weight, number of axles, type of suspension. The commune council may differentiate the amount of rates for individual subjects of taxation.
agricultural	The rate depends on the number of hectares (conversion and records) and the average rye purchase price. The commune council may, in special cases, include some villages in a different tax district, which affects the number of conversion hectares. The commune council is entitled to lower the purchase price and may introduce other tax exemptions and allowances than those specified in the act by way of a resolution.
forest	The tax rate depends on the average selling price of wood obtained by forest districts. The commune council may lower the amount of the average selling price of timber and may introduce exemptions other than those specified in the act.

Source: Own preparation based on acts the *Act on agricultural tax* (1984), *Act on forest tax* (2002) and *Act on local taxes and fees* (1991).

Table 2.
Resolutions on the exemption from property tax and tax on means of transport of an ecological character adopted in 2019–2021 in cities with poviats rights

Subject	Number of resolutions	Cities
buildings or parts thereof containing a green roof, vertical garden or green facade	4	Kalisz, Katowice, Toruń, Wrocław
buildings or parts thereof connected to a photovoltaic system, solar collector, heat pump, recuperator or ground heat exchanger	3	Kalisz, Wrocław
natural gas, hydrogen, electric and hybrid vehicles	2	Jaworzno
residential buildings or their parts where the heating source has been replaced with a low-emission one	2	Nowy Sącz, Włocławek
land, buildings or structures related to production or research and development activities in the field of implementing pro-ecological technologies	1	Gdańsk
electric vehicles	1	Jastrzębie-Zdrój
land constituting the reclaimed areas after mining excavations, occupied for the purposes of tourism, recreation and sports	1	Suwałki
land notified to the program <i>Metropolitane Łąki Kwietne</i>	1	Piekary Śląskie
support for the development of modern technologies and innovations	1	Gliwice

Source: Own preparation based on the Voivodship Official Journals.



Table 3.
Property tax rates in individual cities in 2019–2021

City	Year	Property tax rate (PLN/m. sq.)	
		A	B
Kalisz	2019	0.63	0.76
	2020	0.67	0.81
	2021	0.70	0.84
Wrocław	2019	0.79	0.93
	2020	0.80	0.95
	2021	0.85	0.99
Katowice	2019	0.70	0.85
	2020	0.73	0.89
	2021	0.80	0.96
Toruń	2019	0.64	0.82
	2020	0.66	0.88
	2021	0.72	0.95
Nowy Sącz	2019	0.64	0.79
	2020	0.64	0.79
	2021	0.64	0.79
Włocławek	2019	0.65	0.80
	2020	0.75	0.93
	2021	0.77	0.96
Gdańsk	2019	0.77	0.93
	2020	0.81	0.95
	2021	0.85	0.99
Suwałki	2019	0.70	0.88
	2020	0.72	0.90
	2021	0.80	0.93
Piekary Śląskie	2019	0.77	0.91
	2020	0.78	0.93
	2021	0.81	0.97
Gliwice	2019	0.67	0.83
	2020	0.70	0.86
	2021	0.70	0.86

Notes:

A — buildings or residential parts thereof; B — land related to running a business, regardless of how it is classified in the land and building register.

Source: Own preparation based on the resolutions of city councils.

Table 4.
Reliefs in 2021 resulting from the application of lower tax rates to means of transport with the maximum reduction in exhaust gas emissions (%)

City	Vehicle type						
	over 3.5 tonnes up to and including 5.5 tonnes	Truck: over 5.5 tonnes up to including 9 tonnes	over 9 tonnes and less than 12 tonnes	Tractor unit with trailer and semi-trailer weighing from 3.5 tons and less than 12 tons	Bus with the number of seats: under 22	equal to or greater than 22 and less than 30	equal to or greater than 30
Warszawa	37.5 ^A	39.4 ^A	39.5 ^A	41.5 ^A	39.5 ^A	39.5 ^A	39.5 ^A
Kraków	24.7 ^B	25.4 ^B	24.7 ^B	25.2 ^B	50.3 ^D	50.2 ^D	50.2 ^D
Łódź	13.2 ^C	10.8 ^C	6.9 ^C	13.0 ^C	15.9 ^C	12.6 ^C	12.6 ^C
Wrocław	50.0 ^B	50.0 ^B	50.0 ^B	50.0 ^B	50.0 ^B	50.0 ^B	50.0 ^B
Poznań	82.3 ^D	81.3 ^D	80.9 ^D	71.7 ^D	63.7 ^D	66.4 ^D	66.4 ^D
Gdańsk	90.8 ^E	90.6 ^E	90.4 ^E	85.7 ^E	83.3 ^E	83.2 ^E	83.2 ^E
	31.0 ^C	32.8 ^C	27.6 ^C	24.7 ^C	30.6 ^{CF}	22.7 ^{CF}	22.7 ^{CF}
Szczecin	91.3 ^E	94.7 ^E	95.4 ^E	94.9 ^E	52.8 ^{EF}	66.7 ^{EF}	66.7 ^{EF}
					93.0 ^E	95.4 ^E	95.4 ^E
Katowice	46.7 ^B	53.7 ^B	51.6 ^B	11.7 ^B	21.5 ^B	20.1 ^B	20.1 ^B
					100.0 ^E	100.0 ^E	100.0 ^E
Bydgoszcz	No reliefs (no reduced rates)						
Lublin	13.6 ^{FG}	13.3 ^{FG}	13.7 ^{FG}	13.5 ^{FG}	29.0 ^{EF}	40.7 ^{EF}	40.7 ^{EF}

Notes:

A — hybrid or electric drive; B — EURO 5 and 6 standard; C — EURO 2 standard or higher; D — hybrid drive; E — electric drive; F — valid from 01/01/2022; G — standard at least EURO 6.

Source: Own preparation based on the resolutions of city councils.

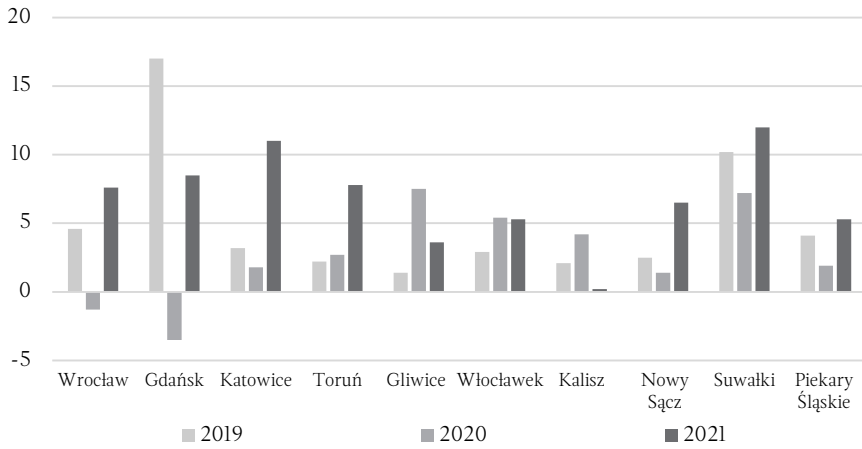
Table 5.
Real tax rate and tax relief on buses with less than 22 seats in Warsaw and Katowice in 2019–2021

City	Drive type	Indicator	2019	2020	2021
Warszawa	hybrid or electric	real tax rate (2019=100)	100	98.5	98.0
		tax relief (%)	40	40	39.5
Katowice	standard EURO 5 to 6	real tax rate (2019=100)	100	100.8	99.0
		tax relief (%)	21.7	21.6	21.5

Source: Own preparation based on the resolutions of the city councils of Warsaw and Katowice from 2018–2020 and GUS (2022).



Chart 1.
Annual growth rate of real estate tax revenues in selected cities in 2019–2021 (%)



Source: Own preparation based on GUS (2022).

