Criteria for the optimal financing model of public theatres

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Abstract: The research is part of a wider research problem, whose aim is to find an optimal financing model for cultural institutions in Poland. The purpose of this research is to evaluate the performance indicators of municipal and regional theatres in the context of accessibility to cultural public services. The study forms a verification of previously distinguished indicators of the effectiveness of cultural institutions with a general direction: how to find an optimal financing model of public dramatic theatres. The current research problem is the accessibility of public dramatic theatres in the absence of criteria for the allocation of statutory subsidies. We hypothesise that the absence of criteria for the allocation of statutory subsidies highly diversifies the accessibility of performing arts organisations. The object of study is public dramatic theatres in Poland in the period 2011–2015. We investigated the indicators having an impact on the level of accessibility of public theatres. The statistical methods used allowed us to identify criteria affecting availability. These criteria are recognized in the literature. In addition, we indicate the level of diversification of accessibility by individual public theatres.

Introduction

The scope of public finance is a subject for discussion for both philosophers and economists. Public finance is perceived primarily as a funding source for the provision of public goods. From this perspective, culture, including theatres, should be of particular importance. For some time, culture has not been a value "as such". It is a widely accepted view that culture should be primarily "serviceable". The importance of culture as the stimulator of economic development and a factor reducing or even solving social prob-

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lems was repeatedly emphasised (Throsby, 2001). Culture is now treated primarily as a tool for development. It also frequently contributes to the instrumentalisation of the activities carried out by cultural institutions that face the dilemma "How many missions vs how much money earned" (Diagnoza stanu kultury…). The discussion is also connected with the following questions: what kind of culture deserves public funding and what should be considered as a culture? Unfortunately, not all of these issues may be addressed in this paper. Let us agree on the assumption that culture, as an element of the common (public) good, should be the subject of public funding. The authors do not attempt to decide whether culture is or is not a classically understood public good, although in the literature it is often emphasised that clear public goods in Samuelson's meaning (Samuelson, 1954) are scarce (Buchanan, 1965) and cultural services should be classified as a club good (Buchanan, 1965), although this is questionable. Our considerations directly concern cultural services as public services financed from the public budget (Musgrave, 1957). It is hard to state clearly that the usability of a seat in the audience decreases with the number of repeated productions (Fiedor, 2002) and such considerations are also beyond the scope of our paper (Aridelli and Becica, 2018).

Our previous research has concerned the regulations (Gałecka and Smolny, 2017a), sources of financing (Gałecka and Smolny, 2017) and stability of performing arts organisations (Gałecka and Smolny, 2017a). Now, we are focused on the investigation of the accessibility of cultural services based on the example of public dramatic theatres in Poland as cultural services in Europe. The problem of funding of cultural services is the focus of many discussions and studies, which stems, on the one hand, from their role assigned by the Member States (Resolution of the Council of Ministers) and the European Commission (European Commission). On the other hand, it results from the instrumental treatment of culture and, looking from a different perspective, from its public funding (Alfonso et al., 2008) and the fact that permanent increase of public expenditure, in the context of cultural services has its "hidden agenda" (Baumol and Bowen, 1966). The problem of finding the optimum, efficient model of public funding of cultural services is based on different ways of funding (Nogare and Bertacchini, 2015), as well as various models of budgets (Amans, Mazars-Chapelon and Villesèque-Dubus, 2015). Peacock (1994) claimed that the subsidisation of the arts is linked to the same problems as subsidisation of certain industries or services in the economy. However, it is much more difficult to assess artistic activities/cultural services/ in terms of their artistic or economic outturn. Developing objective measurements and ratios of efficiency of public goods delivery in the area of state activities is not an easy task. Hansmann (1981), as early as in the early eighties, noted that there is no coherent set of criteria that one can use to determine the correct amount and structure of the grants awarded to cultural institutions qualified as performing arts organizations. As Von Eckardt (1982) admitted *The cost-benefit equation is easier when culture itself is turned into an industry.* However, this does not mean that one should not take any effort aimed to create objective measurements and indicators of efficiency for these public goods. It may turn out that we are dealing with the permanent failure of both the artistic policy and the allocation of resources to meet the cultural and social objectives. The lack of incentives to extend the access and to increase participation through the traditional system of public subsidies requires more attention and greater use of measurements to distribute public funds effectively

We considered dramatic theatres as an example of cultural services. The theatre as a unit of creative culture differs drastically from reproductive units of culture, such as museums or galleries, and also in terms of its impact on the rest of society This is principally due to the creative and multidimensional structure of theatre productions that trigger opinions and discussions much more widely than the plays as such. Dramatic theatres, except for puppet theatres, comedy theatres and musical theatres, in principle, offer a ''more challenging'' repertoire, thereby shielding us from the alleged mixing of cultural and entertainment services. Theatres in Poland are mainly financed by statutory subsidies provided by the organiser that, most frequently, is the local self-government (municipal or provincial) or (less frequently) the Ministry of Culture and National Heritage. In this respect, performing arts organisations (PAOs) in Poland are an example of cultural funding from a budget (state or local); this model is common in Europe (Lewandowska, 2018). We note that this problem is applicable throughout Europe, as we know of similar problems from the Czech Republic (Aridelli and Becica, 2018), France (Amans, Mazars-Chapelon and Villesèque-Dubus, 2015), Italy (Nogare and Bertacchini, 2015) and Germany (Reissert, 2006). The system of PAOs financing in Poland is not founded on objective rules and criteria for the award of statutory subsidies; there are no performance indicators or a designated level of subsidies (Galecka and Smolny, 2017). The level of subsidies depends mainly on the organiser. Public theatres receive statutory subsidies calculated on the basis of the so-called historical budgets (appropriations in the previous year). The statutory subsidies, on average, accounts for 70% of the revenues of their annual budget (Gałecka and Smolny, 2017a). Other funds are sourced by the theatres themselves (ticket sales, renting out of space, subsidies). The share of EU funds from sponsorship or donations from private persons in relation to the total revenues of the public theatre is scarce (Ilczuk, 2015). In Poland, private patronage is not very popular; therefore, the majority of professional theatres is maintained by public sector bodies. This situation may cause uncertainty as to the amounts received in the future and, therefore, the absence of development strategies and other long-term action plans is critical (Gałecka and Smolny, 2017b). The lack of internal criteria for subsidies allocation between the individual cultural institutions is exacerbated by the lack of financial stability. This translates into the extremely varied efficiency of disbursed public funds. Against this background, the present research forms part of a wider research problem which aims to find an optimal financing model for cultural institutions in Poland. We hypothesise that the absence of criteria for the allocation of statutory subsidies highly diversifies the accessibility of performing arts organisations. verify the hypotheses, we investigated the indicators having an impact on the level of accessibility of dramatic theatres, organised by municipalities and provinces. Indicators, both financial and substantive, should be the basis for distribution of public funds between individual public theatres. Statutory subsidies should primarily be conditional on the efficiency of theatre activities - i.e. their availability. Accessibility in the authors' view is a fundamental objective of the activities carried out by public theatres. For the purposes of the article, accessibility was illustrated as the relation of the number of viewers of permanent productions at the theatre to the number of seats available in the theatre permanently (in other words: theatre-seat utilisation rate).

Accessibility is, thus, understood as providing access to culture for all citizens, including ethnic and language minorities, the disabled, the unemployed, prisoners, seniors, etc. For a long time, common rather than exclusive access to culture has been postulated. It

is worth mentioning that "accessibility", understood as providing the possibility to use what is on offer by a wide audience, including various types of viewers, is also present in the world literature (Thorsby and Withers, 1979; O'Hagan and Neligan, 2005). The number of cultural services offered is directly connected with the possibility to use what is on offer by the largest number of people. In the literature, the volume of tickets sold is regarded as the basis of usefulness (Thorsby et al., 1979). Turnout and, thus, indirectly the supply of cultural services may be the basis for the calculation of the function of theatre usefulness according to Hansmann (1986). In Thorsby's later works there even appears a function of theatre production based on the assumption that the result of the theatre's activities translates into the number of viewers in general (Thorsby, 1994). In Italian studies, we come across an indicator measuring theatre services understood as the number of guest performances and own productions played in a given theatre and outside of it (Fiazoli and Filippini, 1997). The potential access to cultural services translated as the number of seats in a concert hall multiplied by the number of concerts was also assumed by Heilbrun (2003).

Principles of financing cultural activities

On the basis of existing legislation, a synthesis of rules regarding financing public theatres as cultural institutions was carried out. Polish cultural organisations, according to art. 27 paragraph 1 (Act on organising and running, 1991), run their own independent economy according to their own resources, bearing in mind the principles of efficiency of their use. The basis for their financial management is a financial plan established by the director, with reference to the unchanged amount of the organiser's subsidies. The consequence of this principle is the principle of direct financing of cultural institutions from the budget. A cultural institution draws up a financial plan in accordance with the regulations of the Public Finance Act (2009). A cultural institution covers the costs of current operations and liabilities from its own revenue. Public expenditure should be dispensed: 1) in a purposeful and cost-effective way, bearing in mind the principles of obtaining the best results from the investment, optimal choice of ways and methods of achieving set objectives, and that it corresponds to the principle of implementation of public procurement law; 2) in a way enabling the timely performance of tasks; 3) in the amount and terms resulting from previously contracted liabilities. Additionally, public expenditure should consider the principle of subsidiarity, consisting in the additional financing of a cultural institution through subsidies other than organiser's, the principle of implementation of regulations of the Accounting Act (1994) and the principle of transparency.

Performing arts organisations are independently (with some exceptions) responsible for their liabilities. Under art. 4 paragraph 1 section 8 of the Public Finance Act, state and local cultural institutions count as entities of the public finance sector, which by their activity perform the constitutional role of the state, consisting in providing access to culture for all citizens. Since December 2004, governmental and self-governmental institutions could exercise a new form of patronage of cultural activities by jointly managing and co-financing cultural institutions selected by them.

Regarding local cultural institutions, based on the Constitution, the principle of subsidiarity resulting from a series of acts, and above all from the municipality's catalogue of own tasks, can be articulated.

Financing culture is one of those tasks. Financing cultural activities, although formally given to local authorities, can be at any time and at any place financed by the ministry. This problem is probably due to the fact that the rules of granting subsidies from sources others than local budgets have not been clearly defined. In spite of the municipality's catalogue of own tasks, there is debate as to whether culture should be a local or central competence. Moreover, despite the division of cultural institutions into governmental and local, the problem of obtaining funding for cultural activities is clearly visible. It lies on the fact that only a substantial subsidy from the ministry gives cultural institutions the opportunity to implement a fairly stable financial policy.

The principle of direct budget financing of the cultural activities of institutions whose statutes include objectives or tasks related to cultural activities can be articulated An addition to this principle is the principle of indirect financing of cultural activities through a system of earmarked subsidies and specific subsidies. This principle is often articulated as financing of cultural institutions by the organiser in the form of various types of subsidies. The Public Finance Act is mainly dedicated to specific subsidies, corresponding to the above-mentioned inconsistency in the existence of the principle of adequacy, and at the same time of the idea of self-governance and decentralisation. Despite the many rules related to PAOs, there are no detailed regulations in Poland on how to apply these rules. Lack of homogeneous rules for obtaining ministerial subsidies, as well as statutory ones by local cultural institutions, casts a shadow on the constitutional principle of adequacy, which should be applied to all local cultural institutions. The multidimensionality of obtaining subsidies is at odds with the principle of financial self-management.

Material and Methods

The object of the study on the efficiency of cultural institutions is public dramatic theatres, operating in cities (with a population of one hundred thousand to a million) and voivodeships (NTS 2, Classification of Territorial Units for Statistics (NUTS)). For the purposes of the present paper, we refer to the following definition of the (dramatic) theatre: institutions or organizations that professionally stage plays (dramas) on a regular basis. In addition, only public theatres having a permanent team (actors, directors, stage designers, etc.) were taken into account, generally having a building or a room adapted in order to stage plays using various techniques of expression: word, motion, music, sound, visual arts (irrespective of the number of people performing in such plays). From the perspective of theatre activities, the argument that general directors of public theatres are most frequently elected based on the contest procedure for a period of three to five years is also essential. In Poland from 2011 to 2015, theatrical activities were carried out by 120 public theatres, the organizer for which were local government authorities. Among them, there were 63 dramatic theatres and 25 puppet theatres.

The data for the study were obtained by way of individual queries concerning the financial statements and substantive reports of cultural institutions for the years 2011–

2015. The indicators adopted for the analysis were taken from the official publications of the Central Statistical Office (Local Data Bank). The research sample consisted of 46 (out of 63 – 73%) public dramatic theatres, including 23 theatres in cities and 23 in voivodeships. Due to the lack of a possibility to diagnose accurately the cultural sector in the financial and substantive spheres (even for such basic information as the number of participants, the number of seats in the audience or turnout) not all provincial theatres were taken into account in the study. Taking into account the fundamental criteria of homogeneity, the convergent nature of the activity and the tasks implemented, the access to the resources and the functioning in a similar environment, the study group is homogeneous and representative. The study group is the largest homogeneous group of PAOs in Poland. When collecting data, the authors of the present paper did not analyse any sensitive data, such as personal data, which may identify individuals. Only the publicly available data were used.

In order to select measures relevant for presenting the level of accessibility of cultural services provided by PAOs, Hellwig's method of a capacity of financial information was used. For each theatre, the correlation between variables over the years 2011–2015 was investigated. Further, to illustrate the ranking of theatres in the years 2011–2015, we applied the method of synthetic indicator of development by Hellwig (DM), the indicator of the relative level of development (BZW) and the ranking method (MRank). Applying different methods of aggregation of the same diagnostic variables (with a pattern and without a pattern) we used standardisation for financial ratios. Taxonomic methods are often used when selecting data for a model or showing the ranking of the investigated parameter. In the literature, works using taxonomic methods to select data to develop stock exchange portfolios (Łuniewska, 2005; Kokoszkiewicz and Kolupa, 1997), to assess the development level and the quality of living among the inhabitants may be indicated (Nowak, 2018; Kozera and Kozera, 2011).

The method of a capacity of indicators information by Hellwig (1969) allows us to select explanatory variables. The idea behind this method is based on the numerical criterion, which allows one to choose the best combination of variables out of the potential combinations of explanatory variables taken into account. The individual capacity of indicators information indices for variables was defined by means of the following formula:

$$h_{kj} = \frac{r_j^2}{1 + \sum_{l=t}^{m_k} | r_{lj} |}, (j = 1, 2, \ldots, m_k) \tag{1}$$

h_{kj} −individual information capacity of the value j-th of this variable in l-th combinations,

r_j – the value of the correlation vector R_0,

r_{lj} − the value from the correlation matrix R

l – the number of the combination,

j – variable number in combination (j=1,2….m_k),

m_k – the number of the variable in k-th combination.

After calculating values of the individual capacity of indicators information for all the variables included in the combination, the integral capacity of the combination for the data carriers was calculated.

$$H_k = \sum^{m_k} h_{kj} (k = 1, 2, \dots 3, -1) \tag{2}$$

The combination for which the h_k value is the highest was selected.

The indicator of the relative level of development (BZW) is a non-pattern method. BZW was determined in the manner presented below (Łuniewska and Tarczyński, 2012):

$$BZW = \frac{\sum_{j=1}^{k} z_{ij}}{\sum_{j=1}^{k} \max\{z_{ij}\}} \tag{3}$$

$$z_{ij} = X^* + |\min\{x_{ij}^*\}| \tag{4}$$

$$\{x_{ij}^*\} = \frac{x_{ik} - \bar{x}}{s_j} \tag{5}$$

where $\bar{x}_j$ – arithmetic average j-th variable, s_j – standard deviation j-th variable.

Hellwig's synthetic indicators of development (known as Hellwig's development measure – DM) is a classic method of the linear ordering of multivariate objects (e.g. countries, provinces, municipalities…). This method consists of determining the distance from the model, which is (most frequently a non-authentic) unit that has the most favourable values for each of the features. By means of this method, we can organise the results of cultural institutions' operations from the "best" to the "worst" (Hellwig, 1968).

In order to take into account the equal impact of individual variables on the investigated phenomenon in the DM procedure, weights may be introduced. One can also refer to the method based on the ranks (rank method). The successive stages of the structure of development measure are as follows:

1. Normalisation of the values of indicators. In this study, standardisation (Handbook on Constructing Composite Indicators, 2008) was used:

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j} \tag{6}$$

   where x_{ij} – the value j-th variable in j-th combination, $\bar{x}_j$ – the mean value of the j-th variable, s_j – standard deviation of the j-th variable

2. Determination of development pattern $z_0 = [z_{01}, z_{02}, z_{03} \dots, z_{0j}]$
3. Designation of the distance of each object from the model by using Euclid's formula.

$$c_{i0} = [\frac{1}{j} \sum_{j=1}^{n} (z_{ij} - z_{0j})^2]^{0,5} \tag{7}$$

where z_{ij} – coordinates of the object (point), z_{0j} – the coordinates of the model, j – number of variable, i – number of objects.

The lower the value of the distance is, the more favourable its situation in relation to the investigated phenomenon.

Selection of diagnostic variables to calculate the index was based on financial, technical and statistical criteria. These variables were characterised by Zalaś (2000) universal appreciation, high substantive value, measurability, accessibility of figures, relatively high quality and were the result of the literature review. In addition, only those variables that were of sufficient spatial variability, measured by means of the coefficient of volatility indicator exceeding 10%, and also not unduly correlated with each other, were included into the study.

The dependent variable (Y) illustrated the accessibility of cultural services of PAOs. This variable was illustrated as the relation of the number of viewers of permanent productions at the theatre to the number of seats available in the theatre permanently (in other words: theatre-seat utilisation rate). In order to select the factors affecting the development of accessibility shown as theatre-seat utilisation rate, the correlation coefficients between individual variables characteristic of the analysed cultural institutions were calculated:

X1 – the share of financial result in the costs (S)
X2 – the share of subsidies in the total revenue (S)
X3 – the share of own revenue in the total revenue (S)
X4 – the number of premieres per stage (S)
X5 – the number of shows/performances per stage (S)
X6 – population per one seat in theatres and music institutions (D)
X7 – unemployment rate (D)
X8 – subsidy per one viewer (D)
X9 – viewers and listeners in theatres and music institutions per 1000 population (S)

Variables 1 to 5 and 9 were characterised as stimulants (S). Variables 6 to 8 were marked as destimulants (D). We did not use the number of employers because this data is not available. Lack of reliable data made it impossible for us to include the number and area of theater buildings.

All explanatory variables characterised as destimulants were transformed into stimulants using this formula:

$$x_{ij}^{s} = b[x_{ij}^{D}]^{-1}, \qquad\qquad b>0, \qquad (8)$$

where x_{ij}^{D} – the value j-th destimulant variable in the i-th object, x_{ij}^{s} – the value j-th variable after transformation into stimulant in the i-th object, b – constant value adopted in an arbitrary manner, generally $b=1$.

Results and Discussion

For each theatre, a correlation study was carried out between the variables over the years 2011–2015. We used the method of a capacity of indicators information developed by Hellwig. The results are presented in Table 1.

Table 1. Capacity of indicators information of public dramatic theatres, years 2011–2015

Theatres	X1	X2	X3	X4	X5	X6	X7	X8	X9	COMB.	H
Teatr Dramatyczny im. A. Wegierki (R)				1		1				H47	0,969
Teatr Wierszalin in Suprasl (R)				1			1			H4	0,956
Teatra Polski in Szczecin (R)	1				1					H14	0,965
Teatr im. S. Jaracza in Olsztyn (R)		1			1					H15	0,677
Teatr im. A. Sewruka in Elbląg (R)								1		H25	0,980
Teatr im. S. Zeromskiego in Kielce (R)	1					1		1		H64	0,983
Teatr Dramatyczny im. J Szaniawskiego in Plock (R)	1								1	H30	0,975
Teatr im. S. Jaracza in Lodz (R)	1			1	1					H46	0,985
Teatr Wielki in Lodz (R)			1					1		H41	0,997
Teatr im. J. Slowackiego in Krakow (R)	1	1	1					1		H110	0,988
Teatr im. St. I. Witkiewicza in Zakopane (R)					1					H13	0,889
Teatr im. Jana Kochanowskiego (R)				1	1			1		H104	0,995
Teatr im Wiliama Horzycy (R)				1	1					H55	0,984
Teatr im. J. Osterwy in Lublin (R)					1			1		H63	0,846
Teatr Wielki im. S. Moniuszki in Poznan (R)			1						1	H43	0,912
Teatr Nowy im. T. Lomnickiego in Poznan (R)	1	1	1							H7	0,997
Teatr im A. Fredry in Gniezno (R)				1	1			1		H98	0,972
Teatr im. W. Boguslawskiego in Kalisz (R)		1					1			H23	0,922
Teatr Polski in Wrocław (R)	1	1				1				H20	0,975
Teatr Dramatyczny im. J. Szaniawskiego in Walbrzych (R)					1	1		1		H104	0,823
Teatr im. H. Modrzejewskiej in Legnica (R)				1				1		H51	0,167
Teatr Im J. Osterwy in Gorzow Wlk. (R)	1			1		1				H48	0,995
Lubuski Teatr im. L. Kruczkowskiego in Zielona Gora (R)								1		H25	0,874
Teatr Polski in Bielsko- Biala (M)	1				1			1		H60	0,976
Teatr Polski im. H. Konieczki in Bydgoszcz (M)		1		1					1	H92	0,991

	X1	X2	X3	X4	X5	X6	X7	X8	X9		
Teatr im A Mickiewicza in Czestochowa (M)						1		1		H63	0,924
Teatr Miejski im. W. Gombrowicza in Gdynia (M)		1			1		1			H89	0,991
Teatr Ludowy in Krakow (M)					1			1		H59	0,987
Teatr Laznia Nowa in Krakow (M)				1				1		H51	0,984
Teatr Nowy im. K .Dejmka in Lodz (M)		1	1						1	H72	0,670
Teatr Powszechny in Lodz (M)		1			1		1			H77	0,915
Teatr Polski in Poznan (M)					1				1	H61	0,853
Teatr Osmego Dnia in Poznan (M)						1		1		H63	0,913
Teatr Wspolczesny in Poznan (M)		1	1					1		H86	0,925
Teatr Wspolczesny in Wroclaw (M)		1	1					1		H71	0,860
Teatr Ateneum im. S. Jaracza in Warszawa (M)		1						1		H41	0,967
Teatr Dramatyczny im. G. Holoubka in Warszawa (M)		1	1						1	H78	0,980
Teatr Nowy in Warszawa (M)					1			1		H59	0,999
Teatr Ochoty in Warszawa (M)	1				1		1			H58	0,975
Teatr Powszechny im. Z. Hübnera in Warszawa (M)		1				1		1		H94	0,971
Teatr Rampa na Targowku in Warszawa (M)					1				1	H61	0,977
Teatr Scena Prezentacje in Warszawa (M)				1						H4	0,920
Teatr Studio im. S. I. Witkiewicza in Warszawa (M)		1			1			1		H78	0,987
Teatr Syrena in Warszawa (M)		1						1		H27	0,960
Teatr Wspolczesny in Warszawa (M)	1	1	1							H7	0,968
Teatr Zydowski im. E., R. i I. Kamińskich in Warszawa (M)		1			1				1	H79	0,711
Sum	11	**13**	**13**	9	**19**	11	5	**22**	8		

Source: Own elaborations, (M) – municipality dramatic theatres, (R) – regional dramatic theatres

The applied Hellwig's method indicates that for the theatres, the combinations of X2, X3, X5 and X8 variables were chosen most frequently. The most often repeated variable was X8 – subsidy per one viewer and X5 – the number of shows/performances per stage. X2 – the share of subsidies in the total revenue and X3 – the share of own revenue in the total revenue followed. Relatively frequent were also indicators X1 – the share of financial result in the costs and X6 – population per one seat in theatres and music institutions. The least frequent indicators were X7 – the unemployment rate and X9 – viewers and listeners in theatres and music institutions per 1000 population. The information validity criterion and the variable occurrence frequency criterion in various sets were

the basis for the formulation of the set of eliminated and selected variables. It should be noted that three of them were financial and only one was substantive. Similar results were obtained using a simple method based on ranks (Table 2). To determine weights reflecting the impact of the variables on the investigated phenomenon, the results of the use of Hellwig's method of a capacity of financial information are essential.

Table 2. Vector of correlation coefficients between dependent and independent variables. Average results based on the share of indicators.

Variable	Correlation	Structure	Frequency	Structure	Average structure
Y	1				
X1	-0,047	2%	11	10%	6%
X2	0,016	1%	13	12%	6%
X3	0,397	18%	13	12%	15%
X4	0,049	2%	9	8%	5%
X5	0,643	28%	19	17%	23%
X6	-0,191	8%	12	11%	10%
X7	0,077	3%	5	4%	4%
X8	0,749	33%	22	20%	26%
X9	-0,092	4%	8	7%	6%

Source: Own elaborations

The study indicated a significant impact of X8, X5, and X3 variables. In the formula presented below, the larger the weight of explanatory variables, the more attractive they are.

MRank=
X1*0,06+X2*0,06+X3*0,15+X4*0,05+X5*0,23%+X6*0,10+X7*0,04+x8*0,26+X9*0,06

The results obtained from the application of the DM and MRank methods indicate a significant impact of the financial factor on the accessibility of cultural services provided by individual PAOs. On this basis, it can be concluded that the accessibility of cultural institutions largely depends on the level of funding and the financial structure of a given facility. Therefore, when classifying theatres using the DM (a synthetic indicator of development) and BZW (relative development indicator) methods, ultimately the following variables were used: X2, X3, X5 and X8. Conversely, to calculate the MRank indicator we used average results from the shares of various indicators (Table 2). The study showed a significant diversification of the accessibility of cultural services in the investigated theatres. Significantly higher accessibility we noticed in dramatic theatres for which the municipality was the organiser. As regards these theatres, we observed higher levels of diversification regarding the accessibility of cultural services.

Irrespective of the research method used, municipal theatres ranked first. It should be noted that the high-ranked theatres were those located in major cities (Warsaw, Krakow, Lodz), which does not raise any objections. It is also important to note, however, that in

the first ten positions we also find theatres from smaller agglomerations (Czestochowa, Gorzow Wlkp. or Zielona Gora). These results seem to be very logical. These results seem to be very logical and reflect the view preached by J. Lamar Pierce (2000) that the size of the population has a greater impact on artistic activity than the income of the buyers of services. In large cities, with a potentially higher selling market (number of potential viewers) and simultaneously greater financial potential of the organiser, accessibility should be at a high level. In smaller towns, these parameters are generally lower and, thus, accessibility might be less favourable. Following the analysis of results from Table 4, it is worth noting that only selected theatres from large agglomerations (both municipal and provincial) are in the top ten positions. Teatr Powszechny in Lodz is ranked first in the ranking of dramatic theatres. In the two presented methods, Teatr Ludowy in Krakow is ranked high as well. For comparison, the results concerning low-ranking theatres are presented as well.

Table 3. Average indicators characterising selected PAOs

Theatres/parameters	Average no. of shows per stage	Average no. of premieres per stage	Average subsidy per one viewer	Average share of subsidies in the total revenue	Average no. of viewers to the no. of seats available
Teatr Powszechny in Lodz (M)	300	10	58 zl/person	62%	163
Teatr Ludowy in Krakow (M)	161	2	56 zl/ person	65%	169
Teatr im. J. Slowackiego in Krakow (R)	185	2	82zl/ person	56%	143
Lubuski Teatr im. L. Kruczkowskiego in Zielonej Gora (R)	156	3	80zl/ person	67%	90
Teatr Wspolczesny in Wroclaw (M)	67	1	303 zl/ person	70%	58
Teatr Laznia Nowa in Krakow (M)	54	3	391 zl/ person	62%	78

Source: Own elaboration based on annual reports and the results of surveys of individual theatres

Based on data from Table 3, a downward trend for X5 indicator is noticeable, with an increase in the subsidy per viewer – X8. The average value of earmarked subsidies in relation to total revenue was at a very similar level. It can, therefore, be concluded that individual theatres using the stability of the earmarked subsidy level, were not forced to seek a new audience. Consequently, the number of offered performances decreased, which resulted in an increased subsidy per viewer. This was reflected in the highly diversified level of the accessibility indicator. On the basis of the above, the hypothesis that the absence of allocation criteria for statutory subsidies highly diversifies the accessibility of PAOs should be confirmed.

Table 4. Classification of municipal and regional public theatres, years 2011–2015

No.	DM	theatres	BZW	theatres	Mrank	theatres
1	1	Teatr Powszechny in Lodz (M)	0,740	Teatr Powszechny in Lodz (M)	0,913	Teatr Powszechny in Lodz (M)
2	0,842	Teatr Ludowy in Krakow (M)	0,625	Teatr Ludowy in Krakow (M)	0,647	Teatr Syrena in Warszawa (M)
3	0,800	Teatr im A. Mickiewicza in Czestochowa (M)	0,614	Teatr im A Mickiewicza in Czestochowa (M)	0,591	Teatr Ludowy in Krakow (M)
4	0,690	Teatr Syrena in Warszawa (M)	0,604	Teatr Syrena in Warszawa (M)	0,585	Teatr im A Mickiewicza in Czestochowa (M)
5	0,673	Teatr Rampa na Targowku in Warszawa (M)	0,543	Teatr Rampa na Targowku in Warszawa (M)	0,575	Teatr Rampa na Targowku in Warszawa (M)
6	0,666	Teatr im. J. Slowackiego in Krakow (R)	0,526	Teatr Polski in Bielsko- Biala (M)	0,507	Lubuski Teatr im. L. Kruczkowskiego in Zielona Gora (R)
7	0,617	Lubuski Teatr im. L. Kruczkowskiego in Zielona Gora (R)	0,518	Teatr im. J. Slowackiego in Krakow (R)	0,498	Teatr Polski in Bielsko- Biala (M)
8	0,578	Teatr Nowy im. K.Dejmka in Lodz (M)	0,502	Lubuski Teatr im. L. Kruczkowskiego in Zielona Gora (R)	0,482	Teatr Im. J. Osterwy in Gorzow Wlk. (R)
9	0,567	Teatr Im. J. Osterwy in Gorzowie Wlk. (R)	0,500	Teatr Osmego Dnia in Poznan (M)	0,466	Teatr im. J. Slowackiego in Krakow (R)
10	0,549	Teatr im. W. Boguslawskiego in Kalisz (R)	0,499	Teatr Im. J. Osterwy in Gorzowie Wlk. (R)	0,377	Teatr Ateneum im. S. Jaracza w Warszawie (M)
...						
37	0,143	Teatr Wielki w Lodzi (R)	0,255	Teatr Zydowski... in Warszawa (M)	0,096	Teatr im. Jana Kochanowskiego (R)
38	0,131	Teatr Zydowski ... in Warszawa (M)	0,241	Teatr im. S. Jaracza in Olsztyn (R)	0,092	Teatr Polski in Poznan (M)
39	0,118	Teatr Wspólczesny in Wroclaw (M)	0,237	Teatr Wspolczesny in Wroclaw (M)	0,062	Teatr Ochoty in Warszawa (M)

40	0,113	Teatr Dramatyczny im. J. Szaniawskiego in Walbrzych (R)	0,225	Teatr Dramatyczny im. G. Holoubka in Warszawa (M)	0,035	Teatr Wspolczesny in Wroclaw (M)
41	0,096	Teatr Dramatyczny im. G. Holoubka in Warszawa (M)	0,222	Teatr Polski in Wroclaw (R)	0,019	Teatr im. H. Modrzejewskiej in Legnica (R)
42	0,092	Teatr im. H. Modrzejewskiej in Legnica (R)	0,207	Teatr Dramatyczny im. J. Szaniawskiego in Walbrzych (R)	0,010	Teatr Dramatyczny im. J. Szaniawskiego in Walbrzych (R)
43	0,082	Teatr Nowy in Warszawa (M)	0,196	Teatr Laznia Nowa in Krakow (M)	0,009	Teatr im. S. Jaracza in Olsztyn (R)
44	0,028	Teatr Wierszalin in Suprasl (R)	0,192	Teatr Ochoty in Warszawa (M)	0,008	Teatr Wielki in Lodz (R)
45	0,008	Teatr Laznia Nowa in Krakow (M)	0,169	Teatr Wierszalin in Suprasl (R)	0,006	Teatr Laznia Nowa in Krakow (M)
46	0	Teatr Ochoty in Warszawa (M)	0,168	Teatr im. H. Modrzejewskiej in Legnica (R)	0	Teatr Wierszalin in Suprasl (R)

*Source: Own elaboration *) only top 10 and bottom 10 presented*

Conclusion

The prime role of the state is (apart from regulating market failures) fair distribution of public goods (i.e. products and services). As for cultural services, the role of public administration is limited and consists mainly in fostering the development of services by exercising functions of the organizer for local government institutions of culture. Local government authorities are limited primarily to the allocation of public funds between individual PAOs and the supervision and control over the funds disbursed. The criteria, procedures and supervisory and control tools in Poland are defined by law. However, there are no criteria and tools for the distribution of public funds between PAOs. This resulted in diversification regarding the availability of cultural services of individual theatres (municipal and regional). Therefore, further development of the tools and guidelines for the assessment of activities carried out by the performance art organizations in Poland and thus to determine the efficiency of disbursed public funds seems necessary.

The application of different taxonomic synthetic measures does not guarantee a clear assessment of the accessibility level of services provided by dramatic theatres in Poland. The similarity, however, of the three resulting classifications is very high. First of all, one should point out the very good comparability of rankings based on DM (with pattern) and BZW [without pattern] values. This means that using the method with a pattern and without a pattern, one may develop a compatible assessment of the investigated parameters. While verifying the hypothesis, we determined variables that have an impact on the level of accessibility of dramatic theatres. The specified variables take into account financial (the share of subsidies in the total revenue, the share of own revenue in the total revenue, the subsidy per one viewer) and substantive (subsidy per one viewer) indicators. The classification explicitly indicated a high diversity of the investigated parameter. We proved the same high diversification of service accessibility for dramatic theatres in Poland. The diversification of cultural service accessibility is more visible in municipal than provincial theatres.

To reduce the diversity, the organizer should consider introducing stable and objective criteria for the distribution of the statutory subsidies. The criteria should be based on indicators selected using statistical methods. The starting point for the introduction of new criteria for the distribution is however reliable data records and clearly defined guidelines relating to the quality of financial and substantive reports. In Poland, there is still much to be done - especially with regard to substantive reports. These indicators should pertain not only to the results of the substantive activities of theatres but also to their financial activities. Development of cultural services is highly dependent on the availability of financial resources. Therefore, skills in acquiring their own funds by theatres are also of importance.

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