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## EVALUATION OF THEATER ACTIVITY USING HELLWIG'S METHOD

### Summary

The aim of the presented study is a comparison of the effects of the operational activity of city and regional cultural organizations in the context of accessibility. The studies are also an attempt to find indicators (variables) determining the most effective financing methods for operational activity of cultural organizations. For this purpose, determining indicators were identified, which drive the efficient activity of theaters.

The authors share the view that accessibility is the main factor determining the effectiveness of public cultural services. Hellwig's method of the capacity of indicators' information and development was used to identify efficiency drivers for cultural institutions. Classification based on financial and operational metrics led to the best organizations that can play a model role.

**Key words:** effectiveness, cultural organizations, accessibility, performing art organizations, cultural economics, Hellwig's methods

JEL: H2, H7, G18

### 1. Introduction

In many studies using institutional theory, culture and its impact on entrepreneurship were investigated from the perspective of sociology and organizational theory. Culture is one of the important means by which both normative and cognitive structures are conveyed [DiMaggio, Powell, 1983, pp. 147–160; DiMaggio, Powell, 1991, pp. 1–38]. In the literature, the relationship between national culture and entrepreneurship has been verified positively [Bruton, Ahlstrom and Han-Lin Li, 2010, p. 431]. Institutional theory, and especially New Institutional Economics, assumes the use of public organizations [Bruton, Ahlstrom and Han-Lin Li, 2010, p. 423] in order to achieve collective benefits as a result of social coordination [Wojtyna, 2008, p. 9].

The impact of non-economic factors is being increasingly emphasized in both theory and practice. According to A. Toffler, the quality and policy of the state have a greater impact on economic development than a cheap labor force or technologies [Coase, 1960, pp. 1–44]. There is a strong relationship between cultural values and entrepreneurship [Thurik, Dejardin, 2012]. Not only culture, but also the legal environment, tradition, history in the industry, and economic incentives may affect the specific area as well, and this, in turn, may impact on success in entrepreneurship, particularly at a national level. Individualism as a factor supporting innovation is particularly emphasized [Bruton, Ahlstrom and Han-Lin Li, 2010, p. 242]. Studies on the impact of culture on entrepreneurship [Herrmann-Pillath, 2006, p. 539] are often confronted as the development of entrepreneurship is affected by very many variables [Balcerzak, 2008, p. 738]. The authors of the present paper investigate the efficiency of the theatre as a cultural institution. Public theatre is a unique cultural institution. The range of impact for the theatre is broad despite its small scope of activity. This is principally due to the creative and multidimensional structure of theatre productions that trigger opinions and discussion much more widely than plays as such. The theatre as a unit of creative culture differs drastically from reproductive units of culture such as e.g. museums or galleries, also in terms of the impact on the rest of society. Sometimes the theatre is even referred to as an economic indicator [Moritz, 1974, pp. 71–76].

## 2. Purpose of research

The aim of the present study is a comparison of the effects of the operational activity of city and regional performing art organizations (PAO) in the accessibility's context. The studies also attempt to find indicators (variables) determining the most effective financing methods for the operational activity of PAO. For this purpose, determining indicators were identified which drive the efficient activity of theaters. The authors share the view that accessibility is the main factor determining the effectiveness of public cultural services. Hellwig's method of a capacity of indicators information and development was used to identify efficiency drivers for cultural institutions. Classification based on financial and operational metrics led to the best organizations that can play a model role.

For the purposes of the article, the accessibility of cultural services was defined as the quotient of the number of viewers of permanent productions at the theatre in relation to the number of seats available in the theatre on a permanent basis. The authors study accessibility in the context of the theatre-seat utilization rate.

### 3. Review of the literature

Cultural units in Poland, including public theatres, implement the constitutional role of the state consisting in providing access to culture to all citizens [Constitution of the Republic of Poland, 1997]. In view of the importance of this task, one should continually seek methods which would prove successful in effective management of cultural institutions. One of the determinants conditioning the efficiency of public services is their accessibility [Kachniarz, 2012, pp. 7–9]. The concept of accessibility is understood in several ways. In Polish literature, the problem of accessibility is viewed from three main angles: spatial, economic, and social accessibility [Kachniarz, 2012, p. 11] and the element that conditions its type is, in this case, the criterion that determines the possibility or opportunity to use a particular service [Guzik, 2003, p. 34]. The accessibility of public culture is understood as the accessibility of services that are, at the same time: targeted toward achieving the social objective, associated with the cultural sector, and implemented in the framework of national public funding directly by public administration or on its behalf [Kozuch A., Kozuch B., 2011, p. 34]. Generally, the authors believe that the [Thorsby, Withers, 1979, p. 15; Ilczuk, 2002, pp. 38–39] accessibility of culture should be defined primarily by the possibility of participation in it [Ilczuk, 2002; O'Hagan, Neligan, 2005, pp. 36–37; Kosiński; Łukaszewicz] The quantity of these services is directly related to the possibility of participation in the offer by the largest number of persons; in the literature, the number of tickets sold is identified as the basis of usefulness [Thorsby, Withers, 1979, p. 14]. In Thorsby's later works, there appears even one function of theatre production referring to the result of theatre activity as the total number of viewers [Thorsby, 1994, p. 4]. In Italian studies, an indicator measuring theatre services has been proposed and understood as the number of guest performances and own productions played in a given theatre and outside of it [Fiazoli, Filippini, 1997, p. 79]. The potential access to cultural services as the number of seats in a concert hall multiplied by the number of concerts was also discussed by J. Alan Heilbrun [Heilbrun, 2003, pp. 91–93]. "Accessibility" of the theatrical offer has been many times referred to in legal acts. This seems to be the key statement, as it places the accessibility of cultural services among the basic indices about the state of culture and of its real potential impact on various dimensions of social and thus economic life.

### 4. Research methods

For the identification of variables that demonstrate a significant link to the efficiency of cultural institution activity, the method of the capacity of indicators' information developed by Zdzisław Hellwig dating back from 1969 was used. This method allows us to select explanatory variables for the econometric

model. The variables selected for a linear econometric model should be strongly correlated with the explanatory variable and, possibly, poorly correlated with the dependent variable [Dziechciarz, 2003, p. 46]. The idea behind this method is based on a 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:

$$h_{kj} = \frac{r_j^2}{1 + \sum_{l=1}^{m_k} |r_{lj}|} \quad (j = 1, 2, \dots, m_k) \quad \text{formula (1)}$$

$h_{kj}$  – 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 ( $j = 1, 2, \dots, m_k$ ),

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

$h_{kj}$  indicator has greater values, the higher the correlation coefficient  $r_j$  is. After calculating the 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 is calculated. The combination for which  $h_k$  value is the highest is selected [Dziechciarz, 2003, pp. 51–52]. For the purposes of the article, this method is used to emphasize the importance and selection of major measures of efficiency for the activity of cultural institutions for which the city/municipality and regional is their organizer.

Z. Hellwig is known as the author of multidimensional comparative analysis that actually belongs to the discipline of science classically known as taxonomy. This method allows us to determine the ranking of objects described in the multidimensional space of features, taking into account certain ordering criteria. The synthetic indicator of development (SID, also known as Hellwig's development measure) [Hellwig, 1968] is used for the linear ordering of objects described by many diagnostic variables replaced by one synthetic variable. This method consists in determining the distance from the model which is (most frequently a non-authentic) unit that has the most favorable values for each of the features. The successive stages of the structure of development measure are as follows:

1. Standardisation of diagnostic variable values.
2. Determination of the reference point coordinates.
3. Designation of the distance of each object from the model by using Euclid's formula.

The higher the value of the distance, the more favorable its situation in relation to the investigated phenomenon.

## 5. Description of study

The subject of the study on the efficiency of PAO are public theatres, for which their organizer is the city (with a population of one hundred thousand to a million) and voivodeship (NTS 2, Classification of Territorial Units for Statistics (NUTS)). Selection of the study group is determined by the fact that these units are particularly responsible for the maintenance of public cultural institutions. The data for the study was 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 73 public theatres, including 47 cities and 26 regions where the voivodeship is the organizer. For each theatre, the correlation between variables over the years 2011–2015 was investigated.

## 6. Research results

Selection of diagnostic variables for the purpose of calculating the index was based on financial, technical, and statistical criteria. These variables were characterized by [Zalaś, 2000, p. 37–38]: 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 were not unduly correlated with each other, were included into the study.

In the article, nine variables affecting the efficiency of cultural institution activity were selected. The accessibility of cultural institutions marked as  $Y$  is a dependent variable having a decisive influence on the efficiency of the cultural institution activity. This variable was illustrated as the quotient of the number of viewers of permanent productions at the theatre in relation to the number of seats available in the theatre on a permanent basis (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,
- X2 – the share of subsidies in the total revenue,
- X3 – the share of own revenue in the total revenue,
- X4 – the number of premieres per stage,

- X5 – the number of shows/performances per stage,
- X6 – population per 1 seat in theatres and music institutions,
- X7 – unemployment rate,
- X8 – subsidy per one viewer,
- X9 – viewers and listeners in theatres and music institutions per 1000 population.

Variables from items 1 to 5 and variables 8–9 were characterised as stimulants. Variables 6 and 7 were marked as dis-stimulants.

The high share of subsidy in the total revenue increases the accessibility of cultural services because it is an important source of funding for public cultural institutions [Galecka, Smolny, 2017, pp. 226–237]. A high subsidy is a stimulus for the smooth functioning of both small and large theatres. Small theatres, due to their spatial infrastructure are unable to obtain their own high revenue that could fully cover the costs of performances. The biggest PAOs have many more opportunities to obtain own revenue, but their fixed costs are very high, and thus they are less financially flexible. The authors identified X2 and X8 variables as stimulants.

Variable 6 – population per 1 seat in theatres and music institutions – was defined as a dis-stimulant. The authors are of the opinion that the lower the number of population per one seat in theatres and music institutions in a given region, the greater the accessibility of cultural institutions is. In turn, a low unemployment rate could translate into increased interest in cultural services.

Subsequently, the obtained correlation vectors and matrices were examined using the method of capacity of indicators information (Hellwig's method). The obtained data were used to indicate the most important measures affecting the assessment of their efficiency, and consequently, to create an efficiency ranking for the activity of the theatres.

For each theater, a correlation study was carried out between the variables over the years 2011–2015. Table 1 shows the correlation results between variables for the Białystok Puppet Theater. Similarly, correlation matrices were made for the remaining 72 theaters. The results are presented in table 2.

The resulting correlation vectors and matrices were examined using Hellwig's method. For the Białystok Puppet Theater, Hellwig's method showed the largest integral carrier capacity  $H_{105} = 0.975$  for combinations of variables X5, X6, and X9. Table 2 shows the results for all surveyed municipal cultural institutions.

The investigation has shown that most frequent were the X5 (number of performances per stage) and X8 variables (subsidy per one viewer). In addition, for municipal theatres, the X2 variable (the share of subsidy in total revenue) was also substantial. Out of the theatres for which their organizer is regional (voivodeship), the X6 variable (population per 1 seat in theatres and music institutions) also appeared repeatedly. These variables have been adopted for further study as factors determining the efficiency of public theatres' activity. The most frequently occurring variable was the number of performances per room and

**TABLE 1**

**Correlation of the variables of the Białystok Puppet Theater**

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9
Y	1	-0.515	0.296	0.903	0.313	0.819	-0.671	-0.620	-0.918	0.789
X1	-0.515	1	-0.646	-0.222	-0.099	-0.380	0.199	0.024	0.254	-0.289
X2	0.296	-0.646	1	0.312	0.559	0.013	-0.625	0.285	-0.355	-0.179
X3	0.903	-0.222	0.312	1	0.603	0.592	-0.879	-0.667	-0.978	0.703
X4	0.313	-0.099	0.559	0.603	1	-0.257	-0.828	-0.393	-0.488	0.240
X5	0.819	-0.380	0.013	0.592	-0.257	1	-0.265	-0.309	-0.699	0.561
X6	-0.671	0.199	-0.625	-0.879	-0.828	-0.265	1	0.363	0.861	-0.340
X7	-0.620	0.024	0.285	-0.667	-0.393	-0.309	0.363	1	0.532	-0.941
X8	-0.918	0.254	-0.355	-0.978	-0.488	-0.699	0.861	0.532	1	-0.615
X9	0.789	-0.289	-0.179	0.703	0.240	0.561	-0.340	-0.941	-0.615	1

Source: own elaboration.

**TABLE 2**

**List of studied variables in city theaters**

Voivodeship	City	Theater	X1	X2	X3	X4	X5	X6	X7	X8	X9	No	$h_{kj}$	
Pomorskie	Białystok	Białostocki Teatr Lalek					1	1			1	H105	0.975	
Śląskie	Bielsko-Biala	Teatr Polski	1				1			1		H60	0.976	
		Teatr Lalek Banialuka		1		1				1		H74	0.905	
Kuj.-Pom.	Bydgoszcz	Teatr Polski im. H. Konieczki			1		1				1	H92	0.991	
Śląskie	Częstochowa	Teatr im. A. Mickiewicza						1		1		H63	0.924	
Pomorskie	Gdynia	Teatr Miejski im. W. Gombrowicza			1		1		1			H89	0.991	
Śląskie	Katowice	Śląski Teatr Lalki i Aktora "Ateneum"	1				1	1				H56	0.842	
Małopolskie	Kraków	Teatr Ludowy					1			1		H59	0.987	
		Teatr Bagatela im. Tadeusza		1						1		H27	0.995	
		Teatr Lalki, Maski i Aktora "Groteska"	1	1							1		H32	0.706
		Teatr Łaźnia Nowa				1				1			H51	0.984
		Teatr Kto				1	1						H45	0.998

Voivodeship	City	Theater	X1	X2	X3	X4	X5	X6	X7	X8	X9	No	$h_{kj}$	
Lubelskie	Lublin	Teatr im. H.Ch. Andersena		1						1		H27	0.963	
Łódzkie	Łódź	Teatr Nowy im. K. Dejmka		1	1						1	H72	0.670	
		Teatr Powszechny		1			1		1			H77	0.915	
		Teatr Lalek "Arlekin"					1		1			H57	0.985	
		Teatr Lalki i Aktora "Pinokio"			1		1					H35	0.997	
		Teatr Muzyczny		1			1				1	H78	0.985	
Warmińsko-mazurskie	Olsztyn	Olsztyński Teatr Lalek	1				1			1	H60	0.825		
Wielkopolskie	Poznań	Teatr Polski w Poznaniu					1				1	H61	0.853	
		Teatr Animacji w Poznaniu			1			1			1	H95	0.983	
		Teatr Ósmego dnia						1		1		H63	0.913	
Zachodniopomorskie	Szczecin	Teatr Lalek Pleciuga		1						1		H27	0.920	
		Teatr Współczesny			1	1					1	H86	0.925	
Kujawsko-pomorskie	Toruń	Teatr Baj Pomorski						1		1		H63	0.975	
Dolnośląskie	Wrocław	Teatr Współczesny		1	1						1	H71	0.860	
		Teatr Lalek				1	1	1				H96	0.990	
		Teatr Muzyczny Capitol					1					H13	0.986	
Mazowieckie	Warszawa	Teatr Ateneum im. S. Jaracza			1						1	H41	0.967	
		Teatr Baj	1			1					1	H52	0.847	
		Teatr Dramatyczny im. G. Holoubka		1	1							1	H78	0.980
		Teatr Lalek Guliwer					1						H13	0.983
		Północne Centrum Sztuki Teatr Komedia								1			H21	0.953
		Teatr Kwadrat			1			1				1	H95	0.552
		Teatr Lalka					1				1		H59	0.902
		Teatr Nowy					1				1		H59	0.999
		Teatr Ochoty	1				1		1				H58	0.975
		Teatr Powszechny im. Z. Hübnera			1			1			1		H94	0.971

Voivodeship	City	Theater	X1	X2	X3	X4	X5	X6	X7	X8	X9	No	$h_{kj}$
		Teatr Rampa na Targówku					1				1	H61	0.977
		Teatr Muzyczny Roma			1			1		1		H94	0.986
		Teatr Rozmaitości						1				H13	0.977
		Teatr Scena Prezentacje				1						H4	0.920
		Teatr Studio im. S. I. Witkiewicza		1			1			1		H78	0.987
		Teatr Syrena		1						1		H27	0.960
		Teatr Współczesny	1	1	1							H7	0.968
		Teatr Żydowski im. E., R. i I. Kamińskich		1			1				1	H79	0.711
Opolskie	Opole	Opolski Teatr Lalki i Aktora im. A. Smolki				1	1	1				H104	0.792
Podkarpackie	Rzeszów	Teatr "Maska" w Rzeszowie					1		1			H57	0.280
Suma			7	14	13	8	24	12	6	22	10		

Source: own elaboration.

subsidy per one viewer. The high position of X2 stimulus confirms previous studies indicating the absence of other funding sources for stage productions of theatres in Poland apart from subsidies from the organizer [Gałęcka, Smolny, 2017, pp. 387–399].

Also, it is confirmed by the significant presence of the X8 variable – funding by way of subsidy per one viewer. The indicators least frequently present were those that pertained to the unemployment rate, and viewers and listeners in culture institutions per 1000 inhabitants.

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. Because of the differences in the significance of variables in municipal and regional theatres, three groups of variable combinations were selected. To determine the ranking of theatres X5, X8, X6, and X2 variables in various combinations were adopted. Also, studies were carried out without taking into account the X6 variable. The data for this variable come from the local data bank of the Central Statistical Office, and the regional is the unit of measurement. Due to the location of regional theatres in provincial capitals, it is difficult to estimate similar data for the cities as such.

TABLE 4

## Classification of city and regional public theaters

No	Group of variables X2, X5, X8		Group of variables X5, X6, X8		Group of variables X2, X5, X6, X8	
	SID	Theater	SID	Theater	SID	Theater
1	12,118	Białostocki Teatr Lalek	11,752	Białostocki Teatr Lalek	12,121	Białostocki Teatr Lalek
2	13,067	Teatr im. H.Ch. Andersen- na	13,047	Teatr Lalek Guliwer	13,474	Teatr Lalek Guliwer
3	13,471	Teatr Lalek Guliwer	13,212	Teatr Bagatela im. T. Boya Żeleńskiego	14,158	Teatr Lalka w Warszawie
4	14,155	Teatr Lalka w Warszawie	13,536	Teatr Kwadrat	14,458	Teatr Baj
5	14,441	Teatr Lalki Aktora "Pinokio"	13,923	Teatr Lalka w Warszawie	14,644	Teatr Lalki, Maski i Ak- tora "Grotteska"
6	14,455	Teatr Baj	13,965	Teatr Lalki, Maski i Ak- tora "Grotteska"	14,658	Teatr Lalki Aktora "Pinokio"
7	14,460	Teatr Lalki, Maski i Ak- tora "Grotteska"	14,220	Teatr Baj	14,875	Teatr Wielki w Łodzi*
8	14,582	Teatr im. J. Osterwy w Lublinie*	14,500	Teatr Lalki Aktora "Pinokio"	14,928	Teatr Rozmaitości
9	14,662	Teatr Wielki w Łodzi*	14,651	Teatr Powszechny	14,954	Teatr Bagatela im. T. Boya Żeleńskiego
10	14,771	Olsztyński Teatr Lalek	14,700	Teatr Rozmaitości	15,107	Teatr Powszechny
...						
64	17,602	Teatr Muzyczny Capitol	17,306	Teatr Żydowski im. Ester, Rachel i Idy Kamińskich	17,769	Teatr Żydowski im. Ester, Rachel i Idy Kamińskich
65	17,614	Teatr im. A. Sewruka w Elblągu,*	17,316	Teatr Polski w Poznaniu	18,052	Teatr im. St.I. Witkiewi- cza w Zakopanem*
66	17,614	Teatr Wierszalin w Supraślu*	17,328	Teatr im. St.I. Witkiewi- cza w Zakopanem*	18,059	Opolski Teatr Lalki i Ak- tora im. Alojzego Smolki
67	17,767	Teatr Żydowski im. Ester, Rachel i Idy Kamińskich	17,499	Teatr im. Jana Kocha- nowskiego*	18,092	Teatr Muzyczny im. D. Baduszkowej w Gdyni*
68	17,879	Opolski Teatr Lalki i Ak- tora im. Alojzego Smolki	17,593	Teatr im. Stefana Jaracza w Olsztynie*	18,135	Północne Centrum Sztu- ki Teatr Komedia
69	17,904	Teatr im. St.I. Witkiewi- cza w Zakopanem*	17,627	Teatr Polski we Wrocła- wiu*	18,226	Teatr im. S. Jaracza w Olsztynie*
70	18,090	Teatr Muzyczny im. D. Baduszkowej w Gdyni*	17,893	Teatr im. Aleksandra Sewruka w Elblągu,*	18,432	Teatr im. Aleksandra Sewruka w Elblągu*
71	18,132	Północne Centrum Sztu- ki Teatr Komedia	17,901	Teatr im. H. Modrzejew- skiej w Legnicy*	19,044	Teatr Polski we Wrocła- wiu*
72	18,949	Teatr Polski we Wrocła- wiu*	17,936	Opolski Teatr Lalki i Ak- tora im. Alojzego Smolki	19,145	Teatr im. H. Modrzejew- skiej w Legnicy*
73	19,051	Teatr im. H. Modrzejew- skiej w Legnicy*	19,613	Teatr "Maska" w Rze- szowie	19,903	Teatr "Maska" w Rze- szowie

\* regional theaters. Only top 10 and bottom 10 presented

Source: own elaboration.

The studies carried out using Hellwig's method indicate higher accessibility of municipal cultural institutions than regional ones. Municipal theatres are placed among the top ten theatres in the ranking. Regardless of the variable combination applied, the results will be comparable. Shifts in the ranking are small. In all three sets of variables, Białostocki Puppet Theater matches closely the model theatre the organizer of which is the city [municipality] with powiat rights. Two theatres (depending on the combination of variables): regional H. Modrzejewska Theater in Legnica and municipal "Maska" Theater in Rzeszów come last. However, in the set where no X6 variable was taken into account, "Maska" Theatre was ranked more favourably. This confirms earlier doubts about this indicator and the conclusion that statistical indices pertaining to population per one seat in theatres and music institutions is not the correct indicator that should be included in an econometric model in order to investigate the efficiency of cultural institutions.

## 7. Conclusions

One of the many factors influencing the extent to which cultural offers are used is the varied accessibility of cultural institutions resulting from their location. Large cities or tourist towns and cities offer greater opportunities to participate in diverse cultural events. The cultural potential of inhabitants correlates both with the type of organizer and thus the funds allocated to culture. It also depends on social conditions, such as the level of education represented by inhabitants or the degree of social participation.

The authors explored the efficiency of public theatres seen through the lens of their accessibility. The aim of this article was to verify which of the proposed variables should be taken into account when examining the accessibility of cultural services offered by individual cultural institutions. As a result of the analyses performed, the ranking of municipal and regional public theatres was presented. In the article, the method of the capacity of indicators' information was used. It enabled the authors to select efficiency (accessibility) indicators of public theatres in Poland. Out of the nine explanatory variables included in the survey, ultimately four remained in the model. The selected variables take into account both financial indicators and substantive ones. The statistical index having regard to the level of available cultural infrastructure in a region turned out to be significant. These indices may serve to support the process of public governance, the evaluation of public policies at different levels of a territorial organization, taking into account such dimensions as the widely discussed accessibility, effectiveness, or efficiency of the activity in the qualitative and quantitative dimension. They may also be helpful for the analysis of various aspects of the functioning of entities operating in the sphere of culture. As regards the selection of variables for the econometric model to measure the efficiency of cultural institutions, combinations that take into account the

variables designated in an article should be created. Depending on the aim of the study, it seems that it is worth extending it with additional ones connected with: the quality and scope of services offered, spatial and transport-related distance from the services, the unsuitability of services for people with disorders or disabled persons, the unsuitability of services for people and communities of ethnic minority groups, the cost of fees and tickets, or even the function of the director/manager held by an artist or an economist.

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