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PUBLICLY FUNDED CULTURAL INSTITUTIONS – A COMPARATIVE ECONOMIC VALUATION STUDY

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Publicly funded cultural institutions – a comparative economic valuation study

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Abstract: Cultural institutions are the main creators of cultural goods and services and are responsible for their accessibility; cultural institutions are also the main beneficiaries of public funds for culture. The aim of this study is to evaluate the division of public resources into different branches of culture that are rooted in political 'adhocism' and historical dependencies. Based on the observed visitations and their costs, a two-stage budgeting model is employed to investigate the change in consumer surplus related to the loss of access to the markets of cinemas, museums, and theatres in Warsaw, the capital city of Poland. The institutions vary in terms of public good characteristics and importance as public bodies, expressed in terms of subsidies. The inclusion of the entire markets of institutions helps to overcome the embedding effect, which affects many single-site valuations. It also enables a comparison between cultural sectors, which is rare in cultural economics. We find that people assign a positive value to the accessibility of all institutions and groups of institutions. However, the estimated value generated by each type of cultural institution is not aligned with the division of subsidies between these markets. For theatres, the total benefits exceed public support. Museums are found to deliver a lower level of benefits to society; the value they generate is outweighed by the subsidies they receive. Cinemas receive little direct support; however, they are valued twice as much as museums. The problem of cultural policy lies in the division of resources, which is much more equal relative to benefits attributed to groups of museums and theatres. At the same time the division between single institutions within all three branches of culture is unequal, with the significant exclusion of non-public institutions.

Keywords: cultural policy, funding the arts, theatre, museum, cinema, non-market valuation

JEL codes: Z1, Z11, Z18, D61

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1. Introduction

1.1. Publicly funded cultural institutions

Public support for culture is common in most countries, especially in Europe. Cultural institutions – particularly those that are publicly owned – are the main beneficiaries of this support. The legitimisation of financing culture lay in the 'immanent benefaction of culture and the promise of emancipation through culture' (Klaić 2012). The economic rationale of such an approach is that cultural goods are public goods that generate benefits for the whole society. The creation of benefits lies in the provision of the accessibility of culture for potential consumers (Hausner, Karwińska, and Purchla 2013).

Cost-benefit analysis has become a standard evaluation methodology used in policymaking in OECD countries (Organisation for Economic Co-operation and Development 2006), including the US (US Office of Management and Budget 1992). In Europe, the UK is the leader for evidence-based cultural policies (O'Brien 2010; Treasury 2018), while continental Europe falls behind, suffering from 'adhocism' in the administration of institutions (Van Den Hoogen 2014; Ulldemolins and Arostegui 2013). Changes to the customs and traditions of the division of public resources meet historical, political, and legal constraints. In Poland, the early announcement of the 'end of cultural policy' after the political transformation in 1989 signalled the privatisation of the publishing and music industries, but at the same time, cultural institutions remained protected (Lewandowska 2018; Wąsowska-Pawlik 2013). Governments are therefore legally obliged to support many cultural sites – favouring public ones – but there is little recognition whether these institutions receive comparable support from society. We argue that public ownership is not sufficient to justify public engagement and that public support should be provided regardless of the market organisation of cultural sectors: whether artisan or industrial (Galloway and Dunlop 2007).

As Bakhshi et al. (2015, p. 2) state, '[robust] valuation of cultural goods and services … allows cultural institutions to demonstrate in quantitative terms the value that they create for'. Mazzanti (2003, p. 552) claims that '[as] long as cultural institutions compete with each other for sharing the budget *pie*, [the preferences of people] matter to the extent that [they are] relevant to [knowing] where to invest resources for achieving [the] *best value*.' According to the rule of consumer sovereignty, the costs of governmental expenditures borne by people (i.e. through taxes, which the public budget primarily consists of) are justifiable if they do not exceed the benefits gained as a result of these expenditures. Economic valuation techniques

allow the estimation of these benefits (Hanley and Czajkowski 2017), based on the visitation behaviour of consumers and given current costs. Notably, even though the cost of accessing cultural institutions is often free or nominal and is not necessarily related to the true costs of producing and providing cultural goods (Bakhshi et al. 2015), economic valuation techniques can still be used – for example, with respect to travel costs – to estimate the demand function and the resulting consumer surplus (CS) (i.e. economic benefits in terms of welfare gains).

The subject of the vast majority of non-market valuation studies of cultural goods and services are limited to a particular cultural good or institution; for a review of this research, see: Noonan (2002, 2003). However, eliciting preferences for a single good raises concerns regarding the reliability of the results, as they can be affected by the so-called embedding effect (consumers may associate other goods with the studied good) and the availability of substitutes (the loss of a good could be lower if people have the option to switch to similar goods). In our case, we study preferences for a range of recognisable institutions within three cultural markets in a given city: museums, theatres, and cinemas in Warsaw, the capital city of Poland. For each of these institutions, we use a two-stage budgeting model that combines a discrete choice model with a count-data model, using travel-cost data. As a result, we are able to estimate the benefits associated with the accessibility of a given cultural venue as well as a chosen cultural market as a whole. Using revealed preferences we limit the estimation of benefits to the scope of use values, leaving other components of economic value of the institutions (e.g. passive-use value) not estimated.

Our study contributes to the field of cultural economics and cultural policy research in a few ways. First, it is the first study to assess and compare the use value of entire cultural markets consisting of three types of cultural institutions (theatres, cinemas, and museums), which lessens the impact of the embedding effect present in current studies. To the best of our knowledge, we provide the first non-market valuation of access to cinemas, and we extend the use of revealed preferences to the valuation of performing arts and cultural heritage venues. By examining a broad group of cultural institutions, without favouring sectors traditionally viewed as so-called ‘high culture’, we enable an open-minded evaluation of cultural policies that would transcend the historical dependencies and long-lasting traditions of culture financing.

This paper is organised as follows. The case study is described in the next subsection. Section 2 presents an in-depth literature review of the non-market valuation of cultural institutions, with an emphasis on the application of revealed-preference-based methods and embedding-effect challenges. Section 3 contains a description of the methods and data used in

the research. The results presented in Section 4 include benefits related to the access of cultural institutions and the cost-benefit relationship, which drive certain policy implications that are discussed in Section 5. The last section summarises and offers conclusions.

1.2. Case study

Cultural institutions in Warsaw receive 87% of the local public cultural budget. As a result, the latest diagnosis for Warsaw cultural policy indicates that it is 'carried out predominantly by the strength of municipal cultural institutions, and its shape is the result of historical dependencies rather than conscious decisions of the Cultural Office. [The institutionalisation] of the policy by the city also means insufficient space for including non-public actors' (Hausner et al. 2015, p. 59–60).

The survey of a representative sample of 1,700 respondents participating in this research revealed that the inhabitants of Warsaw are familiar with 28 museums, 43 theatres, and 24 cinemas in the city, all of which have been visited by at least one of the respondents in the year prior to the conduct of the survey. The pilot version of the survey contained an open question where respondents could have indicated an institution not included in the closed list presented. Once indicated as visited, the institution was incorporated into the list. We therefore followed visitors' understanding of what a museum, a theatre, and a cinema is, and which of them define the cultural markets.

The institutions to be valued differ in terms of their public-good characteristics (in terms of non-rivalry and non-excludability rules), their ownership, and their engagement with public support. Table 1 presents some basic information about them.

Table 1: Cultural institutions in Warsaw in 2013

	Total	Public	Average ticket price (EUR)*	Subsidy received (EUR)*
Museums	28	26	3.19	60,672,274
Theatres	43	25	15.63	55,877,750
Cinemas	24	7	5.62	-

* We hereinafter assume that the EUR/PLN exchange rate = 4.197642 (the average exchange rate from daily quotes in 2013 by the National Bank of Poland).

Museums in Poland, as part of the cultural heritage sector and institutions that are highly dependent on public funding, are obliged to allow access to their exhibitions for free at least once a week (the average entrance fee for the other days in 2013 was 3.19 EUR); this constitutes

the non-excludability rule. Even though the newest and most-modern museums remain within their congestion limits, the overcrowding is not serious and the non-rivalry rule generally applies. Out of all the analysed institutions, museums receive the highest public support, though it is divided among many venues as all but two of the museums are public. The average proportion of public support in the budgets of local museums in Poland is 81% (Narodowe Centrum Kultury, 2016). Museums specialise in presenting range of fields of human activity including art, social and political history as well as science.

The non-excludability of a theatre performance or a movie released in a cinema is more questionable. The average ticket price for a performing arts piece is three times as high as a cinema ticket; however, there is a big difference in price between NGO institutions (about 12 EUR on average), public theatres (about 15 EUR on average), and private theatres (nearly 22 EUR on average); furthermore, discounted tickets are available. Even the biggest theatres do not seat 1,000 people in the audience. Therefore, in most venues, an audience member can experience the performance up close, with no competition from others. About half of the recognised theatres (25 venues) that are run by governments received nearly all the public support. There are also big discrepancies in terms of the value of the support: the richest theatre receives 33% of the whole amount, while the next-richest receives 10%. The Warsaw theatre market is very diverse: it includes the biggest musical theatre in the country, internationally famous experimental stages, national theatres, small children's theatres, and many sites that perform dramas that are approachable by the average local community. The offerings of one theatre could be treated as substitutes for the performances in another, at least among institutions with similar repertoires (for description of theatre market in Poland and Warsaw see Fernández-Blanco, Rodríguez-Álvarez, and Wiśniewska 2018). As a recent study shows, people do not pay attention whether the cultural offer is provided by the public or the private sector (Behr, Brennan, and Cloonan 2016).

Cinemas share the same public-good characteristics as theatres, having significant – though not as high – entry fees and limited problems with congestion. Although the market primarily consists of private institutions, there are two cinemas owned by public bodies and leased to private entrepreneurs, and a few others that are part of larger public institutions. As a result, it is impossible to estimate the public subsidies they receive. Private ownership does not prevent a cinema from providing public benefits. At least from the European perspective, movie production and performances deserve similar public support to other cultural products and services. There is no reason to leave subsidies for cinemas unstudied in the same way as

any other public support for culture. Treating movies as art rather than entertainment, movie providers can then pursue non-profit objectives also shared by film producers (McKenzie 2012). Indeed, 60% of the institutions belong to the Arthouse Cinemas Network (many among them private), which means that a public body (the National Film Archive) acknowledged their special artistic and educational value and provides financial support for the distribution of films of high artistic value and educational activities targeted at younger audiences. Polish film industry, similarly to German, is one wherein heavy public funding is employed to maintain a small domestic market (Jansen 2005). The average ticket price in cinemas belonging to the Arthouse Cinemas Network (4.95 EUR) is substantially lower than in multiplexes (7.15 EUR).

2. Previous studies on the economic value of culture

Non-market valuation techniques have been developed since the 1960s to address problems with estimating the benefits gained by consumers of public and mixed goods. As culture has the necessary features of public goods (Throsby and Ginsburgh 2006, p. 7; Throsby 2001) that are difficult to value using market transactions, non-market valuation tools allow us to properly estimate the benefits that people gain from them.

Researchers in economics have two main sources of data for the analysis of consumer preferences: revealed- and stated-preference data. The former refers to situations where choices are observed in real markets and in real market situations. Conversely, stated-preference data refers to situations where choices are hypothetical, although typically made under incentive-compatible conditions (Carson 2012). Despite an ongoing research aiming at dealing with the problem of hypothetical market bias (e.g., Carson and Groves 2007; Czajkowski et al. 2017; Zawojska and Czajkowski 2017) and embedding (Hausman 2012, Kling, Phaneuf, and Zhao 2012), stated-preference methods remain relatively more controversial. For this reason, whenever appropriate data are available, revealed-preference methods are preferred. Even though revealed preferences capture only use values (ignoring the fact that people may support and be willing to pay for things they do not actually use) and can rarely be used to evaluate the effects of future changes, they provide a useful and relatively uncontroversial tool for valuation and policy making (Pearce, Atkinson, and Mourato 2006).[1]

[1] The few attempts to compare the results of stated- and revealed-preference valuation methods for the same cultural goods show that the estimates were of the same order of magnitude. For example, Martin (1994) observes a willingness to pay (WTP) of US$7.95 per year per inhabitant of Quebec to support all the museums in the city and US$8.39 of consumer surplus per visitor to the Musee de la Civilisation in Quebec, based on travel-cost valuation. Armbrecht (2014) compared the results of contingent- and travel-cost valuations for the Nordic

The review of the literature below focuses on revealed-preference-based valuations of cultural goods. The results of studies on the three kinds of cultural institutions (museum, theatre, and cinema) and comparative research are collected.

The non-market valuation of museums received the broadest interest. However, most of studies were conducted using stated-preference-based methods. Bakhshi et al. (2015) offer the newest revisions of valuations of museums. The authors distinguish two approaches towards the use of revealed preferences. The first, involving the estimation of 'how visitor numbers vary with the attributes of an institution or change following a discrete intervention' (Bakhshi et al. 2015, p. 21), focuses on the satisfaction of museums' guests and does not provide measurements of an institution's value. De Rojas and Camarero (2008) pointed to the intensity of use as an important determinant of visitor satisfaction; however, Packer and Bond (2010), in their study of four cultural sites across Australia, did not find significant differences between frequent and infrequent visitors. Further studies conducted on bigger samples examined the role of traditional socio-demographic characteristics of visitors on their experience (Brida, Meleddu, and Zapata-Aguirre 2013; Del Chiappa et al. 2013). Being a foreigner, being older, and having a higher education are a few of the drivers that raise the likelihood of greater visitor satisfaction.

The second valuation approach employs travel cost data. Examining visitors to the Contemporary and Modern Art Museum of Trento and Rovereto, Brida et al. (2012a) observed a negative relationship between the expected number of visits and the distance from the museum. On the contrary, in a study from the same year (Brida, Meleddu, and Pulina 2012b) the authors found that travel costs and other related expenses (e.g., beverage expenses, shopping in the city) had a positive effect on repeated visits. Melstrom (2015) confirms the more intuitive result that travel costs have a negative impact on the number of trips and adds that substitute prices have significant effects (this particular study found that visitors with low costs of travel to substitute venues visited the Cowpens National Battlefield in the USA less frequently). In their review of the economic studies of museums, Frey and Meier (2006) found price-inelastic demand across many studies in the context of various countries.

Only a few articles examining the non-market value of theatre have been published so far, most of which use stated-preference techniques (Baldin and Bille 2018; Bille Hansen 1997; Grisolía and Willis 2011; Willis and Snowball 2009; Wiśniewska and Czajkowski 2017).

Watercolour Museum in Sweden. The aggregated WTP from the contingent-valuation study of 5.96 million EUR was comparable with the total WTP (consumer surplus plus travel costs and entrance fees) of 5.10 million EUR; this difference was interpreted as stemming from the passive-use value.

Revealed-preference data and the travel-cost technique was employed in two articles: Forrest et al. (2000) applied a zonal travel-cost model to the audience data of the Royal Exchange Theatre in Manchester collected on-site over the course of a week. They observed a benefit-to-cost ratio of 1.33, where costs represent a weekly subsidy the theatre receives. One of the limitations highlighted in the study is the omission of the prices of substitutes in the demand equation and, ancillary to that, the substitutability of a visit to the Royal Exchange Theatre with attendance at any other show at a theatre of a similar distance from the respondent's home; this limitation would, however, be more severe in the case of institutions situated in denser cultural centres like London. Willis et al. (2012) employ count-data models to estimate and find the determinants of the value of the regional theatre in Newcastle upon Tyne using seasonal booking data for the 2008/2009 season. Depending on the model employed, the estimated use value just exceeds the subsidy received by the theatre, or falls short by approximately 1/3 of the support. The results are very sensitive to the socio-demographic characteristics of the population, which have a stronger influence on attendance than distance from the theatre.[2] Even a small increase in the proportion of young or older people and a (related) decrease in the proportion of households with dependent children as well as a higher proportion of economically inactive people or those who are in professional or managerial occupations would significantly increase ticket sales and CS and decrease the subsidy required. The result is also driven by the fact that the theatre does not have a close substitute in the nearby towns.

To the best of our knowledge, the only non-market valuation study of movies and cinemas is Begin et al. (2000), who focused on the willingness to pay of the French and the French-Canadians to support the production side of the national film industry. The preferences stated by a limited number of moviegoers reveal their satisfaction with the current level of contributions to the film industry in Quebec and a willingness to pay additional tax to increase the support in France. The reason for this limited amount of research in the field undoubtedly lies in the more industrial organisation of this branch of culture. The few non-market valuations of film institutions are followed by a few valuations of television broadcasting, mostly using stated preferences (Bohm 1974; Papandrea 1999; Schwer and Daneshvary 1995).

Most of the studies are limited to the valuation of a single site. Members of a society can have difficulties identifying the value of a particular thing that is embedded with similar things

[2] The ambiguous impact of costs on demand is a well-known phenomenon in the economics of performing arts. For example, Throsby (1990) finds price coefficients insignificant to demand for two out of three investigated theatres, with an unexpected (positive) sign in the remaining one.

(e.g., a museum among other museums) (Kahneman and Knetsch 1992). The same phenomenon occurs with a wider selection of goods that share similar features (e.g., things belonging to the cultural sector). This problem of 'embedding' was indicated indirectly in cited studies where the availability of substitution was pointed out as an important factor for the estimates. The effect applies mostly to stated-preference-based methods (Carson and Mitchell 1995, Carson, Flores, and Hanemann 1998); however, revealed-preference-based techniques such as the travel-cost method has been also criticised for disregarding the possibility of substitutes in single-site valuation studies (Fletcher, Adamowicz, and Graham-Tomasi 1990).

Boter, Rouwendal and Wedel (2005) refer to the embedding effect in their article representing the first application of a site-choice model in cultural economics: '[if] estimates of social value are to represent realistic values, one needs to introduce choice options in the measurement process, especially since choosing among complementary or substitute alternatives is an important aspect of consumers' valuation of cultural goods.' There, the authors employ a site-choice model to compare the relative value of multiple, competing cultural organisations: 108 Dutch museums. Using revealed-preference data (the visiting behaviour of holders of the Dutch National Museum Card: the cost of travel to the museum visited), they found the value of each museum in relation to one other arbitrarily chosen museum. The results could help to justify the distribution of limited resources among the institutions concerned. Few other applications of revealed-preference-based research on cultural institutions do not include more than a few venues (four cultural heritage sites in Bedate, Herrero, and Sanz 2004; two museums in Bakhshi et al. 2015). There is also a lack of studies which employ these non-market valuation techniques to evaluate more than one kind of cultural institution; the only example is comparison of a concert hall and a museum in Armbrecht (2014). Therefore, this study, with its aim to evaluate the entire cultural markets in a given city, goes far beyond the current state of research.

3. Data and methods

The data used in this study were gathered in a survey conducted by a professional public opinion survey firm in February and March 2014. The representative sample of 1,700 inhabitants of Warsaw over 18 years of age was quota-controlled with respect to gender, age, and education. The sample includes both individuals who visited and who did not visit cultural institutions in the year before the survey was conducted. Respondents provided information regarding the number of trips they took in the past 12 months to each type of cultural institution considered (i.e. museums, theatres, and cinemas) and additional details regarding the last visit, such as the name of the institution visited and the ticket price.[3] As we have detailed data only about the last visit individuals made, we assume that subsequent choices made by individuals are independent of each other; for example, the fact that an individual chose to visit a given theatre before does not make him more or less likely to visit the same theatre again (conditional on his preferences). The order of sets of questions regarding the individual's last visit to one of the three types of institutions was randomised across respondents.

Compared to data from official statistics, the results of the survey show that the number of visits was slightly higher in the case of theatre and lower for museums and cinemas. These differences may be explained on the basis of unequal attention paid to each type of cultural institution in the survey. Specifically, the first section of the questionnaire introduced Warsaw's theatre market and required respondents to reflect on their theatrical preferences. Consequently, we encounter one of the common problems of surveying, the so-called social desirability bias (Couch and Keniston 1961; DeMaio 1984; Sellitz, Wrightsman, and Cook 1963) in survey methodology (Groves et al. 2009; Schuman and Presser 1996). Social desirability refers to the tendency to present a favourable picture of oneself in one's own perspective, the perspective of the interviewer or of society as a whole. Knowing that theatre is a major point of interest of the survey, respondents recognised that going to theatre was a behavioural trait favoured by the authors of the survey, and were incentivised to shape their responses accordingly. Moreover, while theatre remains a part of the traditionally defined high arts (which is not necessarily the case for cinemas and at least some types of museums), belonging to the class of theatregoers appears to be desirable and deserving of social approval (Schwarz and Sudman 1992).

[3] Using a general population survey, rather than on-site sampling allows us to avoid unrepresentative samples and self-selection bias.

We weighted the results according to official statistics to overcome the problem of social desirability.[4] We also take into account the proportion of guests from outside the city reported by museums (e.g., see: Muzeum Narodowe w Warszawie 2016) and scaled the result for museums. In the end, the weights we used were 1.85 for museums, 0.72 for theatres, and 1.26 for cinemas.

The mean (official-statistics-corrected) annual number of trips was 3.61 for museums, 2.14 for theatres, and 5.37 for cinemas. We observed large differences in the frequency of choosing different venues. For museums, the number of visits ranged from 1 to 250; for theatres, from 1 to over 90; and for cinemas, from 1 to 185. The distribution of trips among specific institutions was the most uniform among theatres, while in the case of museums we observe the 'superstar' effect: several museums attracted a very large number of visits. In the case of cinemas, as expected, large multiplexes with many movie rooms attracted more visitors.

The econometric framework we follow was proposed by Hausman, Leonard and McFadden (1995). In the two-stage budgeting model, an individual first decides how many visits to make to a given type of cultural institution (a museum, theatre, or cinema); he then decides how to allocate these trips across available institutions.[5] The first step is modelled using a count-data model, and the second step using a discrete-choice model. Linking these two components has been a best-practice approach for the estimation of recreational values since publication of the seminal paper by Bockstael, Hanemann, and Kling (1987): see Parsons, Jakus, and Tomasi (1999) for a discussion and a comparison with other approaches.

Formally, the model can be described as follows. At the second stage, an individual i chooses between visiting one of J available cultural institutions of a given type in such a way that maximises his utility function

$$U_{ij} = \alpha_j - \beta C_{ij} + \varepsilon_{ij}, \tag{1}$$

where α_j is an alternative specific constant for alternative j, $j \in \{1,\ldots,J\}$ (α_1 was constrained to 0, and therefore used as a reference level).[6] The inclusion of all possible alternative specific

[4] The Central Statistical Office of Poland provides information about the number of visits to museums, theatres, and cinemas in relation to the population at the regional level. Additionally, the number of visits to museums is given at the local level. 91% of visitors to museums in the Masovian district consists of museumgoers in Warsaw. We used this proportion to count the number of theatregoers and cinemagoers in Warsaw.

[5] We estimate separate models for each type of cultural institution.

[6] At this stage, we use observations only from individuals who have visited at least one institution in the last year. We assume that if an individual decided not to make any trips in the first stage, he has nothing to allocate in the second stage.

constants makes it impossible to estimate the effects of some institution-specific characteristics, but this approach allows us to control for all possible differences between institutions, including the unobserved ones (Murdock 2006). C_{ij} represents the cost incurred by the individual, which is a sum of two components: ticket price and travel cost. In the case of an institution that an individual has actually visited, we used ticket prices reported in the survey. For other institutions, the ticket price was taken from the description on the website of each institution.[7] In our analysis, we assumed that travel cost consists of vehicle operating costs and the opportunity cost of the respondent's leisure time. The distance to travel was calculated with the use of Google Maps (the shortest road route between two places: the theatre and the location of the respondent's home, identified by the zip code provided in response to the survey), which was then multiplied by the average official reimbursement rate for the cost of driving in Poland (0.4637 PLN/km). The travel time was estimated based on the distance between a respondent and a theatre and multiplied by one-third of the average hourly wage (Gürlük and Rehber 2008; Huhtala and Lankia 2012). Finally, ε_{ij} is a stochastic term following extreme-value distribution, which leads to the well-known multinomial logit formula of the likelihood function:

$$L_i = \sum_{j=1}^{J} y_{ij} \frac{\exp\left(\alpha_j - \beta C_{ij}\right)}{\sum \exp\left(\alpha_l - \beta C_{il}\right)}, \tag{2}$$

where y_{ij} is equal to 1 if an individual i has chosen alternative j and 0 otherwise.

Following Hausman et al. (1995), we define the inclusive value of an individual i as

$$IV_i = \mathbf{E}\left(U_i\right) = \log\left(\sum_{j=1}^{J} \exp\left(\alpha_j - \beta C_{ij}\right)\right), \tag{3}$$

which corresponds to the expected utility from the choice situation. This framework can then be used to calculate the per-visit CS in the following way:

$$S_i = \frac{IV_i}{\beta}. \tag{4}$$

[7] In the case of museums, we used the price of a normal ticket for paid entrance as the average price. We calculated average ticket prices for theatres using information about the prices for performances played on the biggest stage with weights equal to the fraction of seats to be sold at each price. For cinemas, it is the price of a normal ticket for the evening screening for adults.

Next, in order to obtain institution-specific welfare estimates, we follow the approach by Termansen, McClean, and Jensen (2013). The per-visit CS when access to the *k*-th cultural institution is lost can be calculated as:

$$S_{ik}^{*} = \frac{1}{\beta}\log\left(\sum_{\substack{j=0 \\ j\neq k}}^{J}\exp\left(\alpha_j - \beta C_{ij}\right)\right). \tag{5}$$

This is equivalent to assuming that the cost for visiting the *k*-th cultural institution becomes infinitely large. The loss of welfare due to the loss of access to the *k*-th institution is then given as $S_i - S_{ik}^{*}$. Analogous calculations can be made for any subset of cultural institutions (for example, all public theatres).

In the first stage of the budgeting model, an individual decides how many visits to make to a given type of cultural institution. This decision depends on the vector of individual characteristics $\mathbf{X}_i$ and the price index. Following Hausman et al. (1995), we employ per-trip CS, S_i (see equation (4)) as a price index, and assume that the mean number of trips is given by:

$$\lambda_i = \exp\left(\mathbf{X}_i\boldsymbol{\tau} + \phi S_i\right). \tag{6}$$

The number of trips, T_i, is then modelled using the negative binomial P model (NBP; Greene 2008), in which the probability of observing t trips is given by:

$$P\left(T_i = t\right) = \frac{\Gamma\left(\theta\lambda_i^{Q} + t\right)}{\Gamma\left(\theta\lambda_i^{Q}\right)t!}u_i^{\theta\lambda_i^{Q}}\left(1-u_i\right)^{t}, \tag{7}$$

where $u_i = \dfrac{\theta\lambda_i^{Q}}{\theta\lambda_i^{Q} + \lambda_i}$. θ and $P = 2 - Q$ are the parameters to be estimated, and where for $P = 2$, the model collapses to the standard negative binomial regression.

Estimating the total CS requires integrating the demand function over the price index:

$$CS_i = \int_{-\infty}^{S_i}\exp\left(\mathbf{X}_i\boldsymbol{\tau} + \phi s_i\right)ds_i = \frac{\exp\left(\mathbf{X}_i\boldsymbol{\tau}\right)\exp\left(\phi S_i\right)}{\phi} = \frac{\lambda_i}{\phi}. \tag{8}$$

The resulting total change in the CS related to the loss of access to the *k*-th cultural institution can be calculated as:

$$\Delta_k CS_i = \frac{1}{\phi}\exp\left(\mathbf{X}_i\boldsymbol{\tau}\right)\left[\exp\left(\phi S_i\right) - \exp\left(\phi S_{ik}^{*}\right)\right].^{8} \quad (9)$$

As we mentioned at the beginning of this section, we use weights to correct for the discrepancy between the number of trips by individuals reported in the survey conducted in the current research and the official statistics. As both formulas in equations (8) and (9) depend on the predicted number of trips (λ_i) we adjusted these numbers by multiplying them by the weights for each type of cultural institution.

Welfare measures presented in equations (8) and (9) are individual-specific; we therefore present only averaged values over all individuals. In order to obtain the standard errors of our estimates, we used the delta method.

4. Results

4.1. Determinants of demand

Table 2 presents the results of the NBP models that were used to estimate the determinants of the number of trips to each type of cultural institution. Instead of price, the model uses the measure of CS per trip obtained from the site-choice model, as described in Section 3. The NBP model performs better than the standard Negative Binomial (NB) model for theatres and museums (see the parameter P). In the case of museums, the NBP model does not offer significant improvements over a simple Poisson regression, indicating the sufficient flexibility of this distribution. The estimated coefficients for the per-trip CS are significant and positive, ranging from 0.0112 for cinemas to 0.0322 for museums. As mentioned in Section 2, the ticket price was identified in previous studies as an ambiguous, sometimes negligible determinant of demand for theatres and museums. Instead, our approach uses CS, which accounts for the opportunity cost of time and travel costs, leading to results that are in line with the economic theory.

[8] The software codes for the discrete choice models presented here have been developed in Matlab and are available at https://github.com/czaj/DCE under the Creative Commons BY 4.0 licence. The code and data for estimating the models presented in this paper (including count-data models), as well as supplementary materials, are available from http://czaj.org/research/supplementary-materials.

Table 2: Results of the count-data model for number of trips to cultural institutions

	Museum		Theatre		Cinema	
Constant	0.5080	***	1.7467	***	0.6823	***
CS per trip	0.0322	***	0.0246	***	0.0112	***
Household income (in 10 000 PLN)	0.2576	***	0.7315	***	0.6726	***
Middle education (base level: basic education)	0.1263	**	0.1860	***	0.1964	***
Higher education (base level: basic education)	0.3050	***	0.4073	***	0.4063	***
Years living in Warsaw (in 100 years)	−1.2493	***	−1.4502	***	−0.7702	*
Years living in Warsaw squared (in 100 years)	1.9501	***	2.0037	***	1.4709	**
Have job	0.1021	*	0.2250	***	0.1324	**
Have 1 child (base level: no children)	0.2544	***	0.0353		0.1629	***
Have 2 children (base level: no children)	0.0026		−0.1404	*	0.1006	
Have 3 children (base level: no children)	−0.2943		−0.2382		−0.0488	
2 people in a household (base level: 1)	−0.0404		−0.1342	*		
3 people in a household (base level: 1)	−0.1552	*	−0.2070	***		
4 people in a household (base level: 1)	0.0539		−0.0717			
More than 4 people in a household (base level: 1)	0.1015		−0.1140			
Household income squared (in 10 000 PLN)			−0.1805	***	−0.1443	**
Household income not reported	−0.1096	**				
Age (in 100 years)			−1.1752	***		
Born in Warsaw			0.1201	*		
Overdispersion parameters						
θ	1.5725	***	1.3582	***	1.1551	***
P	−0.3095		0.6821	***	0.4957	*

Lacking information about the characteristics of the institution to be visited, we employed socio-demographic characteristics of respondents as control variables. The results reveal very similar determinants of cultural participation regardless of the type of cultural institution to be

examined. They are consistent with studies to date in the field of economics of performing arts and the economics of museums (and their ambiguities); for the review see: Frey and Meier (2006), Seaman (2006), and Towse (2010). There is little research regarding the socio-demographic determinants of demand in the economics of movies (Cuadrado and Frasquet 1999), where demand is usually explained by the characteristics of the movie, reviews, and 'word of mouth' (McKenzie 2012; De Vany 2006). Therefore, our study introduces new knowledge into this underdeveloped field.

We find that income and education are important determinants of cultural participation. The coefficients for income in our models are positive and significant. However, the higher the income, the lower the increase in the number of trips, as the coefficient for household income squared is negative. The higher the income, the higher the opportunity cost of time, which is another important determinant of leisure activities (including visiting cultural venues). We expect that respondents who did not report their income may earn less than others; therefore, the negative coefficient for unreported household income included in the model for museums informs the lower number of visits for people with implicitly lower income. The positive impact of having a job goes hand-in-hand with these observations: having a job in general raises the chance for higher earnings. Employment consistently influences the number of visits to any kind of cultural venue in a positive and statistically significant way. The higher the level of education, the higher the number of visits to cultural venues. The effect is stronger for higher education than for middle education in comparison with the base level of education (primary education). Higher-educated people have the human and cultural capital to benefit more fully from cultural participation.

Young people participate in culture more, both as part of school trips and as a result of having more free time (which is necessary to participate in time-consuming activities), as indicated by the negative coefficient for age in our model. All the respondents in our sample are residents of Warsaw; however, as the city has been rapidly growing, there are large differences in the lengths of time the residents have been living there. On the one hand, people who were born in the city could have a stronger tradition of attending local venues. On the other hand, someone who moves into the city explores it in their initial years and potentially loses interest later, when he or she becomes familiar with the local entertainment. The results of our model confirms this reasoning. The coefficient for being born in Warsaw is positive and significant in the model for theatres. In general, the number of visits decreases with the number of years spent in the city, but this tendency changes after quite a long period of living in

Warsaw: the number of visits to museums, theatres, and cinemas starts to grow when an inhabitant exceeds 32, 26, and 36 years of living in Warsaw, respectively. Note that this result is obtained while controlling for the age of the respondent.

The number of children (connected with the size of the household) is also found to determine participation in culture. Although the direction of the impact depends on the number of children, in general, having children encourages people to visit cultural venues, especially museums that deliver educational services, and cinemas, which are a place of entertainment for people of any age. However, having children limits free time and raises household expenditure, which we can observe from the negative and significant coefficient for having two children (in comparison with childlessness) in the model for theatres, the cultural venue that is less-accessible for children and which still remains more highbrowed.

4.2. Economic benefit estimates

The estimates of benefits associated with various cultural institutions are displayed in Table 3. The numbers correspond to average changes in CS (per person per year) associated with access to the whole cultural market (all museums, theatres, or cinemas) and a single site of each category. This relationship is not linear. With the loss of access to a single site, there are typically many possible substitutes. The lack of access to the whole market is more ‘unpleasant’ than the net effect of lost access to particular sites taken individually.

All results are given for institutions that are at least indirectly supported by the public sector. As the access cost includes ticket prices, the estimates correspond to the current level of public engagement in supporting culture. In addition, because we incorporated travel costs into the implicit price of access to cultural institutions, the estimated number of visits and CS can change if new transportation alternatives are developed. Nonetheless, the estimates provide a snapshot of benefits associated with each type of cultural institution, given current market conditions.

Table 3: Average economic use benefits associated with cultural institutions in Warsaw (in EUR per person per year)

	Museums		Theatres		Cinemas	
	All	Per institution	All	Per institution	All	Per institution
Total	27.11	0.12	46.40	0.15	54.85	0.31
Cultural institutions by ownership						
Public	21.02	0.34	5.40	0.16	0.35	0.05
Private	-	-	1.11	0.15	14.44	0.44
NGO	0.08	0.08	1.44	0.11	0.04	0.04

Cinemas – the smallest group of institutions in our data – create the highest use benefits, with an annual CS per individual of approximately 55 EUR per year. This means that an average citizen of Warsaw would be willing to pay 55 EUR per year for access to cinemas in Warsaw (on top of travel and ticket costs). To the best of our knowledge, this is the first such estimate in the economics of cinemas. This value exceeds the estimated benefits associated with access to theatres (46.4 EUR) and museums (27.11 EUR). On a per-institution basis, closing a single cinema would make an average citizen 0.31 EUR per year worse off, with equivalent values for an average theatre or museum approximately 50% lower, estimated at 0.15 EUR and 0.12 EUR per year, respectively.

In addition, as different cultural markets are organised in different ways, we estimated the benefits according to ownership structure. These results show that publicly owned museums (comprising more than 90% of the market) and theatres (comprising a little more than half of the market) are valued higher than ones privately owned or NGO-owned. In the case of cinemas, this relationship is reversed. In fact, while 17 out of 24 cinemas in Warsaw are privately owned, they generate substantially larger benefits for consumers, both on a per–site basis and overall. This is likely the result of private cinemas being much larger and typically incorporating multiple screening rooms, although it might also reflect a higher quality of service.

Finally, Appendix A presents a ranking of the cultural institutions according to the estimated benefits they generate. As long as the probability of choosing a particular institution influences CS related to access to a site, the rankings of institutions attended most frequently is similar to the total benefits ranking. For the types of institutions with diverse ownership, we

can investigate which type of ownership dominates the top and bottom of the ranking. In the case of theatres, we observe a slight dominance of public institutions in the top ten and a slight dominance of NGOs in the bottom ten positions. However, it is nearly impossible to discern a stable pattern between placing at the top or bottom of the ranking and ownership. It is much clearer for cinemas, where the top ten institutions consist of private institutions and the bottom ten institutions consist of mostly public ones.

5. Discussion of the results and policy implications

The comparison of the annual aggregated benefits for all inhabitants of Warsaw with subsidies awarded to cultural institutions provides a new insight into the cost-benefit relationship and some implications for the formulation of policies. Aggregated CS for the cultural markets of museums, theatres, and cinemas corresponds to the estimated benefits per person multiplied by the number of adult (individuals over 18 years old) inhabitants of Warsaw (i.e. 1,448,444). The result can be interpreted as the total economic benefit gained by society from the use of the cultural markets. The aggregated data are presented in Table 4.

We find that cinemas provide the largest aggregate benefits (approximately 80 million EUR per year). The theatre market is valued slightly lower (over 67 million EUR). The loss of access to the museum market would attract a disutility of less than half the value of the loss of access to the cinema market (nearly 40 million EUR).

Table 4: Aggregated total CS and total subsidy for cultural institutions (EUR per year; 2013)

	Museums	Theatres	Cinemas
Aggregated CS	39,264,532	67,214,502	79,440,026
Aggregated subsidy	60,672,274	55,877,750	-

The value of aggregated subsidies comes from local, regional, and national budgetary reports for 2013 and is a sum of direct subsidies devoted to public institutions included in the research. It therefore does not include indirect support such as those received by cinemas through the distribution channels by Arthouse Cinemas Network. Public support for cultural institutions depends highly on the structure of ownership within the markets; public institutions, and markets dominated by them, are publically supported. Similarly, numerous public museums (26) and theatres (25) receive substantial subsidies (over 60 million EUR and over 55 million EUR respectively).

The benefit-subsidy relationship within cultural markets is different for museums and theatres. For theatres the aggregated CS is higher than the subsidies received. These results may indicate that if the use value was the only evaluation criterion, in the case of the theatres it is high enough to justify the subsidy of approximately 55 million EUR per year. On the other hand, the use value related to the access to the market of museums is lower than the subsidy of 60 million EUR per year, potentially indicating that there may be other reasons for subsidising them (such as the non-use values associated with existence, bequest, or stewardship). Interestingly, cinemas, which generate the largest benefits, receive nearly no support.

These results raise the question about the division of subsidies between cultural sectors. The distribution of support between the two subsidised sectors is relatively equal, in contrast to unequal use values generated by these cultural institutions. The inequality appears to be even more severe when we compare markets in the cultural sector with donations (museums and theatres) to those without them (cinema).

The problem of division of public support can also be taken to a lower level and considered for individual institutions. Appendix B presents rankings of museums and theatres according to the benefits and subsidies they receive. Only public venues are included.[9] The overall result is that the benefits received are not aligned with the use benefits created. Only the two most popular museums generate use benefits that exceed the subsidies they receive. These are the newest, most modern venues in the city: superstars in the sector. Additionally, for Zachęta – one of the best-known art galleries in Poland – the benefits cover approximately 80% of the subsidies. Among theatres, only the closure of Komedia, which is purely an entertainment theatre, would cause loss in terms of greater use benefits compared to received benefits. Another entertainment theatre (Kwadrat) and one of the musical theatres (Jana Kiepury) delivers benefits high enough to cover about 75% of subsidies. In the case of a few venues, aggregated CS is equal to about 25% to 33% of the subsidy. This includes theatres with different characteristics: Ateneum, Powszechny, and Na Woli, which deliver mostly classic dramas challenging enough not to be classified as entertainment, but accessible to a broad segment of the public; Lalka, one of the theatres for children; and Ochoty, a small venue with mostly educational aims. Overall, for a vast majority of the institutions, the subsidies they receive are much higher than the use value associated with their existence.

[9] Four museums and one theatre are excluded from Table 5, as it was not possible to gather information about the subsidies they receive, partly due to the fact that they are parts of bigger institutions and official reports do not deliver detailed financial information.

All investigated institutions – publicly, privately, and NGO-owned – generate value from providing access to cultural goods. However, only some of them are subsidised. The issue of cultural policy lies in the division of resources, which is much more unequal than the division of benefits. The division of subsidies in Warsaw described in this paper shows that decision-makers followed rules other than simple use-value estimates based on peoples' revealed preferences. In particular, it omits entire private and NGO sectors that participate in the markets as equal (and sometimes, for visitors, even more attractive) cultural institutions.

There is one important limitation of the comparison presented here that needs to be reiterated. The estimated economic benefits associated with use value do not constitute the total economic value of a good. There may be other reasons not related to use as to why people may be willing to pay for a good, for example, reasons associated with existence, availability to others, or bequest value. These considerations are not reflected in consumers' market behaviour, and so are not possible to capture using the visitation-cost-based approach, and not included in the estimated use-related benefits presented here. Although the fact that the distribution of subsidies is not related to the generated benefits, or even visitation rates, some institutions and specific sites may be considered by policy makers as generating higher non-use benefits, justifying increased public support. Notwithstanding this limitation, we argue that the cost-benefit analysis – in particular, the use of non-market economic valuation – provides a sound basis for the division and evaluation of public support.

6. Summary and conclusions

We considered the accessibility of cultural institutions as a means for estimating their economic use value, and contrasted these benefits with public support received by cultural institutions. The two-stage budgeting model for recreational sites was employed to estimate the CS associated with access to museums, theatres, and cinemas in Warsaw. These three cultural markets differ in terms of public good characteristics, ownership structure, and public support received, both between markets and between institutions in each market. By highlighting these differences and presenting the economic benefits generated by different types of cultural institutions, we point to challenges that cultural policy needs to address. In particular, we argue that the cultural policy should view its object as all forms of culture, regardless of whether the production is organised in an industrial or artisan way.

Importantly, our study extends revealed-preference-based non-market valuation research of cultural institutions to date, which has been dominated by single-site studies, through the assessment and comparison of the value of the entire cultural market. In doing so, it helps to

overcome the embedding effect and accounts for the availability of substitutes to individual cultural venues. In addition, to the best of our knowledge, it is the first study to estimate the non-market value of cinemas and one of the rare attempts to investigate the impact of socio-demographic characteristics on cinema's attendance.

Overall, we estimate the economic use-related benefits associated with cultural institutions in Warsaw. The aggregated annual benefit associated with museums, theatres, and cinemas was estimated at approximately 40, 67, and 80 million EUR, respectively. In addition, we investigate the differences between publicly, privately, and NGO-owned institutions, individual sites, and subsidies some of these sites receive from public funds.

The results of these comparisons raise the question about the division of subsidies between cultural sectors and single institutions. In the case of cultural markets, we observe an equality of support between theatres and museums associated with an unequal delivery of benefits by these sectors. With respect to single institutions, we show that the subsidies are distributed much more unequally than benefits, with the significant exclusion of non-public sites.

While in the methods used in this paper the probability of choosing a site is highly connected with the welfare measures estimated, the support for institutions that attract the biggest audience is more justifiable, according to the results of the research.

Overall, while our results show that the distribution of subsidies does not match the distribution of economic benefits produced by cultural institutions, we note that estimates of use value do not need to be the sole determinant of public support. While there are other components of total economic value such as existence, bequest, stewardship, or option value, it is likely that the subsidy decisions of current cultural policy not taking them into account. Instead, they seem to be driven by historical inertia, largely ignoring efficiency concerns. The current distribution of public support for cultural institutions indicates a strong inequality in the attitude towards public and non-public institutions, favouring public ones. Our analysis can serve as a basis for overcoming the 'adhocism' and historical dependencies of culture financing. In the case of Warsaw, this process has already started with the latest evaluation of local cultural policies, where the need for the deinstitutionalisation of the sector and openness for non-public institutions and informal initiatives were recognised.

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Appendix

Table A1: Rankings of the cultural institutions in Warsaw (museums, theatres, and cinemas) according to their estimated economic use benefits generated

Museums	Ownership	Visits	CS	CS ranking	Theatres	Ownership	Visits	CS	CS ranking	Cinemas	Ownership	Visits	CS	CS ranking
Centrum Nauki Kopernik	pub	249	2.430	1	Teatr Wielki	Pub	69	0.738	1	Cinema City Arkadia	priv	185	0.977	1
Powstania Warszawskiego	pub	207	1.828	2	OCH-Teatr	Priv	92	0.452	2	Multikino Wola Park	priv	145	0.876	2
Narodowe w Warszawie	pub	116	0.987	3	Jana Kiepury	Pub	88	0.373	3	Multikino Ursynów	priv	101	0.792	3
Wojska Polskiego	pub	88	0.741	4	IMKA	NGO	67	0.353	4	Cinema City Promenada	priv	128	0.773	4
Zamek Królewski	pub	37	0.410	5	Komuna	NGO	79	0.326	5	Cinema City Mokotów	priv	110	0.621	5
Techniki	pub	45	0.377	6	Komedia	Pub	61	0.299	6	Multikino Targówek	priv	128	0.590	6
Łazienki Królewskie	pub	39	0.325	7	6. Piętro	Priv	41	0.258	7	Multikino Złote Tarasy	priv	82	0.453	7
Pałac w Wilanowie	pub	33	0.267	8	Ateneum	Pub	58	0.247	8	Cinema City Bemowo	priv	86	0.434	8
Zachęta	pub	4	0.218	9	Powszechny	Pub	59	0.238	9	Cinema City Sadyba	priv	82	0.403	9
Kolejnictwa	pub	25	0.214	10	Teatr Narodowy	Pub	58	0.231	10	Femina	priv	86	0.352	10

MSN	pub	24	0.205	11	Rampa	Pub	54	0.210	11	Atlantic	priv	58	0.242	11
Fryderyka Chopina	pub	24	0.204	12	Na Woli	Pub	49	0.206	12	Kinoteka	priv	56	0.240	12
Historii Żydów Polskich	pub	22	0.181	13	Dramatyczny	Pub	49	0.203	13	Praha	priv	50	0.208	13
Dom Spotkań z Historią	pub	16	0.137	14	Studio Teatralne Koło	Pub	48	0.194	14	Wisła	pub	37	0.145	14
Państwowe Muzeum Etnograficzne	pub	15	0.127	15	Polonia	NGO	33	0.157	15	Luna	pub	31	0.125	15
Państwowe Muzeum Archeologiczne	pub	10	0.085	16	Lalka	Pub	35	0.139	16	Muranów	priv	20	0.077	16
Historyczne m.st. Warszawy	pub	9	0.076	17	Kamienica	Priv	31	0.132	17	Cinema City Janki	priv	15	0.063	17
ŻIH	NGO	9	0.076	18	Druga Strefa	NGO	29	0.116	18	Kultura	NGO	11	0.043	18
Teatralne	pub	8	0.068	19	Capitol	priv	29	0.114	19	Iluzjon	pub	8	0.032	19
Łowiectwa i Jeździectwa	pub	8	0.068	20	Muzyczny Roma	pub	26	0.107	20	Dom Kultury "Świt"	pub	5	0.018	20
Azji i Pacyfiku	pub	7	0.059	21	Żydowski	pub	25	0.103	21	Ursus	pub	4	0.017	21
Ziemi PAN	pub	7	0.059	22	Kwadrat	pub	25	0.100	22	Lab	pub	1	0.004	22
CSW	pub	7	0.059	23	Syrena	pub	24	0.099	23	KC	priv	1	0.004	23
Jana Pawła II i Prymasa Wyszyńskiego	pub	7	0.058	24	Współczesny	pub	23	0.091	24	Alchemia	pub	1	0.004	24

Sportu i Turystyki	pub	4	0.034	25
Historii Polski	pub	4	0.034	26
Literatury	pub	1	0.009	27
Marii Sklodowskiej Curie	pub	1	0.009	28

Palladium	priv	18	0.076	25
Ochoty	pub	19	0.075	26
Sabat	priv	8	0.075	27
Polski	pub	18	0.070	28
Nowy	pub	16	0.064	29
Studio	pub	13	0.052	30
Rozmaitości	pub	9	0.049	31
Guliwer	pub	12	0.047	32
Studio Buffo	priv	10	0.040	33
Scena Prezentacje	pub	8	0.032	34
Baj	pub	8	0.031	35
Unia Teatr Niemożliwy	NGO	6	0.024	36
Opera Kameralna	pub	6	0.022	37
Praga	pub	5	0.019	38
Montownia	NGO	5	0.019	39

Projekt Teatr Warszawa	priv	4	0.016	40
Scena Współczesna	NGO	3	0.012	41
Młyn	NGO	2	0.008	42
Konsekwentny	NGO	1	0.004	43

Notes: ‘CS’ refers to ‘consumer surplus’, the estimated economic use benefits per person per year; ‘visits’ refers to the number of visits in the past 12 months observed for the sample of 1,700 adult inhabitants in Warsaw; ‘pub’ means publicly owned; ‘priv’ means privately owned.

Table A2: Rankings of the cultural institutions in Warsaw (museums, theatres) according to their estimated economic use benefits generated and subsidies received

Museums	CS ranking	Aggregated CS	Subsidy ranking	Subsidy	Theatres	CS ranking	Aggregated CS	Subsidy ranking	Subsidy
Centrum Nauki Kopernik	1	3,519,971	11	1,963,584	Teatr Wielki	1	1,068,517	1	20,465,394
Powstania Warszawskiego	2	2,648,070	10	2,146,205	Jana Kiepury	2	540,608	17	713,749
Narodowe w Warszawie	3	1,429,141	1	8,866,443	Komedia	3	432,948	24	119,115
Zamek Królewski	4	594,092	2	5,998,562	Ateneum	4	357,242	9	1,477,020
Łazienki Królewskie	5	470,422	3	5,724,104	Powszechny	5	344,716	6	1,786,717
Pałac w Wilanowie	6	386,641	4	5,315,243	Teatr Narodowy	6	334,744	2	6,101,588
Zachęta	7	315,179	21	377,117	Rampa	7	303,896	16	976,739
Kolejnictwa	8	309,831	17	765,082	Na Woli	8	297,857	13	1,072,030
MSN	9	296,477	5	4,914,030	Dramatyczny	9	294,751	5	3,263,737
Fryderyka Chopina	10	295,200	8	3,788,578	Lalka	10	201,516	18	607,484
Historii Żydów Polskich	11	262,833	14	1,292,869	Muzyczny Roma	11	155,657	12	1,429,374
Dom Spotkań z Historią	12	198,514	16	945,769	Żydowski	12	149,722	8	1,665,697
Etnograficzne	13	183,538	15	1,174,596	Kwadrat	13	145,202	23	196,539

Archeologiczne	14	122,531	13	1,639,662	Syrena	14	142,752	15	983,206
Historyczne m.st. Warszawy	15	110,696	6	4,740,042	Współczesny	15	131,227	10	1,548,488
Łowiectwa i Jeździectwa	16	97,825	18	622,665	Ochoty	16	108,729	21	317,797
Azji i Pacyfiku	17	85,886	19	516,414	Polski	17	101,414	4	3,145,135
CSW	18	85,610	9	3,476,610	Nowy	18	92,545	14	1,095,853
Sportu i Turystyki	19	49,516	20	512,776	Studio	19	75,258	11	1,918,815
Historii Polski	20	49,102	7	4,195,548	Rozmaitości	20	70,807	7	1,667,603
Literatury	21	12,319	12	1,696,376	Guliwer	21	68,150	19	595,572
					Scena Prezentacje	22	46,411	22	285,875
					Baj	23	45,307	20	562,220
					Opera Kameralna	24	31,608	3	3,848,649

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