

The impact of management control systems and managers' educational background on the effectiveness of public cultural institutions in a post-transition economy

Paweł Wnuczak & Dmytro Osiichuk

To cite this article: Paweł Wnuczak & Dmytro Osiichuk (2020) The impact of management control systems and managers' educational background on the effectiveness of public cultural institutions in a post-transition economy, *Economic Research-Ekonomiska Istraživanja*, 33:1, 3166-3184, DOI: [10.1080/1331677X.2019.1691035](https://doi.org/10.1080/1331677X.2019.1691035)

To link to this article: <https://doi.org/10.1080/1331677X.2019.1691035>



© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 20 Nov 2019.



[Submit your article to this journal](#)



Article views: 528



[View related articles](#)



[View Crossmark data](#)



Citing articles: 1 [View citing articles](#)

The impact of management control systems and managers' educational background on the effectiveness of public cultural institutions in a post-transition economy

Paweł Wnuczak  and Dmytro Osiichuk 

Department of Finance, Kozminski University, Warsaw, Poland

ABSTRACT

This study examines the impact of management control systems on the effectiveness of public cultural institutions in the context of an emerging economy. Despite studies confirming the possibility of adapting various management control aids to meet the needs of cultural institutions, empirical evidence on the efficiency of their implementation is missing. Using a sample of 57 cultural institutions from Poland, we establish that the implementation of an advanced management control system may enhance the effectiveness of cultural institutions and the likelihood of fulfilment of their mission. In case of public museums, an efficient management control system appears to facilitate the receipt of public funding. In contrast, public theatres, which seemingly enjoy greater financial flexibility, are seen to primarily use management control aids to foster the growth of non-subsidy financing. The implementation of advanced management control systems in public cultural institutions is found to positively contribute to the fulfilment of their mission, even as it improves the self-assessment of their financial standing. The effectiveness of the sampled cultural institutions is found to be related to the educational background of their managers; further, economic/managerial education enhances the likelihood of fulfilment of the institutions' mission.

ARTICLE HISTORY

Received 29 November 2018
Accepted 14 October 2019

KEYWORDS

Cultural institutions;
management control
system; organisational
effectiveness;
post-transition economy

JEL CLASSIFICATIONS

H41; L82; L30

1. Introduction

In most European countries, a non-negligible part of public funds is allocated to finance cultural infrastructure (Last & Wetzel, 2010). Marco-Serrano (2006) shows that the budgetary support for cultural institutions has been growing steadily after WWII. Relying on data from 24 European countries, the Council of Europe/ERICarts (2014) reports that after 2010, the average public spending on the cultural sector equals 1.54% of the total public budgetary allotment, and amounts to 0.56% of the GDP.

CONTACT Dmytro Osiichuk  dosiichuk@kozminski.edu.pl  Department of Finance, Kozminski University, 03-301, 57/59 Jagiellonska St., Warsaw, Poland.

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Taking into account the growing allocation of public funds to the cultural sector, the performance management of cultural institutions has become an important praxeological issue. To promote the implementation of the best managerial practices and reward efficiently managed institutions, policymakers need an effective system of performance appraisal that addresses the specific requirements of cultural institutions (Last & Wetzel, 2010). In this context, the implementation of benchmarking models suitable for non-profit organisations has attracted considerable attention from the research community. The application of such models is expected to allow the managers of public institutions as well as policymakers to identify the sector's best practices and prepare guidelines for the efficient allocation of scarce financial resources (Last & Wetzel, 2010).

The researchers in the field of cultural economics and management underline the importance of the implementation of effective management control systems aimed at monitoring and assessing the performance of cultural institutions (Heilbrun & Grey, 2001; Stanziola, 2008). Owing to the specificity of the social mission of cultural institutions, it may be especially difficult to assess whether the allotted financial resources are being used appropriately. The factors deciding the rationality of cultural projects, such as client satisfaction, public support for the cultural project and the possibility of symbiotically combining for-profit and non-profit activities, are significantly different from those conventionally used for investment project appraisal (Bendixen, 2010). Basso and Funari (2004) note that, just like any other business, cultural institutions use a combination of production resources (labour, capital, etc.) to deliver cultural services. Therefore, it is important to introduce a management control system to ensure that these resources are being used optimally. Connolly, Conlon, and Deutsch (1980), Amenta (2010), Throsby (2003a) and Paulus (2003) postulate that the performance record would have direct repercussions for the institution's financing, thereby rewarding the most effectively operated institutions. These authors also propose the design of performance appraisal systems that meet the needs of cultural institutions.

The literature has focussed on methodological issues, paying scant attention to the problem of measuring the impact of implementation of management control systems on the performance of cultural institutions. To fill this gap, this study verifies whether the implementation of a management control system positively contributes to the effectiveness of public cultural institutions. Our findings, which are based on relevant fieldwork and quantitative analysis, point to the positive association between the comprehensiveness of management control systems and the effectiveness of public cultural institutions. We conclude that the implementation of a comprehensive performance management system may alleviate the shortcomings of unidimensional financial analysis that is currently the performance appraisal tool most prevalent in Poland's cultural sector. We demonstrate that the presence of an advanced management control system is positively associated with the likelihood of fulfilment of the cultural institutions' mission – something frequently ignored in unidimensional financial performance appraisal. Further, it is also positively associated with the financial standing of these institutions; this may be particularly important from the standpoint of the optimisation of the resources allocated to this sector.

Further elaborating upon the role of management control systems in the fulfilment of cultural institutions' mission, we provide evidence that the positive association

between a management control system and institutions' effectiveness is amplified by the degree of complexity and sophistication of the system. In fact, we convincingly demonstrate that the more comprehensive management control systems may be contributing to an improvement in the effectiveness of cultural institutions. These findings point to the incompleteness of the current managerial guidelines regarding performance management of cultural institutions; they tend to be unidimensional and prioritise the financial aspects of cultural institutions' efficiency over the indicators of qualitative performance management that may be difficult to track and operationalise. In fact, we show that expanding the managerial perspective to incorporate the correlates of mission fulfilment into the performance scorecard may ameliorate the institutions' outcomes even in purely financial terms.

While the managers of cultural institutions frequently claim to invest a significant effort into developing a sound management information and control system, it is also commonly stated that a lack of appropriate executive training may inhibit the elaboration and implementation of a well-defined controlling and performance appraisal scorecard. Casual empiricism suggests that the implementation of a well-rounded management control system is contingent on the availability of well-educated and trained managerial resources. The authors of this paper have not found any study that verifies whether the educational background of the managers of cultural institutions impacts their effectiveness. We also did not find any empirical study analysing the impact of the advancement of the management control systems on the self-assessment of the financial standing of cultural institutions. Therefore, to establish whether the success of a management control system hinges upon the educational and stewardship background of the institutions' management, we verify whether the cultural institutions managed by executives educated in economics/management exhibit higher effectiveness.

In the present work, cultural institutions are defined as legal entities whose operational activities are directed towards the creation, maintenance and dissemination of cultural goods and services. These institutions include theatres, opera houses, philharmonics, orchestras, movie theatres, museums, libraries, art galleries and arts centres. In accordance with the data of the Central Statistical Office of Poland (2018), most cultural institutions are under public ownership (e.g. 85% of theatres and museums). The prevalence of public institutions in this sector has led to the wide use of a particular set of performance measurement indicators. This study shows that most institutions predominantly rely on economic indicators, which primarily measure the financial effectiveness of subsidy allocation. Only about 55% of the cultural institutions covered in the present study declared that they had implemented management control systems to monitor the fulfilment of strategic and operational goals, as well as promote client and employee satisfaction. In view of the specificity of operational activities of the cultural institutions, the predominant reliance on economic performance indicators does not seem to be conducive to monitoring the fulfilment of these institutions' mission. The authors of the present study, therefore, question whether the application of a management control system well-suited to the particularities of cultural institutions may enhance their effectiveness by facilitating the fulfilment of their primary operational goals and statutory mission, as defined by the regulator.

To elucidate the link between the quality of management control systems and effectiveness of public cultural institutions, the empirical part of the present study first identifies performance management instruments and management control indicators currently utilised by cultural institutions in Poland. Second, we correlate the complexity of the management control systems in the sampled cultural institutions with their effectiveness and financial standing. Finally, the study establishes whether the successful implementation of an effective management control system is contingent upon the educational and business background of the institutions' managers. This comprehensive analysis not only demonstrates the rationale for implementing an elaborate management control system, but also identifies the resources that play a decisive role in maximising the benefits from the implementation. Thus, our goal is to present convincing evidence on the benefits of comprehensive multidimensional management control systems in terms of fulfilling cultural institutions' mission, as well as the amelioration of their financial standing through monitoring and management of both financial and non-financial performance indicators.

An additional contribution of this study arises from the fact that the fieldwork has been conducted in the public sector of a post-transition economy. While being less comprehensively studied owing to access barriers and regulatory hurdles, the public cultural sector of post-transition economies faces a number of idiosyncratic problems, which have been chosen as the focus of the present study. For example, the cultural sector in Poland is heavily regulated and largely dominated by publicly owned entities (Central Statistical Office of Poland, 2018). As a result, the overwhelming majority of cultural institutions rely on budget subsidies as their primary source of financing; the non-subsidy operational revenues constitute a minor part of the disposable financial resources of cultural institutions. The latter fact may potentially skew operational decision making and shift performance priorities towards the monitoring of subsidy allocation even at the expense of fulfilling the institutions' mission. We demonstrate that despite relative progress being made over the past decade, public cultural institutions exhibit staggering inertia and reluctance to implement comprehensive management control and information systems; this may possibly have adverse repercussions for their performance. The authors of the present study primarily analyse the status quo in performance management in the cultural sector to help formulate guidelines for the improvement of management control systems in public cultural institutions.

This paper is organised as follows. First, we present a review of literature on the problem of defining and measuring the effectiveness of cultural institutions in [Section 2](#). [Section 3](#) presents the methodology and results of the empirical study. A discussion of the results conclude the paper.

2. Effectiveness of cultural institutions: literature review

Owing to the specificity of the operational activities of cultural institutions, the measurement of their effectiveness poses several practical challenges. The primary task of cultural institutions is to fulfil their mission of creating, preserving and disseminating cultural goods and services, rather than maximising the financial payoff or value generated from them. For example, Paulus (2003) notes that museums perform three

essential functions – research, communication, and preservation of heritage. When allocating their limited pool of funds, the managers are confronted with a trade-off between these three functions. Throsby (2003b) focuses on the difficulties related to the measurement of cultural value generated by cultural institutions. Cultural value is multifaceted and may be analysed from the aesthetic, spiritual, social, historical or symbolic perspectives. Owing to their complicated nature, cultural projects may not always be evaluated by using the conventional methods of investment project appraisal, that is, the net present value or the internal rate of return (Throsby, 2003b). McCarthy, Ondaatje, Zakaras, and Brooks (2004) highlight the fact that cultural institutions generate a range of benefits that are not always easily operationalizable or quantifiable. They distinguish between the following groups of effects created by cultural institutions – cognitive, educational, therapeutic, social and economic.

The literature tackling the issue of performance appraisal in cultural institutions confines itself to a discussion of the general tenets underpinning the system of managerial control and governance.

Byrnes (2009) proposes a comprehensive approach for the appraisal of operating activities of cultural institutions. Among other things, Byrnes (2009) formulates the principles of budgeting in cultural institutions; proposed cost classifications; and suggested a methodology for investment project appraisal tailored to the context of the cultural sector. Gerald (2006) formulates some principles of strategic planning, reporting and budgeting in museums. Studies on issues related to the implementation of management control systems in cultural institutions largely agree that performance appraisal should encompass the variety of intangible benefits generated by cultural institutions and should be tailored to their specific operational context (Ginsburgh & Throsby, 2006; Heilbrun & Grey, 2001; Wnuczak, 2014, 2017). However, Stanziola (2008) notes that the methods commonly used for evaluating cultural institutions' activities frequently ignore the educational, cultural and social benefits generated by the cultural infrastructure.

Researchers in the area of performance appraisal of cultural institutions recognise that a management control system that suits the needs of a cultural institution should be multi-dimensional. Tackling the problem of performance management in cultural institutions, Cameron (1981) and Connolly et al. (1980) propose multi-criterion systems of performance appraisal that show an organisation's ability to procure funds, as well as allocate them in a way that meets competing purposes. Kanter and Summers (1987) show that the effectiveness of non-profit institutions should be monitored by using both short- and long-term measures. The Wavell et al. (2002) state that the key component in a system suitable for the appraisal of cultural institutions' performance is the correct selection of criteria for performance measurement. Wavell et al. (2002) Council suggested criteria that reflected the impact of cultural institutions on social cohesion and integration, learning, and the economy. A similar framework for performance management of museums was suggested by Paulus (2003), which appraises the following dimensions: economy, capital, effectiveness, and efficiency. Relying on empirical data, Wavell, Baxter, Johnson, and Williams (2002) establish that the performance indicators used to monitor cultural institutions should cover the visitors': engagement; enthusiasm; and satisfaction, as compared to their expectations; the

indicators should also encourage them to learn. Kushner and Poole (1996) postulate that the evaluation of the effectiveness of the cultural institutions should be based on the following criteria: the satisfaction of the visitors, donators and volunteers; accomplishment of the artistic goals; and the identification and procurement of human and financial resources. Alternative performance indicators were suggested by Schuster (1997), Gilhespy (1999), Cowell (2007) and Wavell et al. (2002). Fox (2006), Kaplan (2001) and Wnuczak (2015) propose the possibility of using the balanced scorecard for strategic performance management in cultural institutions.

The specificity of operational activities and objective functions of cultural institutions are considered to preclude the possibility of benchmarking and comparative performance analysis of multiple institutions. Barrio, Herrero, and Sanz (2009) note that the performance indicators suggested in the literature frequently allow only unidimensional comparison between institutions and preclude any possibility of ranking the analysed institutions. Frontier techniques (Basso & Funari, 2004; Mairesse & Van Den Eeckaut, 2002; Paulus, 2003; Pignataro, 2002; Taalas, 1998) solve this problem by creating complex indicators synthesising all aspects of the institutions' performance. These techniques comprise parametric models such as stochastic frontier approach (SFA), thick frontier approach (TFA) and distribution free approach (DFA) (Borkowski, Dudek, & Szczesny, 2004), and non-parametric models such as data envelopment analysis (DEA) and free disposal hull (FDH) (Charnes, Cooper, & Rhodes, 1978). DEA is frequently used for performance appraisal of museums (Barrio et al., 2009), orchestras (Luksetich & Hughes, 1997) and libraries (Noh, 2011).

The literature also suggests the evaluation of the rationality of cultural projects through the use of cost-benefit analysis (CBA) as a technique that complements multidimensional performance appraisal; CBA shows whether the implementation of the project contributes to the well-being of the community (Baker et al., 1998). It may be used for measuring the value of services provided by public libraries (Holt et al., 1999) and other cultural projects. The application of CBA requires the evaluation of the benefits generated by cultural institutions. The travel cost method (TCM) and zonal travel cost model (ZTCM) may be used for this purpose (Bedate et al., 2004; Clawson & Knetsch, 1966). Alternative methods for the evaluation of benefits generated by cultural institutions are the hedonic price method (HPM) (Moorhouse & Smith, 1994) and contingent valuation methodology (CVM) (Portney, 1994).

Another approach for measuring of effectiveness of cultural institutions consists of analysing the impact of the cultural organisations on regional economic development. An example of such research is the study by Plaza (2000), who analyses the impact of the Guggenheim museum in Bilbao (Spain) on the local tourism sector. Greenhalgh, Landry, and Worpole (1993), McClure (2002) and Proctor, Usherwood, and Sobczyk (1996) study the influence of tourism on regional economic development. UK's South West Museum Council (2000) study the impact of tourism on local employment and wages. Holt, Elliott, and Moore (1999) investigate the impact of the demand for cultural services on local economic growth.

The literature on the effectiveness of cultural institutions offers many models and tools for improving the management of these organisations. However, studies analysing the outcomes of implementing these models are scarce. Performance

appraisal in the cultural sector remains an important issue from both the methodological and business perspectives. This study, therefore, attempts to contribute to the discussions on this issue.

3. The impact of implementation of management control systems on the effectiveness of public cultural institutions: the empirical study

3.1. The definition of effectiveness of public cultural institutions

The managerial effectiveness of a company is typically defined as its ability to deliver what it is expected to deliver with engagement of minimal resources (Drucker, 2006). This definition may be difficult to operationalise in the context of cultural institutions. In addition to preserving the cultural heritage (Paulus, 2003), cultural institutions perform many functions, such as cognitive, educational, therapeutic and social (McCarthy et al., 2004). These functions need to be performed by taking into account the economic rationality and efficiency of allocation of available resources. Therefore, the effectiveness of cultural institutions should be assessed on the basis of economic rationality of the undertaken projects rather than by conventionally using the financial bottom line (Ziębicki, 2007). Taking into account the specificity of cultural institutions, their effectiveness may be defined as their ability to attain their goals and accomplish their mission by making optimal use of the economic resources available; in turn, their mission may be defined as the procurement and dissemination of public goods and services, as well as the preservation of cultural heritage (Wnuczak, 2014).

Managerial practices in public cultural institutions in Poland are shaped by the Public Finance Law of 2009 and the Act on Organizing and Conducting of Cultural Activities of 1991. The former assures the transparency of allocation of budgetary resources by establishing the rules of financial discipline and internal audit in public institutions; further, it lists the regulatory requirements regarding business transactions and resource allotment within public cultural institutions. The latter Act specifies the legal forms of cultural institutions, rules to be followed for executives' nomination, and manner in which business activities should be conducted by public cultural institutions. Since 1999, public cultural institutions have been run and financed by local public authorities, that is, county and voivodeship administration. The rigidity of the regulatory framework, as well as the predominant dependence of public cultural institutions on budgetary subsidies, has had profound consequences for the development of management control systems in public cultural institutions; it has led them to focus primarily on quantitative economic performance indicators tracking the allocation of the budgetary subsidy. The present study intends to demonstrate that the elaboration of a more comprehensive management control system that goes beyond economic performance indicators may enhance both the effectiveness and financial standing of public cultural institutions.

3.2. The goal of the study and the selection of the research sample

The data for the analysis were collected through surveys of the managers of public cultural institutions in Poland, conducted between January and October of 2012. The

final sample comprises 57 public cultural institutions, which represent 6.5% of the population (the public record indicated that there were 882 public museums and theatres in Poland in 2012). It is worth noting that the fieldwork in the public cultural institutions was complicated by regulatory hurdles and the reluctance of institutions' executives to share information on the managerial practices prevailing in their institutions. As a result, the process of completing the qualitative part of the study in accordance with the applicable regulatory framework took a substantial amount of time. The prolonged data collection period helped in increasing the response rate and assured the representativeness of the research sample. The proportion of the institutions in the present research sample – 30 museums, 24 theatres and 3 concert halls – replicates closely, their proportion among the public cultural institutions in Poland.

The questionnaire distributed among the managers of public cultural institutions consisted of three parts. The first part focussed on basic company data: the type of institution; the supervisory authority; the types of products and services offered by the institution; its revenue and costs; the value of public subsidies; and the number of clients and employees. The second part of the questionnaire was designed to evaluate the sophistication of the management control systems implemented in the studied institutions. This part related to the ways of elaborating, measuring, and implementing the institution's strategy; the system of indicators used for the purpose of performance management; the procedures related to the preparation and approval of the budgets; the ways of monitoring the budget targets; the cost documentation and analysis; and the organisation of the reporting system. This part featured a total of 23 questions; each offered four options describing the degree of complexity and sophistication of the management control systems. The managers were asked to choose the option that most accurately described the institution's internal practices. The formulation of the options to the survey questions led to a better evaluation of the management control systems in the studied organisations. Relying on the answers from the questionnaires, we elaborated a marking system for evaluation of the management control system in the given organisation. Each description of the management control system was assigned a particular number of points: three points meant that the institution implemented the most advanced management control techniques in the given area, whereas a score of zero meant that the institution did not use the given instrument of management control at all. The answers to the three yes/no questions were encoded by assigning three points for the positive answer and zero points for the negative answer. One of the questions had three answer options, which were encoded on a scale of 0–2 points. Thus, each surveyed institution could get a maximum score of 66 points. The quantitative analysis of the obtained answers helped to operationalise the degree of sophistication of the management control system implemented in the sampled institution. The resulting nominal variable 'MCS' allowed us to test for the influence of management control systems on the effectiveness of cultural institutions. The combined data from the first and the second part of the questionnaire made it possible to study the determinants of the application of management control systems in Polish cultural institutions.

The responses of cultural institutions' managers provided in the second part of the questionnaires allowed the identification of the tools of management control and

performance appraisal that were the most frequently used by cultural institutions' managers. An overwhelming majority of investigated institutions (86%) use economic performance indicators, including budget subsidy allocation controls, revenue and cost budgeting and variance analysis; 68% of the institutions monitor the number of clients as a proxy for customer satisfaction, yet only 35% collect direct customer feedback. Around 40% of the institutions pay attention to the satisfaction of their donors by tracking the dynamics of donations. A quarter of the sample track and actively manage their public image and reputation; 58% of the sampled institutions control the fulfilment of their operational and strategic goals; and 54% control customer service quality to assure continuity of business processes. Finally, most institutions monitor the ongoing investments in infrastructure (42%) and requisites (56%) to ensure continuous improvement in the quality of customer service. In the third part of the questionnaire, the surveyed managers were asked to evaluate the degree of accomplishment of the institutions' mission on a six-point scale ranging from 0 (institution did not accomplish its mission) to 5 (institution fully accomplished its mission). The managers were also asked to qualitatively describe the barriers to the accomplishment of the institutions' mission.

The final question asked the management to assess the financial standing of the institution on a six-point scale ranging from 0 (institution was in a very unsatisfactory financial situation) to 5 (institution was in an excellent financial situation). In conjunction with the data from the preceding parts of the questionnaire, the answers to the above questions allowed us to check the link between the complexity of management control systems and the financial standing of the sampled institutions.

The research sample comprises 30 museums, 24 public theatres and 3 concert halls. Of the surveyed entities, 76% are supervised and financed by the local government authorities; 10% are supervised by the central government; and 14% are co-managed by the local and central government. The main source of funds for all analysed entities is the subsidy from the public budgets. For 70% of the surveyed institutions, the share of subsidies was 60–80% of the total inflow of funds. Only one institution managed to obtain more than 50% of its financing from non-budgetary sources. The subsidies were distributed among the institutions as follows: 25% of the surveyed institutions reported to have received a subsidy of PLN 0–2 million; 23% of entities received PLN 2–4 million; 25% of institutions received PLN 4–6 million; 27% of institutions received between of PLN 6–10 million. Most institutions (about 60% of the sample) had less than 60 employees and 42% (24 institutions) had 20–60 employees. The remaining entities had 60–200 employees. Five of the institutions that agreed to participate in the survey had more than 200 employees.

3.3. The research methodology and empirical results

To verify the research hypotheses, we use cross-sectional linear regression analysis and multinomial probit models.

The cross-sectional linear regression analysis is used to verify the impact of management control systems on the effectiveness of the studied public cultural institutions and to confirm the association between their effectiveness and the educational background of their managers. Cross-sectional OLS techniques were deemed to be well-suited to the

analysis of the present database: the distributions of the variables featuring in the regressions have been checked for normality; further, the nominal variables have been scaled to allow for application of linear regression analysis. The explained variable is the share of the non-subsidy revenue in the total sales budget of the institution (variable 'NSR'). We expect the entities that implemented more complex and more comprehensive management control systems to be better managed, and, as a consequence, possessing a relatively higher capability to generate non-subsidy revenue. In addition to the independent variable 'MCS', which reflects the complexity of the management control systems, the base econometric model (IA) features the following independent variables, which may impact the share of non-subsidy revenue in the entities' total revenue:

1. Museum – the binary variable that indicates whether the studied entity is a public museum;
2. Theatre – the binary variable that indicates whether the studied entity is a public theatre;
3. LnR – the natural logarithm of the entity's total revenue. The variable is included as a proxy for the institution's size, which may have a significant influence on the institution's ability to generate non-subsidy revenue;
4. CentGov – the binary variable that indicates whether the institution is being managed, supervised, and financed by the central government (as opposed to being managed, supervised, and financed by local authorities);
5. Education – binary variable that indicates whether the institution's manager has an educational background in economics/management.

The analysis of the correlation matrix eliminated the possibility of encountering multicollinearity problems.

To check whether the impact of the management control systems on the share of non-subsidy revenue in the total revenue differs across different types of cultural institutions, we introduce interaction terms. The variable 'Museum*MCS' ('Theatre*MCS'), which is the product of the dummy variable 'Museum' ('Theatre') and the nominal value 'MCS', should show how the implementation of a more sophisticated management control system may contribute to the museum's (theatre's) capacity to generate non-subsidy revenue.

Whenever the model disturbances are found to have unequal variances across the observation points, we use White heteroscedasticity-consistent standard errors to assess the statistical significance of the empirical models. A summary of the empirical tests is presented in [Table 1](#).

Model IA, reported in [Table 1](#), confirms the statistical significance of all independent variables except the one approximating the complexity of the management control system. The size of the institution, measured by the value of its revenue, as well as the entity's classification as a theatre are positively and significantly associated with the regressand. The impact of the 'Theatre' dummy is attributable to the specific nature of the business operations of these institutions. Being managed by the central government is negatively and significantly associated with an entity's ability to generate non-subsidy revenue; this finding is consistent with the common perception about

Table 1. Determinants of the share of non-subsidy revenue in the total revenue of the sampled cultural institutions.

Independent variables	Model IA	Model IIA	Model IIIA
Constant	−0.577*** (0.134)	−0.745*** (0.147)	−0.605*** (0.119)
Museum	0.051* (0.028)	0.192** (0.076)	0.057** (0.028)
Theatre	0.120*** (0.031)	0.123*** (0.030)	−0.009 (0.069)
MCS	0.001 (0.001)	0.002 (0.001)	−0.002 (0.001)
LnR	0.045*** (0.009)	0.054*** (0.009)	0.054*** (0.009)
CentGov	−0.054** (0.026)	−0.039 (0.025)	−0.039 (0.025)
Education	0.043** (0.014)	0.032* (0.016)	0.032** (0.016)
Museum*MCS		−0.003** (0.002)	
Theatre*MCS			0.003* (0.002)
R ²	64.70%	68.03%	67.96%
F-Statistic	14.97 [0.000]***	14.60 [0.000]***	14.54 [0.000]***

Source: Authors' Own elaboration.

Notes: The heteroscedasticity robust standard errors are provided in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. For F-statistic, the p-values are reported in parentheses, below the test statistic.

centrally managed cultural institutions are more reliant on budgetary financing than the institutions managed and financed by the local government.

That the complexity of the management control system does not significantly affect the entity's ability to generate non-subsidy revenue contradicts the previously advanced hypothesis regarding a positive association between the advancement of management control systems and cultural institutions' effectiveness. A further in-depth study suggests that the strength and direction of this relationship may depend on the type of cultural institutions in question. The inclusion of the interaction terms 'Museum*MCS' and 'Theatre*MCS' allows us to study the impact of management control systems on the institutions' ability to generate non-subsidy revenue after paying consideration to the specificity of each type of institution. In case of museums (Model IIA), the complexity of the management control system is found to negatively impact the institutions' ability to generate non-subsidy revenue; this finding may suggest that museums implementing advanced management control systems would have an advantage over their non-implementing counterparts in procuring public funds. A comprehensive management control system may help to present the entity's activities in a way that shows the need for financing through public budgets.

Model IIIA, featuring the interaction term 'Theatre*MCS', shows that the complexity of the management control systems has a positive and significant (at the 10% level) influence on a theatre's ability to generate non-subsidy revenue. Because public theatres face more pressure than public museums to generate non-subsidy revenue, they may primarily use their management control systems to improve their market positioning. The introduction of the interaction term 'Theatre*MCS' into the model specification causes the dummy variable Theatre to lose its statistical significance; this latter suggests that the significance of the variable Theatre in model IA was primarily

because of the entities with relatively more complex management control systems. The overall results indicate that the lack of an advanced management control system may reduce the ability of the public theatres to generate non-subsidy revenue.

Our empirical results show a positive association between the degree of complexity of management control systems and cultural institutions' effectiveness.

Further analysis of the association between the quality of management control systems and the effectiveness of public cultural institutions was conducted using probit models.

The preceding econometric models (IA, IIA and IIIA) revealed a statistically significant association between an institution's ability to generate non-subsidy revenue and its managers' educational background in management/economics. The obtained empirical results allow us to postulate that the cultural institutions managed by executives with educational background in management/economics exhibit higher effectiveness. The initial analysis of the results of the data collected from the questionnaires suggest that executives with managerial educational background are more likely to apply advanced budgeting techniques and operational controlling tools to enhance the efficiency of financial decision making. They are also more likely to establish targets for the cost of optimisation and effectiveness of subsidy allotment through an analysis of quantitative performance indicators including budget variances, donation flow and customer base dynamics. Overall, one may reasonably conclude that an acquaintance with the analytical framework of financial decision making is likely to enhance the effectiveness of managerial practices in the public cultural sector.

To assess the impact of the management control systems on the effectiveness of the cultural institutions, we estimate probit models, with the explained variable measuring the accomplishment of the institutions' mission (Model IB).

At the initial stage of empirical analysis, we assume that the institutions implementing advanced management control systems would exhibit higher effectiveness in fulfilling their mission. Therefore, we expect the managers of the institutions with more complex management control systems to better evaluate the accomplishment of the institutions' mission. In this study, the fulfilment of the entity's mission is assessed by the institutions' management on a six-point scale ranging from 0 (institution does not fulfil its mission) to 5 (institution fully accomplishes its mission). After further analysis of the distribution of survey results, we encoded all 5 grades as 1 (the institution fulfils its mission) and all remaining grades as 0 (the institution fulfils its mission insufficiently). The models feature the same control variables as the previous models except for the sector dummies (variables 'Theatre' and 'Museum'). Thus, we assume that perceptions of the mission being accomplished does not depend on its industry.

The results of the estimated probit model are presented in [Table 2](#). The independent variables are jointly and separately significant at the conventional levels of significance, thereby allowing valid statistical inference.

The analysis of the empirical results suggests that the complexity of the management control systems positively and significantly (at the 5% significance level) influences the ability of cultural institutions to fulfil their mission. Because the assessment

Table 2. Determinants of mission accomplishment by the analysed institutions.

Independent variables	Model IB
Constant	-10.714** (4.549)
NSR	-0.749 (2.783)
MCS	0.0647** (0.0270)
LnR	0.497 (0.327)
CentGov	-0.709 (0.737)
Education	0.988* (0.565)
Chi-squared	26.361 [0.0002]***

Source: Authors' own elaboration.

Notes: The heteroscedasticity robust standard errors are provided in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. The table presents the maximum likelihood estimates for a binary probit regression.

of the effectiveness of cultural institutions consist the evaluation of mission accomplishment with the most rational use of financial resources, one may cautiously conclude that the institutions that fulfil their mission are managed more effectively.

Because empirical evidence suggests that the management control systems may enhance the institution's ability to accomplish its mission, one may infer that the management control tools improve the quality of organisational management.

To verify whether the complexity of management control systems is positively associated with the institutions' financial standing, the explained variable in the probit model is substituted with the self-assessment of the institution's financial standing. We hypothesise that the complexity of the management control systems impact the self-assessment of the institutions' financial standing. The institutions' financial standing was assessed on a 6-point scale ranging from 0 (very poor financial condition) to 5 (excellent financial standing). The analysis of the distribution of survey responses suggested a further recoding of the multinomial variable into a binary variable, where the responses 3, 4 and 5 were encoded as 1, while the responses 0, 1 and 2 were encoded as zero.

The vector of control variables features all the variables used in the preceding models, except for the share of non-subsidy revenue in the institution's total revenue and 'CentGov'. The models feature the interaction terms 'Theatre*MCS' and 'Museum*MCS' to separately estimate the impact of management control systems on the self-assessment of the entity's financial standing, depending on its industry classification.

The empirical results presented in Table 3 point to the joint and separate statistical significance of the explanatory variables. The models possess satisfactory econometric properties.

In model IC, the following four control variables exhibit statistical significance at the conventional levels: 'MCS', which approximates the complexity of the management control system; 'LnR', which approximates the institution's size; the dummy variable 'Theatre'; and the interaction term 'Museum*MCS'. The variable 'LnR' is statistically significant at the 1% level; this suggests that institutions with larger

Table 3. Determinants of the self-assessment by the studied institutions of their financial standing.

Independent variables	Model IC	Model IIC
Constant	-14.874* (7.646)	-29.349*** (10.200)
NSR	-6.097 (4.926)	-5.168 (4.956)
MCS	-0.134* (0.071)	0.1677 (0.109)
LnR	1.380*** (0.489)	1.533*** (0.547)
Education	-1.991 (1.250)	-3.915* (1.946)
Museum	-3.176 (2.714)	-0.661 (1.235)
Theatre	2.997* (1.589)	11.800** (5.212)
Museum*MCS	0.208* (0.124)	
Theatre*MCS		-0.423** (0.195)
Chi-squared	44.871 [0.0000]***	49.523 [0.0000]***

Source: Authors' own elaboration.

Notes: The heteroscedasticity robust standard errors are provided in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. The table presents the maximum likelihood estimates for a binary probit regression.

revenue budgets assess their financial standing to be relatively better than their counterparts.

Greater sophistication of the management control systems translate into a better self-assessment of the financial standing of public museums (the relationship is significant at the 10% level). This finding accords with that obtained from the cross-sectional analysis, which revealed that advanced management control systems facilitate the procurement of public funding by public museums. In turn, a better flow of public funds should improve the self-assessment of their financial standing. The empirical result confirmed a significant (at the 5% level) and negative impact of the sophistication of the management control systems on the self-assessment of the financial standing of public theatres. The difference in the results obtained for public theatres and museums may stem from the different features of the operational activities of these institutions. The operational activities of public museums are guided by strict regulations that limit the scope of the management's influence on the attractiveness of the museum's market offer and, as a consequence, on its financial standing. Therefore, it may be the case that public museums use management control systems to increase the inflow of public funds. In the case of theatres, the situation looks different: the activities of theatres are not regulated as strictly as those of public museums. Theatres have greater flexibility in designing their programmes, promotional campaigns, and various initiatives aimed at attracting new clients. In this context, public theatres may have limited ability to procure additional public financing because the decision-making unit within the public sector may insist that the theatres become more reliant on non-subsidy funds. Therefore, one may cautiously conclude that the management control systems lead to a better assessment of the theatres' financial standing, while simultaneously accentuating the importance of existing financial problems. This may lead to the empirically observed negative impact of the

complexity of the management control systems on the self-assessment of the financial standing of public theatres. At the same time, the empirical results suggest that the complexity of the management control systems impact the self-assessment of the institutions' financial standing.

4. Concluding remarks

The aim of the present study was to analyse the impact of the management control systems on the effectiveness of the public cultural institutions in Poland. The results of the empirical studies suggest that the implementation of an advanced management control system may positively contribute to the organisational effectiveness of public cultural institutions. In case of public museums, advanced management control may help in increasing of public financing received. The degree of sophistication of the management control systems significantly (at the 5% level) and negatively influences the museums' capacity to generate non-subsidy revenue; this finding suggests that museums with a better management control systems are more effective in obtaining public financing. In case of public theatres, the lack of an advanced management control system may negatively affect their ability to generate non-subsidy revenue; this suggests that theatres use their greater flexibility in generating non-subsidy revenue to use management control mechanisms that enhance their revenue-generating capacity. Taking into account the specificity of the operational activities of both types of entities, one may conclude that the management control systems positively influence the effectiveness of the public cultural institutions. The empirical results prove that the cultural institutions that use an advanced management control system are more effective in accomplishing their mission. The institutions' ability to fulfil their mission is found to be significantly (at the 5% level) and positively associated with the complexity of the management control system. The empirical results suggest that the effectiveness of cultural institutions may be enhanced by implementing a more elaborate management control system.

The empirical results also suggest that a cultural institution managed by an executive with an educational background in management/economics exhibits higher effectiveness and a higher likelihood of accomplishing its statutory mission. The literature is mute on the issues related to HR management in the public cultural institutions. Our findings suggest that acquaintance with a conventional toolkit of financial decision making and broad managerial knowledge may be of significant value in public cultural institutions. Executives with business-related educational background may be more likely to implement more elaborate management control systems, which, in turn, may contribute to the amelioration of resource management practices within cultural institutions.

The sophistication of the management control systems is also shown to be positively associated with the self-assessment of the financial standing of the cultural institutions. In case of public museums, the implementation of a more elaborate management control system is found to ameliorate the self-assessment of their financial standing. The opposite is found to be true in the case of public theatres. The difference in the results may be explained by the greater flexibility enjoyed by theatres in

generating non-subsidy revenue than public museums. Public theatres may face greater difficulties when substantiating their need for greater financing through public budgets. The management control tools may help the managers of the public theatres to better monitor and remedy the existing financial problems.

This study contributes to the body of research on the effectiveness of implementation of management control systems in cultural institutions. The empirical findings strongly suggest that there is a significant relationship between the implementation of the management control systems and the organisational effectiveness of cultural institutions.

Despite its novelty and the coverage of a post-transition economy by relying on a hand-collected database, the present study faces several limitations. In particular, the time lag between the completion of qualitative analysis and data processing may result in a divergence between the reposted results and the current status quo in the industry. However, we estimate that the likelihood of this occurring is quite remote owing to the general inertia of managerial practices in the studied sector, as well as the rigidity of the regulatory framework shaping the reporting and internal procedural requirements applicable to public cultural institutions. Second, the studied research sample constitutes 6.5% of the population of public sector cultural institutions in Poland. Despite the fact that the sample structure is broadly representative of the population structure, the results may not be easily generalisable owing to the limited sample size. Third, the application of quantitative techniques to the analysis of data obtained by qualitative research methods poses some methodological challenges. In particular, some of the variables used in the quantitative analysis are the result of subjective evaluations of mission fulfilment and financial standing of the sampled cultural institutions. While considerable effort was invested to make sure that the managers of the studied institutions were truthful in their reporting, the subjective element cannot be entirely removed from the analysis. Finally, the studied research sample manifests substantial heterogeneity in terms of classes of institutions subject to qualitative evaluation; this is likely to impede a comparative analysis across constituent entities.

Further studies should focus on homogenous research samples of cultural institutions belonging to the same class/category. Each class of institutions possesses unique business features requiring a customised approach to the design of management control systems. The assessment of the institutions' need for an elaborate management control system may differ depending on institutions' specificity. Follow-up studies may inquire into the impact of management control systems on the efficiency of resource allocation within cultural institutions, with the aim of identifying areas requiring remedial action or optimisation.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Paweł Wnuczak  <http://orcid.org/0000-0001-6928-584X>

Dmytro Osiichuk  <http://orcid.org/0000-0002-6235-2576>

References

- Amenta, C. (2010). Exploring museum marketing performance: A case study from Italy. *International Journal of Marketing Studies*, 2(1), 24–35. doi:10.5539/ijms.v2n1p24
- Baker, M., Bennett, M., Campbell, M., Gilbert, D., Ladkin, A., & Song, H. (1998). Estimating the value of the social benefits to visitors in a large art gallery. *International Journal of Heritage Studies*, 3(4), 230–252. doi:10.1080/13527259808722210
- Barrio, M., Herrero, L., & Sanz, J. (2009). Measuring the efficiency of heritage institutions: A case study of a regional system of museums in Spain. *Journal of Cultural Heritage*, 10, 258–268. doi:10.1016/j.culher.2008.08.012
- Basso, A., & Funari, S. (2004). A quantitative approach to evaluate the relative efficiency of museums. *Journal of Cultural Economics*, 28(3), 195–216. doi:10.1023/B:JCEC.0000037997.23746.f2
- Bedate, A., Herrero, L., & Sanz, J. (2004). Economic valuation of the cultural heritage: application to four case studies in Spain. *Journal of Cultural Heritage*, 5, 101–111.
- Bendixen, P. (2010). *Einführung in das Kultur- und Kunstmanagement* (4th ed.). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Borkowski, B., Dudek, H., & Szczęsny, W. (2004). *Ekonometria, wybrane zagadnienia*. Warsaw: Wydawnictwo Naukowe PWN. doi:10.15611/ekt.2015.4.04
- Byrnes, J. (2009). *Management and the arts*. Boston: Focal Press.
- Cameron, K. (1981). Domains of organizational effectiveness in institutions of higher education. *Academy of Management Journal*, 24, 25–47. doi:10.5465/255822
- Central Statistical Office of Poland. (2018). Culture in 2017. Warsaw. Retrieved from <http://stat.gov.pl/obszary-tematyczne/kultura-turystyka-sport/kultura>
- Charnes, A., Cooper, W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2(6), 429–444. doi:10.1016/0377-2217(78)90138-8
- Clawson, M., & Knetsch, J. (1966). *Economics of outdoor recreation*. Baltimore, MD: Johns Hopkins University Press.
- Connolly, T., Conlon, E., & Deutsch, S. (1980). Organizational effectiveness: A multiple-constituency approach. *The Academy of Management Review*, 5(2), 211–217. doi:10.2307/257430
- Council of Europe/ERICarts. (2014). Compendium of cultural policies and trends in Europe, 15. Retrieved from <http://www.culturalpolicies.net/web/statistics-funding.php?aid=232&cid=80&lid=en>
- Cowell, B. (2007). Measuring the impact of free admission. *Cultural Trends*, 16(3), 203–224. doi:10.1080/09548960701479375
- Drucker, P. (2006). *The effective executive: The definitive guide to getting the right things done*. New York, NY: Collins.
- Fox, H. (2006). *Beyond the bottom line: Evaluating art museums with the balanced scorecard*. San Diego, CA: University of California.
- Gerald, M. (2006). *Muzeum jako przedsiębiorstwo. Łatwo i przystępnie o zarządzaniu instytucją kultury*. Warsaw: Fundacja Aletheia.
- Gilhespy, I. (1999). Measuring the performance of cultural organizations: A model. *International Journal of Arts Management*, 1(2), 38–52.
- Ginsburgh, A., & Throsby, D. (2006). *Handbook of the economics art and culture*. Oxford: Elsevier.
- Greenhalgh, L., Landry, C., & Worpole, K. (1993). *Borrowed time? The future of public libraries in the UK*. Gloucestershire, UK: Bournes Green.
- Heilbrun, J., & Grey, C. (2001). *The economics of art and culture*. New York, NY: Cambridge University Press.
- Holt, G., Elliott, D., & Moore, A. (1999). Placing a value on public library services. *Public Libraries*, 38, 89–108.
- Kanter, R., & Summers, D. (1987). Doing well while doing good: Dilemmas of performance measurement in nonprofit organization and the need for a multiple-constituency approach.

- In W. Powell (Ed.), *The nonprofit sector: A research handbook* (pp. 154–166). New Haven, CT: Yale University Press.
- Kaplan, R. (2001). Strategic performance measurement and management in nonprofit organizations. *Nonprofit Management & Leadership*, 11(3), 353–370.
- Kushner, R., & Poole, P. (1996). Exploring structure-effectiveness relationships in nonprofit arts organizations. *Nonprofit Management and Leadership*, 2(7), 119–136. doi:10.1002/nml.4130070203
- Last, A., & Wetzel, H. (2010). The efficiency of German public theaters: A stochastic frontier analysis approach. *Journal of Cultural Economics*, 34(2), 89–110. doi:10.1007/s10824-009-9111-5
- Luksetich, W., & Hughes, P. (1997). Efficiency of fund-raising activities: An application of data envelopment analysis. *Nonprofit and Voluntary Sector Quarterly*, 26(1), 73–84. doi:10.1177/0899764097261007
- Mairesse, F., & Van Den Eeckaut, P. (2002). Museum assessment and FDH technology: Towards a global approach. *Journal of Cultural Economics*, 26(4), 261–286. doi:10.1023/A:1019970325060
- Marco-Serrano, F. (2006). Monitoring managerial efficiency in the performing arts: A regional theatres network perspective. *Annals of Operations Research*, 145(1), 167–181. doi:10.1007/s10479-006-0032-9
- McCarthy, A., Ondaatje, E., Zakaras, L., & Brooks, A. (2004). *Gift of the muse. Reframing the debate about the benefits of the arts*. Santa Monica, CA: RAND Corporation.
- McClure, C. (2002). *Economic benefits and impacts from public libraries in the State of Florida*. Tallahassee, FL: Information Use Management and Policy Institute. Retrieved from <http://dlis.dos.state.fl.us/bld/finalreport>
- Moorhouse, J., & Smith, M. (1994). The market for residential architecture: 19th century row house in Boston South End. *Journal of Urban Economics*, 35(3), 267–277. doi:10.1006/juec.1994.1016
- Noh, Y. (2011). Evaluation of the resource utilization efficiency of university libraries using DEA techniques and a proposal of alternative evaluation variables. *Library Hi Tech*, 29(4), 697–724. doi:10.1108/07378831111189787
- Paulus, O. (2003). Measuring museum performance: A study of museums in France and the United States. *International Journal of Arts Management*, 6(1), 50–63.
- Pignataro, G. (2002). Measuring the efficiency of museums: A case study in Sicily. In I. Rizzo & R. Towse (Eds.), *The economics of heritage: A study in the political economy of culture in Sicily* (pp. 65–78). Cheltenham: Edward Elgar.
- Plaza, B. (2000). Evaluating the influence of a large cultural artifact in the attraction of tourism: The Guggenheim Museum Bilbao case study. *Urban Affairs Review*, 36(2), 264–274. doi:10.1177/10780870022184859
- Portney, P. (1994). Contributions to a symposium on contingent valuation. *Journal of Economic Perspectives*, 8(4), 3–64. doi:10.1257/jep.8.4.3
- Proctor, R., Usherwood, B., & Sobczyk, G. (1996). *What do people do when their public library service closes down?* (BLRDD Report 6224). London: British Library Research and Development Department.
- Schuster, J. (1997). The performance of performance indicators in the arts. *Nonprofit Management and Leadership*, 3(7), 253–269.
- South West Museum Council. (2000). *Economic contribution of museums in the South West*. Taunton: South West Museum Council.
- Stanziola, J. (2008). *Supporting the development of MLA's sustainability vision: Economic impact methodologies and capacity of the sector*. London: Museums, Libraries & Archives.
- Taalas, M. (1998). Efficiency of Finnish museums—Free disposal Hull method to measure cost efficiency. 10th International Conference of ACEI. Barcelona.
- Throsby, D. (2003a). *Economics and culture*. Cambridge: Cambridge University Press.
- Throsby, D. (2003b). Determining the value of cultural goods: How much (or how little) does contingent valuation tell us? *Journal of Cultural Economics*, 27(3/4), 275–285.

- Wavell, C., Baxter, G., Johnson, I., & Williams, D. (2002). *Impact evaluation of museums, archives and libraries: Available evidence project. The Council for Museums, Archives and Libraries*. Aberdeen: The Robert Gordon University.
- Wnuczak, P. (2014). Stosowanie narzędzi controllingu w polskich publicznych instytucjach kultury. *Zeszyty Teoretyczne Rachunkowości*, 79(135), 83–106. doi:10.5604/16414381.1133392
- Wnuczak, P. (2015). Zastosowanie strategicznej karty wyników oraz innych instrumentów implementacji strategii i pomiaru osiągniętych rezultatów w polskich instytucjach kultury. *Organizacja I Kierowanie*, 1(166), 129–144.
- Wnuczak, P. (2017). *Controlling w instytucjach kultury*. Warsaw: POLTEXT.
- Ziębicki, B. (2007). Uwarunkowania oceny efektywności świadczenia usług użyteczności publicznej. In R. Szewczyk (Ed.), *Folia Oeconomica Bochniensia. Zeszyty naukowe no 6* (pp. 151–152). Bochnia: Wyższa Szkoła Ekonomiczna w Bochni.