Ownership, organization structure and public service provision: the case of museums

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ABSTRACT

This article provides an empirical investigation of the effects of the ownership and organizational structure on the performance of cultural institutions. More specifically, we consider how museums are effective in their function of disseminating culture to audiences and contributing to the local development. By exploiting a unique data set based on the 2011 census of Italian museums, we develop indexes of accessibility, visitors' experience, web visibility and promotion of the local cultural context. Using count data models, we regress such measures on the type of organization. We distinguish between governmental museums, public museums whose administration is either outsourced or has financial autonomy and private museums. We control for the most salient characteristics of a museum, competition pressure and some proxies of potential audience. Our evidence shows that private museums, public museums with financial autonomy and outsourced museums outperform public museums run as sub-units of culture departments. This paper contributes to the cultural economics, policy and public administration literature by adding insights into the effect of outsourcing and administrative decentralization in the public cultural sector.

JEL: L33; Z18; H42
Keywords: public sector performance; outsourcing; decentralization; museums

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1. INTRODUCTION

The aim of this article is to analyse how ownership structure and organizational form influence the effectiveness of museums in their provision of public services. Specifically, we focus on their mission to enhance audience's experience and promote the local context.

In the last decades, museums have undergone radical transformations. Once their mission was mainly focused on traditional activities such as preservation, interpretation and scholarship of their collections. Recently it has been more and more oriented toward communication and exhibition. They dedicate special attention to both visitors' needs and the social and economic impact on the local community (Weil 1995, 1999; Anderson 2004).

Meanwhile the debate on government's intervention and performance in public service delivery has invested public museums. Scarcity of fiscal resources and an ideological shift in cultural policies have caused public museums to witness budget restrictions in many countries. This has favoured new strategies such as audience development and engagement, efficient management and attention to additional financial sources like sponsorships and donations (O'Hagan 1998). There has also been a growing awareness of the need to use specific accountability instruments and reporting methods *vis-à-vis* stakeholders. For instance, it is not surprising that new paradigms, such as that of public value, have taken hold in the arts and cultural policy debate as a means to make cultural services provision more efficient or accountable (Throsby 2010; Scott 2016).

Within this debate, the question is often addressed whether the ownership and organizational modes of cultural institutions may make a difference in terms of efficiency and effectiveness. This notwithstanding, there is little empirical quantitative evidence in the cultural economic literature on the effects of ownership structure and organizational form on museums' performance, and particularly on effectiveness.

Here we focus on the Italian context, which is particularly illustrative as it presents a large number of heritage institutions characterized by heterogeneity in both ownership structure and organizational forms. Traditionally Italian museums have been mainly public institutions managed under a state provision model by national or local government authorities. Since the mid-nineties several policy reforms have eased outsourcing practices and new, more decentralised organizational arrangements for public museum management. At the same time, private museums have

proliferated.

In our empirical analysis, we exploit a unique dataset based on the Italian National Statistical Office 2011 Museum Census – more than 2,500 units, including monuments and archaeological sites. We construct a set of indices of museum effectiveness in public service provision. They are related to four aspects of a museum's supply (accessibility, facilitation of visitors' experience, web visibility and relationship with the local context) and implode information on whether relevant activities and services were provided or not. These activities and services help museums achieve their core missions to improve public welfare by promoting, exhibiting and communicating heritage for the purposes of education, study and enjoyment and to be a catalyst for local development. We then build an overall index of effectiveness as the sum of the four indices.

Using count data models, we regress these variables on the type of museum organization: we distinguish between governmental museums (i.e. public museums dependent on central or local government), public autonomous museums, public outsourced museums and private museums.

Our main findings highlight that the effectiveness of public autonomous and public outsourced museums is higher than that of governmental institutions run as sub-units of culture departments and with no financial autonomy. At the same time, private museums perform better than publicly owned and directly managed museums, but not as well as those public museums that have been outsourced or granted financial autonomy.

The structure of the paper is as follows. Sect. 2 discusses about museum performance. Sect. 3 describes the research hypotheses on the institutional determinants we will test. Sect. 4 presents the Italian institutional context. Sect. 5 introduces data and empirical strategy. Section 6 presents results and discussion. Sect. 7 reports comments about robustness checks. Sect. 8 concludes.

2. DEFINING AND MEASURING MUSEUMS' PERFORMANCE

Museums are either public or non-profit organizations, and as such conceptualizing and measuring their performance represents a major challenge (Pignataro 2003; Fernandez Blanco et al. 2012). According to Harrison (2000), when the museum sector started to be considered from an economic and managerial point of view, the main focus was on efficiency, and the number of visitors or revenues from admissions was the most common measure of output. This perspective has generated a stream of empirical literature, mainly adopting Data Envelopement Analysis (DEA) as preferred methodology (Basso and Funari 2004; Taheri and Ansari, 2013; Del Barrio and Herrero 2014). Yet the works applying such an approach usually analyse rather small datasets of museums and, with very few exceptions, the output does not take into account the qualitative and social aspects of the cultural services provided. Moreover, when visitors are considered as a proxy of output, this variable may be either flawed by endogeneity problems *vis a vis* inputs, or it might be dependent on factors such as proximity to tourist resorts and attractions, which are clearly beyond a museum's control.

More recently effectiveness has become a major issue in the museum sector. Effectiveness is defined as the ability of a museum to generate values for society according to its mission and goals. It is a multi-dimensional concept as museums are expected to undertake different tasks, and their goals may relate to different stakeholders (Camarero and Garrido 2008).

In this paper we consider museums' effectiveness in activities related to aspects as various as cultural dissemination of heritage, audience engagement and enhancement of tourism attractiveness. Specifically, we focus on museums' ability to deliver services that enhance the satisfaction of visitors and the development of the local context (Camarero and Garrido 2008; Burton et al. 2009). Measuring museums' effectiveness in education is not easy. Outcomes such as individual learning from visits may be hard to assess through surveys because visitors tend to report about their previous knowledge of the collections, in addition to what they actually learnt during their visit (Prentice et al. 1998). An alternative approach is to measure museums' educational outcome through the assessment of individual satisfaction or perceived impact by stakeholders (Camarero and Garrido 2008; Camarero et al. 2011). However, the use of subjective measures of satisfaction is likely to be flawed by serious measurement biases (Boyne 2006).

To avoid such potential shortcomings, we do not consider the final outcome of a museum. Instead, we use a large number of outputs, i.e., activities and aspects of a museum's supply that target both tourists and visitors (both potential and actual), and whose aim is to make the museum more accessible, friendly and connected.[2] Del Barrio et al. (2009) and Herrero-Prieto (2013) define the number of activities and aspects of a museum's supply that we consider here as *social impact,* thus implicitly recognizing a close connection between these outputs and a museum's final outcome. The underlying idea is that the more a museum engages in such activities, the more likely it is to accomplish its role as a cultural disseminator and catalyst of the local context.

3. HYPOTHESES

In the cultural economics literature, a museum's ownership structure has been originally recognized as the main institutional factor affecting its incentives and operations (Frey and Pommerehne 1989; Benhamou 1998). While looking at the distinction between public and private museums, Frey and Pommerehne (1989) argue that, insofar as public grants cover their budget, public museums have low incentives to search for alternative income sources and thus to pay attention to public preferences, engage in a business managerial style and in visitor-oriented activities. This situation is exacerbated when public museums are owned and directly controlled by government entities. When a centralized bureaucratic organization manages such institutions, it may be inefficient in both coordinating the diverse museum functions and in promoting visitor-oriented activities. Moreover, revenues from ticket sales or ancillary services usually do not accrue to individual public museums or their offices but are part of government revenues.

Conversely, private museums relying more on private funding and revenue sources have greater incentives to engage in managerial practices and strategies to ensure the financial sustainability of the organization, with a view to developing an audience, offering amenities to visitors and striving to gain recognition from their various stakeholders (Frey and Meier 2006).

Notwithstanding such theoretical considerations, there is little empirical evidence about the effect of ownership on the dimensions of museums' performance. Using data from an international survey of

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[2] We are aware that some of the items we consider in measuring museums' connectivity with the local environment are not often defined as outputs, but the term is here borrowed from the literature on public management (Boyne 2006), where a distinction is made between outputs and outcomes.

491 European museums, Camarero et al. (2011) only find that the amount of public funding has a significant and negative impact on museums' capacity to embrace technological innovation, whereas they provide mixed evidence regarding the effect of museums' publicness on their economic and social performance.

We propose to test the following hypothesis regarding the relationship between museums' publicness and their performance:

H1: Private museums outperform public museums directly run by government entities in their mission to provide audience-oriented services for cultural dissemination and enhancement of the local context.

While the performance of museums may vary depending on the type of ownership, a more nuanced distinction can be made within the organizational structure of public museums. Schuster (1998) suggests that in the museum sector, hybrid ownership and organizational arrangements have become more common and widespread than pure forms of public and private institutions. Therefore, different organizational arrangements within public museums are likely to perform differently. In particular, outsourcing and administrative decentralization may impact public museums' effectiveness.

Regarding outsourcing in the cultural sector, Schuster (1997) argues that the quality of the cultural and artistic experiences provided by cultural organizations is likely to improve. However, he finds remarkably little evidence to support this argument.

From a theoretical viewpoint, the literature on incomplete contracts (Holmstrom and Milgrom 2011; Hart et al. 1997) suggests that efficiency gains may be expected from the outsourcing of public services to the private sector, whereas improvement in the quality of service provision depends mostly on the contractibility and measurability of the task/activity. Yet, the direct applicability of these tenets to the museum sector is arguable, as in most cases the service providers are non-profit organizations whose incentives are different from those of the for-profit ones assumed by the models – in fact, the former are more aligned to their public principal. Moreover, this stream of literature assumes that all the tasks that a principal outsources were previously produced in-house, whereas in museums' outsourcing contracts the agent either is asked to *increase* the number of activities/services with respect to the present situation, or increases it out of a desire to do well. There is anecdotal evidence that outsourced public museums have expanded the availability of visitors' amenities and improved commercial, non-mandated services, which allegedly represent those contractible activities that are more relevant for achieving audience development and engagement (Harrison 2000).

Another channel through which outsourcing of public museum might allegedly increase service performance refers to the fact that changes in organizational models may also affect the financing mechanism of public organizations, a factor that can definitely influence service provision if it translates into richer budgets. The main private actors engaged in the provision of outsourced museum services are mission-oriented non-profit organizations; therefore, an argument in favour of outsourcing is private non-profit organizations' ability to attract higher financial resources (through donations) than just the revenues of service delivery (Hansmann, 1981).

Our second hypothesis is therefore the following:

H2 Outsourced public museums are more effective than public museums directly run by government entities.

Another change in the organizational structure of public museums that is likely to affect performance stems from administrative decentralization in public service provision. While the concept of decentralization in the public administration literature has different nuances (Dubois and Fattore 2009), here we define it as the transfer of administrative and financial responsibility from central or local government entities to the museums themselves. Besley and Gathak (2003) develop an interpretative framework relating decentralization and effectiveness. They suggest that decentralized government provision may be a superior solution compared to both pure market and traditional state provision. Such a result stems from the fact that with decentralized provision, the single units endowed with managerial and financial autonomy within public organization benefit from the allocative role of matching providers, customers and workers. This leads to performance improvements due to better alignment of the mission preferences of all stakeholders, and attenuates incentive problems.

Hence our third hypothesis is formulated as follows:

H3 Public museums with managerial and financial autonomy are more effective than public museums directly run by government entities.

4. MUSEUMS: THE ITALIAN CONTEXT

Traditionally, culture in Italy has been considered to be a public sector domain of intervention focused mainly on heritage (Bodo and Bodo, 2014).[3] Along with monuments and archaeological sites, museums have always played a major role in public spending for heritage, which in turn is the main item within public cultural spending. Direct management by national or local governments was the only organizational model of museum policy until the mid-Nineties. Within the public sector, museums were not managed as autonomous units, and they did not have their own budgets. They were in fact sub-units of culture departments, with no own spending powers or revenues, and ticket sales and sponsorships would accrue to the general budget of the level of government that managed them. All decisions not pertaining to the strictly cultural domain were taken by the politically elected head of the culture department (and approved by the legislature) or by bureaucrats.

As Dalle Nogare and Bertacchini (2015) illustrate, all this began to change in the mid-Nineties due to the new ideological atmosphere and the necessity to shrink public expenditure to meet the Maastricht criteria.[4] In 1997, the Pompei archaeological site was granted some limited form of

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[3] The levels of government most involved in delivering cultural services are central government and municipalities, the former with a Ministry of Culture, the latter with their own culture departments.

[4] The new European law fostering the outsourcing of public economic services of general interest also had an impact, as it triggered a general trend towards outsourcing in Italy.

autonomy by central government, soon followed by the central government-owned museums of Florence, Rome and Venice, which were gathered in national museum poles (*poli museali autonomi*). In 2004, the National Egyptian Museum in Turin was handed over to a public-private foundation. Public museums belonging to local governments, universities and other public institutions have also experimented with new organizational models, though such changes have been only sketchily documented (Benedikter, 2004; Ponzini, 2010).

The shift towards new organizational modes has thus been going on for about twenty years. The process has exhibited substantial variability over time and levels of government. Resistance has been strong, both by a share of the directors and especially by the unionized employees, particularly against the outsourcing trend. Because of this resistance, almost all new organizational arrangements have not entailed a complete break with the past. Those museums that have been granted greater autonomy still depend on decisions made at the ministry/culture department level in many crucial respects, such as number of employees and wages. More often than not, the outsourcing option has turned into contracting-in or at best the handing over of museum management to newly created public-private institutions, making it hard to regard this trend as a real process of *destatization*.

Notwithstanding these limitations, the new organizational arrangements have substantially affected the operation of public museums. Autonomous museums can retain their revenues (including sponsorships and concession fees derived from outsourcing auxiliary services), which allows them to do some programming and budgeting. Outsourced museums' greater autonomy in programming and budgeting is complemented by greater attractiveness to donors.[5] Whether all this translates into improved museum performance is an open question.

5. RESEARCH METHODS

Empirical model and data

Our model is the following:

$$y_i = \alpha + \beta'_i Org_i + \delta'_i X_i$$

where y_i is the value of an index expressing the effectiveness of museum i in its mission to disseminate culture and promote the local cultural context ; Org_i is the set of our variables of interest accounting for the museum's form of ownership and organizational structure and X_i is a set of controls relative to the characteristics of the museum and the area where it is located. To translate it into an empirical model we add an error term with standard characteristics (zero mean, constant variance).

Our research exploits the rich information collected by Istat, the Italian National Statistical Office, in 2011 through a museum census covering all Italian museums and cultural heritage institutions

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[5] Outsourced museums also have the advantage conferred by the fact that new employees may be hired using private market employment contracts, which are characterized by greater flexibility. However, unless it is the case of a newly opened museum, the service provider is usually asked to employ the current staff at the same conditions as before. This implies that a reduction in the cost of staff is not to be expected, on average, in the short run.

(*Indagine sui musei e le istituzioni similari*). Archaeological sites, monuments and other institutions similar to museums are also included. Notably, the census includes questions concerning the type and characteristics of services and activities provided by the organization, which we use to elaborate performance indices. Istat provides these data after a process of anonymization. The sample size is 2517 museums with complete information on selected variables.

Dependent variables

We operationalize museums' effectiveness by using output measures of a museum's service supply related to improvements in audience experience and enhancement of the relationship with the local context.

The Italian museum census includes questions on the availability of services and activities that are directly or indirectly related to these organizational goals. We selected and classified them within four dimensions:

1) actual accessibility (ACCESS);
2) facilitation of experience (FRIENDLINESS);
3) visibility outside the premises, with special emphasis on web visibility (WEB);
4) mindfulness of local context and connection with other local institutions, both cultural and touristic (LOCALNET).

Table 1 summarizes the questions included within the four dimensions.

<Table 1 about here>

The first two dimensions (ACCESS, FRIENDLINESS) are directly related to the capacity of a museum to affect the quality of visitors' experience.

Museum accessibility, expressed in terms of opening days and schedule, is indicative of a museum's attitude towards cultural dissemination. All the museums of our sample were open in 2011, but not all of them had a predetermined opening time – some would just open upon request. Another question we consider is special night openings, which are one of the best signals of a museum's commitment to audience involvement.

FRIENDLINESS is about those visitors' amenities and services in a museum that enable to grasp the meaning of its collections and exhibitions. It captures the availability of facilities and activities such as laboratories or performances. It is the result of a large number of questions and explores all the aspects of a museum's supply that condition a visitor's experience and satisfaction. It is about both the core mission of a museum (cultural dissemination) and the provision of auxiliary services that may play an important role, especially in the experience of constantly occasional museum visitors (Brida et al. 2016).

Regarding the last two dimensions (WEB, LOCALNET), a high value is likely to be indirect evidence of the presence of strategies aimed at audience development. WEB measures a museum's strategy of web visibility, which fosters dissemination of knowledge about the museum's collections. It may also be intended as a measure of the attitude towards innovation in communication, because it is constructed from questions about Internet visibility, presence on social media, and availability of an institution's own apps.

LOCALNET summarizes a museum's attitude towards, and relationships with, both local audiences

and local cultural and tourism industry. Thus, it focuses on a museum's ability to promote the local cultural context through its reputation, loyalty building and collective marketing strategies. One question is about the presence of volunteers and civil service workers, which might signal the effort of a museum's director to involve the local community.

The answers to the binary questions within each of the four dimensions are transformed into dummy variables – presence/absence of that given service/characteristic. An index for each dimension is simply the count of the declared characteristics.

The proxy for overall effectiveness (OVERALL) combines all four dimensions as sum of ACCESS, FRIENDLINESS, WEB and LOCALNET. In principle, there exists a large number of alternative methods to synthetise binary variables in one single index. They differ in both the way they weight each binary indicator and in the selection of the aggregating function. For instance, one can rely on techniques based on extracting latent variables, like Multiple Correspondence Analysis, which indeed has been widely used (Greenacre and Blasius 2006). However, given the high number of dichotomous variables we consider in our study, this approach would provide hard-to-interpret dimensions. As to the interpretability of our regression coefficients, using extracted dimensions as dependent variables would make it harder. In fact, with our counting method the coefficients are simply the increase in the number of provided services.

It might be argued that not all the services we consider equally contribute to a museum's effectiveness. Moreover, our aggregating function produces an OVERALL index in which the dimensions with a higher number of indicators are overweighted. In order to test if these shortcomings affect the sign and significance of our estimates we also constructed a second indicator of overall effectiveness (OVERALLnorm) using a different weighting system. The new indicator is obtained from a 0-1 normalisation of each dimension, and the subsequent sum of the four indices. OVERALLnorm is then a continuous variable ranging from 0 to 4. This alternative dependent variable gives the same weight to each dimension, and allows each single binary indicator to weight less if it is part of a dimension with a higher number of variables (weights are equal to the reciprocal of the maximum number of services in each dimension). As we will see, the use of OVERALLnorm in place of OVERALL does not alter the results for our target variables significantly.

Regressors

The explanatory variables of interest measure ownership type and organizational structure of museums. We distinguish between four types of museums:

- *Governmental museums* (reference category) are owned and managed by a central or local government as a section of a culture department and have no own budget;
- *Autonomous museums* (AUTO) are owned by a central or local government, but they have their own budget, thus denoting some independence in strategies and decisions;
- *Outsourced museums* (OUTS) are owned by a central or local government, but they are managed by a contractor;
- *Private museums* (PRI) are privately owned.

The category of *Outsourced* museums refers to museums in which the general management of the institution is contracted out. *Private* includes all museums whose owner is a private subject, and includes also public-private institutions such as QUANGOs, as they operate under private law

regime.

Regarding other covariates, we consider what follows.

- A dummy for the type of museum (TYMUS) that equals 1 if "gallery or museum" is the only or prevalent type or nature of the institution – the reference category is monuments or archaeological sites. The reason is that different types of institutions may be differently suitable for hosting some of the considered activities and visitors' amenities.

- Whether the museum was opened before 1946 (Y46) and (log of) the surface of the museum (logSUR). Y46 controls for oldest museums, which are likely to be museums of fine art or antiquities and located in historic buildings whose structural conditions might hinder the provision of some of the specific services under consideration. Conversely, more recently established museums are more likely to offer services to their visitors or to have more relations with the local context. Furthermore, Y46 may also be interpreted as a control for the historical/artistic relevance of a collection, which is also partly controlled for by logSUR.

- Number of employees (NEMP). In the Italian context this variable is exogenous with respect to other managerial choices, such as the number of services offered, at least in public museums. Even when public museums are granted autonomy or outsourced, all decisions regarding staff are seldom under the direct control of a museum's director. The opposite circumstance might induce a suspicion of reverse causation here, but the institutional setup rules it out.

- Number of employees per surface unit (EMPSUR) and squared EMPSUR (EMPSUR2). EMPSUR controls for nonlinearities in the combination of given quantities of inputs, and its square accounts for eventual overcrowding effects.

- (log of) the population of the province where the museum is located, NUTS3 level (logPOP – Istat, 2016a) and (log of) the number of beds in accommodation facilities of the province, NUTS3 level (logBED – Istat, 2016b). They control for potential local and tourist audiences. We use the number of beds in accommodation facilities instead of tourist flows in order to avoid reverse causation problems, though recent evidence shows that in Italy tourism causes museum visits and not vice versa (Cellini and Cuccia, 2013).

- Whether the museum is part of an organized network of museums (NETMUS). Being part of a museum network may imply some scale economies in the provided services, or cost savings in administrative functions that may translate to more resources for activities targeted at the audience and the local community.

- The number of museums in the same municipality (NMUS). Albeit not allegedly crucial as a factor influencing museums' service supply, it controls for potential competition pressure.[6] Competition may affect museums in two ways. On the one hand, competition for visitors should trigger museums to offer activities and services to increase their effectiveness as cultural disseminators. On the other hand, competition for local funding might mean a smaller budget and thus a relative decrease in the variety of services and activities provided. It is important to control for competitive pressure to disentangle the pure organizational change effect from the confounding effect of one of its possible

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[6] All museums in the same municipality have been considered, also those not included in the sample.

consequences, i.e., a change in the degree of competition after adopting a model of service provision based on decentralized or outsourced museums.

- Dummies for the Italian regions, NUTS2 level.

Summary statistics are reported in Table 2.

<Table 2 about here>

Econometric strategy

As already illustrated, our response variables are the result of a process of counting the number of services provided by each museum. Consequently, we decided to regress our explanatory variables through standard count data models. As the target variable may report problems of overdispersion and in some cases of inflation of zeros, we initially considered two models, namely, Poisson and Negative Binomial, plus their version for zero-inflated distributions. The selection of the most appropriate model was driven by the comparison of several criteria, as Vuong (1989), LR and goodness-of-fit tests, information criteria, and quasi-Poisson's theta assessment (Cameron and Trivedi 1998).[7]

6. RESULTS

In what follows, we will first discuss the results for overall performance (OVERALL, Table 3) and then present evidence about the four indicators composing it (Table 4).

<Table 3 about here>

Overall effectiveness

Table 3, columns 1-4 show the estimates of models using the overall index of museum effectiveness (OVERALL) as dependent variable. For all specifications, the Negative Binomial was found to be the best choice.

Model 1 considers only the three ownership and organizational mode variables as covariates. There is clear evidence that autonomous and outsourced museums are associated with higher values for the dependent variable: the relative coefficients are positive and statistically significant at the 1% level, while surprisingly, private museums do not seem to differ substantially, as far as performance is concerned, from governmental museums, the reference category. Coefficient of autonomous museums is higher than that associated with outsourced ones. The incidence risk ratios (IRR) for these two organizational forms[8] indicate that being an autonomous or outsourced public museum leads to an increase of, respectively, 33.91% and 14.91% in the overall performance indicator relative to the reference category of governmental museums. Including regional dummies (Model 2) does not change the picture: the organizational structure effect is robust and sizable.

When we include museum-specific controls (Model 3), both the statistical significance and sign of

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[7] These tests are available upon request.

[8] The exp of each coefficient gives the incidence risk ratios (IRR), which is 1.3391 for AUTO and 1.1491 for OUTS.

our variables of interest persist, whereas the coefficient of both AUTO and OUTS become much more similar. All controls are significant and with the expected sign, except for the dummy capturing whether the museum opened before 1946. In particular, being a large museum (logSUR) with many employees (NEMP) increases the number of provided services; the same can be said for museums (TYMUS) compared to monuments or archaeological sites. Our control for the adequacy of personnel conditionally to the surface of the museum (EMPSUR) has a positive and non-linear impact, meaning positive but diminishing returns as an employee is added to a single surface unit, which depicts possible overcrowding effects.

Model 4 adds environmental controls, namely, the number of museums in the same municipality, whether the museum is part of a museum network, (log of) provincial population and (log of) the number of available beds in the accommodation facilities of the province. Sign, significance and even size of the coefficients of both OUTS and AUTO are not affected by the inclusion of the environmental controls. Instead PRI turns significant and positive, indicating a significantly higher effectiveness of these institutions than that of governmental museums, though not as high as that of both autonomous and decentralized ones. As expected, the evidence of a positive impact of competition pressure (NMUS) on performance is very weak, while that of being part of a museum network is strong. The impact of the size of the potential local audience (logPOP) is positive and significant. Interestingly, the impact of potential tourist audience (logBED) is negative. The difference in significance between the impact of residents and tourists may be due to a difference in the way museum managers consider these two types of audiences. Residents are likely to return to a museum, and accordingly it is important to build a reputation based on the provision of services – which is not the case when one considers tourists. The negative sign of logBED may suggest that in places where tourism is more developed museums have no incentive to be attractive, since tourists' decision to visit them depends whether they are considered icons or not.[9]

As the overall performance indicator is constructed using a large number of dummies, the support of its distribution is large enough to use OLS on our full model as a check for robustness (Model 5). It is reassuring to note that results are very similar to Model 4 in terms of significance and sign. As to the controls, the only difference is that now our measure of competition pressure is slightly significant, hinting that the positive effect of competition for audiences in raising museums' performance may be stronger than the potential negative effect arising from competition for financial resources.

OLS was also used in testing whether using the alternative dependent variable OVERALLnorm leads to different results. AUTO, OUTS and PRI have the same statistical significance, sign and coefficients' relative size as in Model 4; the same is true for most controls.

All in all, the most important finding conveyed by Table 3 is that there is robust evidence that when we consider performance, the organizational mode matters: public museums that have been granted autonomy or have been outsourced outperform governmental museums. Hence, Hypothesis 2 and Hypothesis 3 are confirmed. Private museums outperform governmental ones if all relevant controls are accounted for, but not in the same sizable way. This means that private museums' effectiveness is not as high as that of public autonomous and outsourced museums. We can therefore say that Hypothesis 1 is confirmed, but whether private museums do better than public ones depends on the

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[9] There is evidence that in Italy art exhibitions affect tourist flows in a negligible way (Di Lascio et al. 2011).

organizational form of the latter.

The evidence for private museums is puzzling, and we have only tentative explanations. Indeed, Italian private museums are a miscellany of very different types of institutions. Many are owned by the Catholic Church, which has a very peculiar nature. The organizational mission of its museums may be different from cultural dissemination and especially local promotion. Additionally, a fairly large number of private museums are brand museums. In recent years, firms of all sizes have opened their own museums and galleries containing archive material and explaining the production of the good they supply. They tend not to have a fixed opening time or many relations with the local community, as they are often meant as part of a B2B marketing strategy.

<Table 4 about here>

Single dimensions

Table 4 summarizes results obtained from using each of the four sub-indeces as dependent variable. The selected counting model for each of them is reported in the Table.

ACCESS (Model 7) shows the smallest number of significant covariates. It is not significantly explained by the ownership type or the organizational mode of a museum. Autonomous, outsourced and private museums seem not to differ significantly from governmental ones with respect to accessibility.

Estimates for FRIENDLINESS, WEB and LOCALNET (Models 8 to 10) all show robust evidence that both autonomous and outsourced public museums outperform governmental ones. Private institutions do not stand out as significantly different from the reference category when one considers their visitor friendliness, whereas their coefficient is positive in the WEB and LOCALNET regressions, though the coefficient is much smaller than that of public autonomous and outsourced museums.

Overall, we can conclude that considering museum effectiveness in specific operational contexts makes a difference:

- Hypotheses 1, 2 and 3 are confirmed when one considers performance in terms of web visibility and relation to the local context.
- Hypotheses 2 and 3 are confirmed when one considers visitor friendliness, while Hypothesis 1 is not confirmed.
- Hypotheses 1, 2 and 3 are not confirmed when one considers accessibility.

7. ROBUSTNESS CHECKS

Results from a series of robustness checks are reported in Table 5.

One concern about our results is the statistical independence of the dummies we use in the construction of our dependent variables. In particular, the two items "*cafeteria and restaurant*" and "*bookshop*", when present in a museum, imply a profit-making activity that could make a museum more capable of supporting a higher number of non-profit-making activities and services. We therefore re-ran our baseline regression (Model 4) using another dependent variable that excludes the two items in question from the overall performance indicator (Model 11). The results do not

change much; the point estimates of AUTO and OUTS are somewhat smaller yet positive and significant.

Another point of concern regards our controls for the relevance of the museum collection, namely, Y46 and logSUR. These may not fully capture a museum's attractiveness for visitors, which is an important control for the number of services a museum offers. However, if we proxy attractiveness with the number of visitors on the right-hand side of our model, a reverse causation problem may arise, because visitors may be more attracted by museums providing more services and amenities. We argue however that this may not be the case for foreign visitors, who usually visit museums mostly because of the fame of their masterpieces. We therefore use the share of foreign visitors on total visitors (FOREIGN) as an extra covariate in our full model.[10] In Model 12 we observe very few changes with respect to Model 4, with FOREIGN being positive but only marginally significant, revealing that age and surface are probably sufficient to account for the relevance of a museum's collection.

Finally, in Model 4 we found that being a private museum affects performance positively, but apparently the performance of Italian private museums is lower than that of Italian public autonomous and outsourced museums. Since most private museums are not-for-profit institutions, we expected that private and public outsourced museums would be associated with similar service performance, but this does not emerge from our estimates. One possible explanation for this result may be found in the peculiarities of the Italian context regarding the category of private museums, which are mostly owned by religious organizations, whose mission might arguably be more concerned with preservation of the collections than with providing public services to enhance audience access and experience. Thanks to a specific question in the census data we use, we are able to distinguish between museums belonging to the Catholic Church (PRIrelig) and other private museums (PRInorelig). Model 13 reports the results of our modified baseline model. The estimated coefficient of PRIrelig is negative, whereas that of PRInorelig is positive, and both are significant, thus confirming our thesis. Note however that the point estimate for PRInorelig is half that for AUTO and smaller than that for OUTS, revealing that private museums in Italy are not, on average, top performers. This is evidence needs further investigation.

Finally, it might be argued that there is a possible different reading of our findings. As the decision to decentralize or outsource is a discretionary choice, central and local governments may decide to give autonomy to or outsource only those museums that have a greater potential to attract visitors and tourists. In other words, there may be a problem of reverse causation: it is not the organizational structure that influences the number and variety of services provided but rather the number of services, a proxy for attractiveness, that determines the organizational structure.

We have, however, reasons to believe that reverse causality is not a concern in this context. Firstly, central government has indeed implemented a reform that granted financial and administrative autonomy in a selective way: only its most attractive museums have been decentralised. However, this has occurred after our reference year. Secondly, there is some evidence that selectivity has not guided local governments' outsourcing decisions regarding their museums. From the analysis of the Home Office data on municipalities' outsourcing, it emerges that when a municipality owns more

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[10] We construct this variable using the answers to two questions on audience in the census survey. These values are therefore self-reported by each museum.

than one museum, it tends to outsource all of them, regardless their number of visitors.

8. CONCLUDING REMARKS

Museums are for preserving and showing their collections, to which a community attributes a symbolic meaning that reinforces both individual and collective identity. They are often also tourist attractors, and in both roles they are important for the positive externalities they produce. This explains why their service provision has a relevant public good component; thus, the issue of museum performance is often considered within the context of the debate on public service providers' performance.

This contribution investigates which type of museum ownership structure and organization is best in terms of effectiveness, concentrating on museums as culture disseminators and catalysts of the local context. We proxy museums' effectiveness with the number of services and activities they set up in order to play those roles. We carefully control for a number of museum-specific and context-specific determinants of performance and for potential audience.

Our estimates highlight the fact that service performance in public autonomous and public outsourced museums is higher than that in public museums run as sub-units of governmental culture departments with no financial autonomy. The impact of being decentralized or outsourced is not only positive, but also sizable. We read this finding as evidence that decentralization and outsourcing have positive consequences in the number and diversity of services and activities museums provide to fulfil their mission as cultural disseminators and promoters of the local cultural and tourist context.

A policy recommendation that governmental museums should be outsourced or granted more financial autonomy does not immediately follow, however, because nothing can be argued here about the *quality* of the provided services. Yet the impact of decentralisation and outsourcing on quality, upon which most of the literature has so far insisted, is not the *only* element to consider when it comes to the design of a multi-output service provision. In fact, what our evidence shows is that the number of activities/services provided by a museum vary according to its organisational mode. *Number* and *quality* of the provided services must be jointly considered, a task we leave for future research.

A second interesting finding of our analysis is that the different performance dimensions we consider are affected by a museum's organizational structure in different ways. Accessibility seems not to be influenced at all, while all other dimensions (visitor amenities, web visibility and local network) confirm that autonomous and outsourced museums outperform governmental ones. The impacts of being autonomous and outsourced are similar in the case of visitor friendliness and relations with the local context, while in the case of web visibility, being an autonomous museum has a larger impact on performance than being outsourced. This may also hint at different attitudes towards new communication technologies by the two museum organizational types.

Finally, according to our evidence, Italian private museums do not seem to be very effective – though they do better than public museums that are run as sub-units of culture departments – and this is true even if we control for Church ownership. This may be specific of the Italian context;

further investigation on other countries' museums is needed to clarify this point.

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Table 1 - Performance dimensions and related dichotomic items of the questionnaire

Dimension-subdimension	Item
ACCESS	
Opening time policy, predefined timetable (ref. opening upon request)	
Open all year (except holidays)	
Evening or night openings	
FRIENDLINESS	
Informational devices	info point
	info poster at entrance
	map at entrance with visiting paths
	presence of brochures
	posters or captions describing single displays
	Audio- and/or video guides and/or multimedia booths
	signs highlighting visiting paths
	paths and info material dedicated to children
	info material for disabled people (braille)
	info poster at entrance on local context
Facilities	ticket pre-sale/reservation of visit
	cloakroom
	cafeteria and restaurant
	bookshop
Guided visits	
Didactic activities	
Performances and similar events	
WEB	
Website	
Online catalogue for visitors	
Online scientific catalogue for scholars	
Access to single selected heritage pieces	
App	
Teaching/gaming section in website	
Online library	
Online ticket purchase	
Virtual visit	
Online calendar of events	
Newsletter	
Social media	
Wi-Fi access	
LOCALNET	
Presence of volunteers or "civil service" employees	
Presence of "friends of" clubs	
Part of structured cultural paths	
Brochures of local cultural and touristic organizations	
Advertising campaigns dedicated to locals	
Partnerships with other local cultural institutions	

Table 2 – Summary statistics for response variables and regressors

Variable	Acronym	Mean	Standard deviation	% (dummy=yes)
Effectiveness: overall	OVERALL	17.3	6.7	
Effectiveness: actual accessibility	ACCESS	2.1	0.9	
Effectiveness: facilitation of experience	FRIENDLINESS	8.8	3.7	
Effectiveness: visibility	WEB	2.4	2.3	
Effectiveness: local context	LOCALNET	3.9	1.5	
Autonomous museums (dummy)	AUTO			7.0
Outsourced museums (dummy)	OUTS			19.1
Private museums (dummy)	PRI			37.7
Number of museums within the same municipality	NMUS	8.9	19.2	
The institution is a gallery or a museum (dummy)	TYMUS			86.4
The museum is part of an organized network of museums or similar institutions, for the sharing of human, financial or technological resources (dummy)	NETMUS			49.7
The museum was opened before 1946 (dummy)	Y46			11.2
Surface, square meters	SUR	3560.7	35563.8	
Number of employees	NEMP	10.4	24.9	
Number of beds in accommodation facilities of the province (NUTS3)	BED	38725.2	46247.9	
Population of the province (NUTS3)	POP	810344.5	900317.2	
Employees/surface ratio * 100	EMPSUR	3.1	7.5	

Table 3 – Overall effectiveness, results.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Model, dependent variable	*Negative binomial*, OVERALL				OLS, OVERALL	OLS, OVERALLnorm
AUTO	0.292*** (0.032)	0.279*** (0.031)	0.193*** (0.028)	0.194*** (0.028)	3.675*** (0.471)	0.341*** (0.050)
OUTS	0.139*** (0.022)	0.143*** (0.023)	0.167*** (0.021)	0.171*** (0.020)	2.869*** (0.334)	0.268*** (0.035)
PRI	0.013 (0.019)	0.012 (0.019)	0.023 (0.017)	0.058*** (0.017)	0.975*** (0.275)	0.073** (0.029)
Regional dummies	No	Yes	Yes	Yes	Yes	Yes
TYMUS			0.184*** (0.022)	0.187*** (0.022)	3.246*** (0.348)	0.312*** (0.037)
Y46			0.009 (0.023)	0.0001 (0.023)	0.089 (0.377)	0.074* (0.040)
logSUR			0.120*** (0.006)	0.113*** (0.006)	1.823*** (0.098)	0.186*** (0.010)
NEMP			0.001*** (0.0003)	0.001*** (0.0003)	0.027*** (0.005)	0.003*** (0.001)
EMPSUR			0.009*** (0.002)	0.009*** (0.002)	0.116*** (0.028)	0.016*** (0.003)
EMPSUR2			-0.0001*** (0.00001)	-0.0001*** (0.00001)	-0.001*** (0.0002)	-0.0001*** (0.00002)
NMUS				0.001 (0.0004)	0.012* (0.007)	0.001 (0.001)
NETMUS				0.148*** (0.015)	2.430*** (0.241)	0.261*** (0.025)
logBED				-0.021** (0.010)	-0.303* (0.167)	-0.026 (0.018)
logPOP				0.033** (0.015)	0.541** (0.239)	0.035 (0.025)
Constant	2.793*** (0.013)	2.869*** (0.031)	1.895*** (0.055)	1.553*** (0.166)	-4.127 -2.706	0.119 (0.286)
Observations	2,517	2,517	2,517	2,517	2,517	2,517
Log Likelihood	-8,372.714	-8,313.743	-8,059.397	-8,005.486		
Theta	9.850*** (0.458)	10.652*** (0.511)	15.478*** (0.880)	16.957*** (1.011)		
AIC	16,753.430	16,673.490	16,176.790	16,076.970		
R^2					0.308	0.289
Adj. R^2					0.299	0.280
Residual SE					5.616 df = 2484	0.594 df = 2484
F statistic					34.482***	31.511***

					df = 32; 2484	df = 32; 2484

Note – Standard errors in parenthesis. Signif. codes: *** *p< 0.01; ** p< 0.05; * p< 0.1*. Set of dummies for Italian regions (NUTS 2) are included in each regression but not reported (reference category: Lazio).

Table 4 – Single effectiveness indeces, results.

	Model 7	Model 8	Model 9		Model 10	Model 4
Type of model, dependent variable	Poisson, ACCESS	Negative binomial, FRIENDLINESS	Zero-inflated negative binomial, WEB		Poisson, LOCALNET	Negative Binomial, OVERALL
AUTO	0.069 (0.055)	0.174*** (0.029)	0.881 (0.275)	0.385*** (0.059)	0.134*** (0.040)	0.194*** (0.028)
OUTS	0.035 (0.041)	0.175*** (0.021)	0.212 (0.143)	0.285*** (0.051)	0.163*** (0.029)	0.171*** (0.020)
PRI	-0.038 (0.034)	0.024 (0.018)	0.145 (0.116)	0.293*** (0.043)	0.066*** (0.025)	0.058*** (0.017)
Other covariates	Regional dummies, TYMUS, Y46, logSUR, NEMP, EMPSUR, EMPSUR2, NMUS, NETMUS, logBED, logPOP, constant term					
Observations	2,517	2,517	2,517		2,517	2,517
Log Likelihood	-3,674.569	-6,556.483		-4,730.645	-4,635.869	-8,005.486
theta		50.461*** (10.338)				16.957*** (1.011)
AIC	7,415.139	13,178.970			9,337.737	16,076.970

Note – Standard errors in parenthesis. Signif. codes: *** $p< 0.01$; ** $p< 0.05$; * $p< 0.1$. Set of dummies for Italian regions (NUTS 2) are included in each regression but not reported (reference category: Lazio).

Table 5 – OVERALL, robustness checks, negative binomial regressions.

	Model 4	Model 11	Model 12	Model 13
Description	Full model	Exclusion of revenue generating services in the dependent variable	Inclusion of the share of foreign tourists as regressor	Split of PRI between PRIrelig and PRInorelig
AUTO	0.194***	0.188***	0.195***	0.197***
	(0.028)	(0.027)	(0.028)	(0.027)
OUTS	0.171***	0.159***	0.174***	0.172***
	(0.020)	(0.020)	(0.021)	(0.020)
PRI	0.058***	0.046***	0.059***	
	(0.017)	(0.017)	(0.018)	
FOREIGN			0.001*	
			(0.0004)	
PRIrelig				-0.075***
				(0.025)
PRInorelig				0.107***
				(0.018)
Other covariates	Regional dummies, TYMUS, Y46, logSUR, NEMP, EMPSUR, EMPSUR2, NMUS, NETMUS, logBED, logPOP, constant term			
Constant	1.553***	1.560***	1.534***	1.560***
	(0.166)	(0.163)	(0.169)	(0.164)
Observations	2,517	2,523	2,413	2,517
Log Likelihood	-8,005.486	-7,904.113	-7,670.647	-7,980.916
theta	16.957*** (1.011)	18.787*** (1.203)	17.170*** (1.052)	17.647*** (1.073)
AIC	16,076.970	15,874.230	15,409.290	16,029.830

Note –Standard errors in parenthesis. Signif. codes: *** $p< 0.01$; ** $p< 0.05$; * $p< 0.1$. Set of dummies for Italian regions (NUTS 2) are included in each regression but not reported (reference category: Lazio).