The organization of public service provision and service quality:

The case of museums

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ABSTRACT

This article is an empirical contribution to the debate on the effects of decentralisation and outsourcing on service quality. Little empirical evidence has been published so far in the public and cultural economics literature on the quality-shading hypothesis due to the difficulty in measuring quality. Here we consider museums and concentrate on their mission to disseminate culture. We exploit a unique dataset based on the 2011 census of Italian museums to identify a quality index comprising items related to accessibility, friendliness towards visitors, web visibility and relations with the local community. Using count data models, we regress a proxy for quality of museum services on the type of organisation, distinguishing between public providers that are not separate accounting units, public providers with financial autonomy, outsourced museums 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 public museums with financial autonomy and outsourced museums outperform both public museums run as sub-units of culture departments and private museums.

JEL: L33; Z18; H42

Keywords: service quality; outsourcing; decentralisation; museums

What is your opinion about the much-debated autonomy?
Most of all, I consider autonomy as having one's own budget (...)

The most immediate necessity is an administrative reform…

the most important one isimproving visitors' experience"

(Interview to Eike Schmidt, new director of Uffizi in Florence,

Il Giornale dell'Arte, Feb. 2016)

1. Introduction

The aim of the article is to analyse how the ownership structure and the organizational form of cultural institutions influence the quality of delivered services.

Within the broader debate about the reform of public service delivery, the theoretical literature on the outsourcing of public services and the administrative decentralization of public sector organizations has highlighted different incentives of public and private providers and has made predictions on the effects of privatisation and decentralization on both costs and quality. While efficiency gains are commonly expected, the associated effects on quality are less clear, much depending on the incentives and monitoring efforts devised to reach quality standards in public provision. Besides, there are sectors in which privatisation may introduce, alongside pure cost-saving innovations, quality-improving innovations with little impact on costs. At the same time, decentralized provision enables single units endowed with managerial and financial autonomy within a public organization to better match the mission preferences of all stakeholders, thus potentially leading to service quality improvements.

Notwithstanding such theoretical considerations, little empirical evidence has been published so far on the quality-shading hypothesis of outsourcing and on the effects generated on service quality by administrative decentralization. This is mainly due to the difficulty in measuring quality.

Here we consider museums and concentrate on their mission to disseminate culture. We focus on the Italian context, which is particularly illustrative for the large number of heritage institutions and their current heterogeneity in ownership structure and organizational forms. While traditionally Italian museums were mainly public institutions managed under a state provision model by national or local government authorities, since the mid of the 90s several policy reforms have eased outsourcing practices and new hybrid organizational modes for public museums' management. At the same time,

private museums proliferated in the form of institutions preserving the heritage highly scattered throughout the Italian territory and making it accessible to the public.

In our empirical analysis we exploit a unique dataset based on the Italian National Statistical Office 2011 Museum Census (more than 2500 Italian museums) to identify a number of proxies for quality, namely accessibility, facilitation of visitors' experience, digital services and the relationship with the local community. Using count data models, we regress quality on the type of organisation, distinguishing between governmental institutions that are not separate accounting units, public autonomous museums, public outsourced museums and private museums. We control for the type of museum (monument, museum, archaeological site), time of foundation, the competitive environment (number of museums in town) and, carefully taking account of endogeneity, some proxies of potential audience (population, tourism beds).

Our main findings highlight that service quality in public autonomous and public outsourced museums is higher than quality in governmental institutions run as sub-units of culture departments and with no financial autonomy. We read this as evidence that decentralisation and outsourcing do not imply quality shading. The article contributes to the debate in the cultural economics literature by providing new empirical evidence on the effect of outsourcing and administrative decentralization of public museums on service quality.

The paper is organized as follows: Section 2 discusses the main theoretical and empirical literature on the topic, Section 3 presents the Italian context of museum sector, Section 4 describes the data and the empirical model, Section 5 presents the results while Section 6 concludes by discussing and interpreting the main findings.

2. Ownership, organizational structure and quality of public services

Although the issue of quality in the provision of public services is particularly relevant in many domains of public intervention, only few works have directly investigated how the type of ownership and the organizational structure of suppliers may influence the quality of the provided services. This subject has been usually addressed within the broader analysis of the quality shading effects of privatisation and outsourcing of services delivered by the public sector (Shleifer, 1998; Jensen and Stonecash, 2005), and in the literature concerning the impact of administrative decentralization on public sector organizations' performance and accountability (Proud'Homme, 1995; Besley and Gathak, 2003).

Among the works addressing the *quality shading* hypothesis in the outsourcing of public service delivery, the literature on incomplete contracts shows that service quality either deteriorates or improves according to a number of circumstances. Following a multi-tasking approach, Holmstrom and Milgrom (1991) suggest that in instances where an agent is required to perform a number of different tasks, effort will be allocated to the task that is most easily measured (and therefore rewarded). Thus, the agent may choose to increase productivity at the expense of the quality of output. Hart, Shleifer and Vishny (1997) develop a model where, in a world of incomplete contracts, a private firm has stronger incentives to both reduce costs and improve quality than the public sector. However, the cost-reduction incentive may overwhelm the quality-improvement incentive if quality is difficult to measure (i.e. it is non-contractible). In this case, the larger the adverse consequences of cost cutting on (non-contractible) quality, the stronger the involvement of government in-house provision of the public services. However, if there is competitive pressure in the delivery of the public service and consumers can assess the quality on their own, private providers would face socially optimal incentives, since, on the margin, they get a lower price for any quality shortfall resulting from a cost reduction, and a higher price for any quality improvement through innovation. In this case, contracting out or private ownership may be a superior solution. Further, Hoppe and Schmitz (2009) extend the Hart et al. (1997) framework by introducing ex-post renegotiation and different responsibility in investment (cost reduction and quality improvements) by government or private actors within different ownership arrangements. Their findings confirm that private actors have stronger incentives for investing in cost reduction while the public sector for investing in quality improvements. In hybrid partnership arrangements, the cost reduction investment should be assigned to the private manager while the quality investment to the government.

Looking at the division of responsibility between the public and the private sector for the delivery of public goods, Besley and Ghatak (2001) illustrate the free riding problem that occurs when the benefits (improved quality) created by investments of different parties in a project have a public good dimension. They claim that the party with the highest valuation of the generated benefits should be the owner, irrespective of technological advantages in the production of the good or service. The delivery of services with public good characteristics mainly occurs in situations in which the public and the private sectors may be concurrent providers of the public good. The quality of public services is more likely to be guaranteed by assigning control over service provision to the party having the greater perception of the public good and social value generated (or, if profit oriented, that can extract higher consumer surplus from quality improvements).

The literature on privatization and outsourcing of public service delivery mainly focuses on the incentives and efficiency gains leading to the improvement of service quality, but it disregards that changes in the ownership structure and organizational models may also affect the financing mechanism of public organizations, a factor that can definitely influence service quality. Considering that the main private actors engaged in the provision of public services are mission-oriented non profit organizations, an additional argument in favour of outsourcing is private non profit organizations' ability to attract higher financial resources than just the revenues of service delivery. This occurs through voluntary price discrimination: high demanders of the public service contribute above the price through giving and donations to the organization (Hansmann, 1981). As a result, a positive relationship may exist between ownership/organisational mode and service quality due to the different ability to attract funds by the different owners/providers.

The ownership and organizational determinants of service quality has been also addressed by works concerning the impact on public service delivery of the transfer of administrative and financial responsibility to decentralized units. Proud'homme (1994) defines *administrative deconcentration* as the transfer of responsibility for planning, management, and the raising and allocation of financial resources from central government and its agencies to field units of government agencies, or subordinate units or levels of government. In this context, Besley and Gathak (2003) develop an interpretative framework to assess different models of public organization involved in the provision of a public service. They suggest that a model based on decentralized government provision may be a superior solution compared to pure market and traditional state provision. Such result stems from the fact that with decentralized provision, the single units endowed with managerial (and sometimes financial) autonomy within the public organization would benefit from competitive pressure and the allocative role of matching providers, customers and workers. The positive effect of competitive pressure on the quality of local public services has been confirmed by Bloom et al. (2013), focusing on UK public hospitals' management practices and performance. Their empirical finding suggest that higher competition results in higher management quality and improved hospital performance[1], which can be considered as an overall proxy for the quality of services provided.

The analysis of the specific determinants of the quality of cultural services has been addressed by scholars and policy-makers discussing the effect of privatization of cultural institutions or of

[1] The quality of management is measured using dedicated interviews to hospital managers based on 18 dimensions of management practices in the category of operations and monitoring (6 questions), targets (5 questions) and incentives management (7 questions). Each dimension is evaluated with a score from 1 to 5 depending to interviews responses and following a structured evaluation methodology. Conversely, performance indicators address more quantifiable and objective output measures, such as Health Care Commission rating, mortality rates in emergency, average length of staying in hospital.

decentralization of public cultural services. In fact, museums and arts organizations are often publicly owned and provide services with public/merit good components. In the cultural policy domain, Schuster (1997) argues that one tenet for privatization and outsourcing may be that the quality of the cultural and artistic experience provided by the organizations will improve. However, he finds remarkably little in the debate on privatisation in the cultural sector addressing this question. Looking specifically at museums, this issue has been confined to the implications of outsourcing museum services with the distinction between commercial, non-mandated services of public museums and publicly mandated areas such as curatorship, collections management and conservation (Harrison, 2000). In this context, Schuster (1998) suggests that in the museum sector, rather than pure forms of public and private institutions, hybrid ownership or organizational arrangements are common where responsibility for certain tasks of the cultural institution's operations are vested in private hands and with responsibility for other ones vested in public hands. More in detail, when the production of cultural services entails the management of assets which require highly specialized resources and skills (such as a museum collection), contract theory expects that holdup problems arise between the government and the contracted cultural organisation because the outsourcing relationship involves the use of transaction-specific assets. Holdup problems are exacerbated in situations in which quality concerns or social goals are part of an efficient outcome, such as in case of cultural goods that are unique and not reproducible. Consistently with such theoretical arguments, some countries have privatised their museums or non-mandated services but not their collections or the activities related to their preservation (Dalle Nogare and Bertacchini, 2015). As will be better detailed in the next section, this is the case of Italian public museums. By law, all auxiliary museums services have been outsourced to private companies since the 90s. Italy has also witnessed numerous cases of outsourcing of the whole of a museum's services, and we will focus on them as well as on the public museums, which have been granted financial autonomy.

On the empirical side there are very few works addressing the determinants of quality in the domain of cultural services, and they do it only indirectly. This is mainly due to the fact that quality is difficult to measure (Domberger and Jensen, 1997). In particular, the measurement of service quality is generally much more difficult to achieve than that of goods' quality. Among the few relevant contributions, Camarero et al. (2011) focus on technological innovation and museum performance using data from an international survey comprising 491 European museums. They explore the influence of organizational size and financial structure on the attitude toward innovation and the economic, market and social performance of museums. They find that the financial structure has an impact on the level of innovation and performance in museums. Museums endowed with more public funding seem to have less of an incentive to embrace technological innovations. Candela et al. (2014)

also address the quality of museums services. Their focus is however not the determinants of service quality but rather the effect of quality on visits. After controlling for artistic relevance of the collection and the city where the museum is located, their findings suggest that auxiliary services, which may be seen here as proxies of quality, do not exert any significant effect on the flow of admissions, with the only exception of bookshops. This, in our view, calls for a more extensive definition of quality of museum services.

3. Museums: the Italian context

Traditionally, culture in Italy has been considered as a public sector domain of intervention, mainly focused on heritage (Bodo and Bodo, 2014).[2] Along with monuments and archaeological sites,[3] museums have always played a major role in public spending for heritage, which, in turn, is the main item within public cultural spending.[4] Direct management by national or local governments was the only organisational model of museum policy up until the mid-1990s. Within the public sector museums were not managed as autonomous units and they had no own budget. They were in fact sub-units of the culture departments, without own spending powers and own revenues (ticket sales and sponsorships would accrue to the general budget of the level of government of reference). All decisions not pertaining the strictly cultural domain would be taken by the politically elected head of the culture department (and approved of by legislature) or by bureaucrats.

As Dalle Nogare and Bertacchini (2015) illustrate, all this began to change in the mid 1990s due to the new ideological atmosphere and the necessity to shrink public expenditure to meet the Maastricht criteria.[5] Law n. 4, 4-01-1993 on auxiliary museum services (bookshops, catering, etc.) was the first law in Italy allowing outsourcing in the cultural field.[6] In 1997 Pompei archaeological site was granted a special autonomous status by central government, soon followed by the central government owned museums of Florence, Rome and Venice, which were gathered in autonomous national museum poles (*poli museali autonomi*). In 1998 the National Egyptian Museum in Turin was handed

[2] 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 culture departments.

[3] Museums, monuments and archaeological sites are statistically the same item.

[4] Up until recently private museums have been not so numerous (apart from those run by the Catholic Church).

[5] Also the new European law fostering the outsourcing of public economic services of general interest had an impact, as it triggered a general trend towards outsourcing in Italy, though culture is generally understood as a social rather than an economic service. The new organisational models for cultural institutions have attracted the attention of law scholars more than that of economists, also because in 2004 a new Heritage and Landscape Codex was approved embodying the new rules on public museums.

[6] This law started being applied only in 1996.

over to a public-private foundation. Though only sketchily documented, also the public museums belonging to local governments, universities and other public institutions started experimenting with new organisational models, and at an even faster pace (Benedikter, 2004; Borgognoni, 2007; Ponzini, 2010).

This shift towards new organisational modes has been going on for about twenty years now. The process has exhibited substantial variability over time, across cultural sectors and levels of government.[7] Resistance has been strong, both by a share of the directors and by the unionized employees. When the newly appointed director of Reggia di Caserta, a magnificent Versailles-like castle near Naples (230 employees), started exerting the new powers given to him by a recent law on autonomous national museums in 2016,[8] the unions' representatives challenged him and wrote a letter to the minister of culture protesting against the new opening times and the fact that the director was working overtime.[9] Opposition has been strong especially against the outsourcing trend.[10]

Because of this resistance, almost all new organisational arrangements did not entail a complete break with the past. Those museums that have been granted greater autonomy still depend on decisions taken at the ministry/culture department level in many crucial respects, such as employees' number and wage. More often than not, the outsourcing option has turned into contracting-in, or at best the handing over of museums management to newly built public-private institutions, which have proliferated. All this to say that to talk about a real process of *destatisation* is perhaps an exaggeration. Yet we argue that working in an Italian museum now is anyway different if that museum enjoys an autonomous status or has been outsourced. In the case of autonomous museums, they can retain their revenues (including sponsorships and concessions fees derived from outsourcing auxiliary services). This allows them some programming and budgeting, though the grants from the government of reference have become more and more volatile, a circumstance characterising all public museums, and especially central government ones, in the last two decades. In the case of outsourced museums,

[7] The frequent judicial controversies between outsourcing governments and service providers have been one of the factors slowing down the pace of the outsourcing trend.

[8] Law no. 208, 2015 and subsequent implementing decrees have recently granted an autonomous status to a larger number of national museums and changed the recruiting policy regarding their directors, who must now be selected among the respondents to an international call for expression of interest.

[9] The story was on all national newspapers and Prime Minister Renzi was reported to comment: "The fun is over". The general secretary of Cgil, the national trade union the workers who sent the letter belonged to, claimed the letter was "a mistake".

[10] The rhetoric of some museum directors against the new trends was about the possible conflict between preservation and valorisation. The advocates of the status quo claimed that privatisation in its different shapes (including outsourcing) would shift the balance in favour of policies that made it easy for the audience to access museums, but, by so doing, it would endanger the existence of the very cultural goods exhibited (either through the damages caused by congestion or through less money assigned to restoration and maintenance works).

programming and budgeting is complemented with the advantage given by the fact that new employees may be hired using private market employment contracts, which are characterised by greater flexibility.

Whether all this translates into better standards of service quality is an open question. There is no systematic statistical analysis of these phenomena. This is mainly due to lack of data not just on quality, but also, up until not so long ago, on the organisational structure characterising Italian museums. However, the situation has recently improved as far as information on museums' organisational mode is concerned. We have now data on municipalities' outsourcing in the cultural field in the years 2009-2011.[11] According to these data, in 2011 569 municipalities outsourced at least one cultural service. There is great geographical variability, with central Italy municipalities being the most active in outsourcing (in Tuscany 18.8% of municipalities outsourced at least one cultural service) and the Southern ones the least active (only 1.3% of Sicilian municipalities did). This possibly hints at a difference in commitment of regional legislators in fostering outsourcing, or perhaps at imitation between neighbouring local governments. Municipality size also matters. About 38% of largest cities (provincial administrative centres) outsourced at least one of their cultural services in 2011, whereas only 4.4% of smaller municipalities did. Considering the three categories of museums, theatres and libraries/archives, the former is the one in which outsourcing was less frequent, which may be due to the higher transaction costs in the heritage sector than in the other two fields (Bertacchini and Dalle Nogare, 2014). In the specific domain of museums, municipal outsourcing has been mainly towards foundations, many of which QUANGO.

A richer source of information with respect to museums' institutional and organisational arrangements is the 2011 national statistics office Istat Museum Census, which covers all Italian museums. The census also includes questions investigating visitor-friendliness, which we interpret as quality. This is the data we exploit in this contribution. To our knowledge, this is the first time Istat Museum census has been explored by cultural economists.[12]

3. Empirical model and dataset.

Our empirical model is the following:

[11] Experimental accounting report, Home Office (*Quadro 15-S3, certificati consuntivi).*

[12] Another source of information on service quality comes from the specialised press. Il Giornale dell'Arte publishes every month a report on a museum compiled by a journalist who visits it as a mystery guest. This information has been recently used in a scientific paper (Candela and Scorcu, 2014). We have considered doing the same. However, the number of autonomous and outsourced museums in this sample was too small.

$$y_i = \alpha + \beta_i' Org_i + \delta_i' X_i + \varepsilon_i$$

Where y_i is the value of an index of service quality referring to museum *i*; Org_i is a set of variables accounting for its organisational structure; X_i is a set of controls relative to the characteristics of both the museum and the area where it is located; ε_i is the error term.

We test four dimensions of service quality and customer orientation as dependent variables (*y*), plus a fifth one capturing overall quality and deriving from the former four. As to the explanatory variables of interest (*Org*), we distinguish between private museums and three types of public museums: governmental (i.e., under the ownership and direct management of the culture department of local or central government), autonomous, and outsourced. With regard to "autonomous", we strictly refer to those museums that manage their own budget.

Our research exploits the rich information collected by Istat, the Italian Statistical Institute, in 2011 through a museums Census covering all Italian museums (*Indagine sui musei e le istituzioni similari*), regardless of size, type of collection and ownership. Archaeological sites, monuments and other institutions similar to museums are also included. Istat provides these data after a process of anonymization.[13] Sample size is made of 2520 museums with complete information on selected variables.

3.1 Dependent variables

As a general premise, our approach means to identify the quality of museum service with the number of different services provided by each museum: the more available services there are, the higher the quality of visitor experience. Because of lack of specific questions in the survey we cannot measure more finely the actual quality of visitor experience. Indeed, two museums may have the same number of services dedicated to the audience, but the type, say, of their laboratories or events may be different, causing visitors to be characterised by different degrees of satisfaction at the end of their visit. Yet we believe that the major source of difference in visitors' satisfaction relates to whether dedicated services are provided at all or not.

[13] Information about museums' location (municipality) is however available, so that it is possible to make use of context data coming from other databases. This is important because some of the controls we use refer to the area where museums are located.

The Italian museums census includes questions on services that are directly or indirectly related to the quality of visitor experience. We selected and classified them within four dimensions in such a way that a single question of the questionnaire is included in only one dimension:

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 visitor experience and its quality. Clearly, museum experience is related to the extent to which a visitor can access it, in the sense that the museum must be open to the public (overall or at least a part of its collections), and its opening days and timetable are expressive of its attitude towards cultural dissemination. All the museums we consider were open in 2011, but not all of them had a predetermined opening time – some would just open upon request. Also, some of them were not open all year round. In our opinion, the question about special night openings catches one of the best signals of commitment to the audience, given that after hours openings always imply effort – negotiations with employees, agreement with insurance companies, etc.

FRIENDLINESS is about how easy it is to find one's way in the museum and to grasp the meaning of its exhibits. It catches also the availability of multi-language printed material, audiguides or custodians, as well as of facilities and activities such as laboratories, performances etc. It is the result of a large number of questions and explores all available aspects of a museum's supply conditioning a visitor's experience and her satisfaction. It is about both aspects pertaining to the core mission of a museum (cultural dissemination), and auxiliary services that may play an important role especially in the experience of constantly occasional museum visitors in the definition by Brida et al. (2015).

As to the last two indexes (WEB, LOCALNET), a high value is likely to be indirect evidence of the presence of strategies aimed to increase attendance. This indicates orientation towards not just conservation, but also education and different forms of audience development. WEB measures a

museum's strategy of web visibility, which means not only advertisement and sale of visits, but also dissemination of knowledge about the museum's collections from the distance. It may also be intended as a measure of attitude towards innovation in communication, because it is constructed starting from questions about internet visibility, presence on social media, availability of own app. In this sense, there is some connection here with the scope pursued by Camarero et al. (2011).

LOCALNET summarizes the attitude and relationships with both local audience and local cultural and tourist institutions. Thus, it focuses on reputation, loyalty building and collective marketing strategies. One question is about the presence of volunteers and civil service workers. This is the only question dealing also with cost-saving strategies.

The answers to the questions within each of the four dimensions are transformed into a set of dummy variables – presence/absence of that given service/characteristic. A quality index for each dimension is simply the sum of the number of present characteristics. Therefore, from a computational point of view, the switch from dimension to quality index simply consists in the sum of the dummy variables. The only exception is the Languages question under FRIENDLINESS, for which we give a score of 0 if the only language in the museum is Italian; 1 if at least one of the considered items (brochures, captions, audio guides, personnel) is available also in a foreign language; 2 if foreign languages are more than one.

The proxy for overall quality is built as the juxtaposition of al the four dimensions. Accordingly, the related index QUALITY is the sum of the four ones: ACCESS, FRIENDLINESS, WEB and LOCALNET.

3.2 Regressors

Istat 2011 Italian museums census is also our main source when it comes to our variables of interest, namely those capturing the organisational structure characterising a museum. As already mentioned, we distinguish between four types of museums.

- *Governmental* (reference category) are owned and managed by central or local government as a section of a culture department without having own budget.
- *Autonomous* (AUTO) are owned by central or local government, but they have their own budget, thus denoting some independence in strategies and decisions.
- *Outsourced* (OUTS) are owned by central or local government, but they are managed by a third party.

- *Private* museums (PRI).

With respect to the *Outsourced* museums, we stress that this category was constructed starting from a question regarding general management. Another question of the census is about the outsourcing of singular auxiliary services, but we have not considered it.[14] *Private* includes all museums whose owner is a private subject and includes also public-private institutions. In fact, mixed form of involvement of the public sector through the use of private law institutions are common. Regarding this, we argue that what matters is not the nature of the ownership of the service provider *per se*, but rather the legal rules and constraints shaping its management's action boundaries. As long as all institutions, except for governments, are subject to the same legal framework (i.e. they can all sign the same type of work contracts, make use of voluntary work etc.), ownership by any of them can serve the same purpose. The same reasoning applies to the provider in the *Outsourced* case: we do not make any distinction on whether the outsourced museum is managed by a fully private (for profit or not for profit) enterprise or QUANGO institution.

Regarding other covariates, we consider a dummy for the type of museum that equals to 1 if "gallery or museum" is the prevalent type or nature of the institution (TYMUS); whether the museum was opened before 1946 (Y46); dummies for Italian regions, NUTS2 level; (log of) surface of the museum (logSUR); number of employees (NEMP); number of employees over surface (EMPSUR) and its square (EMPSUR2), measuring the presence of personnel given the dimension of the structure and eventual overcrowding effects given by the nonlinear term; (log of) the population of the province, NUTS3 level (logPOP); (log of) the number of beds in accommodation facilities (logBED) of the province and the number of museums in the same municipality (NMUS).

We control for the type of museum because the different types may be differently suitable for hosting some of the activities (for instance, laboratories) the value of some of our indexes depend upon. The use of a dummy for old museums controls the fact that the oldest museums are likely to be museums of fine art. Perhaps more recently born museums are more likely to offer services to their visitors or to have more relations with the local environment – think of science museums and ecomuseums.

Population of the province where the museum is located (Istat, 2016a) and number of available beds (Istat, 2016b) are meant to control for potential local and tourist audience; we use number of beds in accommodation facilities instead of tourist flows in order to avoid reverse causation problems, given recent evidence that in Italy tourism causes museum visits and not vice versa (Cellini and Cuccia, 2013). As for the number of museums in the same municipality, we use it to control for competition

[14] According to the law, if a public museum has a bookshop or a cafeteria or a restaurant it must be outsourced.

pressure.[15] Competition is two-sided: competition for visitors should mean more effort to offer quality services, whereas competition for local funding might mean a smaller budget, hence a smaller number of services offered.

Summary statistics are reported in Table 2.

<Table 2 about here>

4. Methodology and results.

Our response variables are the result of a process of counting of 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 considered four models, namely Poisson, Negative Binomial, and their version for zero-inflated distributions. Selection of the most appropriate methodology was driven by the comparison of several criteria, that is Vuong (1989), LR and goodness-of-fit tests, information criteria, as well as quasi-Poisson's theta assessment (Cameron and Trivedi 1998).[16] In what follows we will first discuss the results about QUALITY (Table 3), then we present evidence about the four dimensions composing it (Table 4).

<Table 3 about here>

4.1 Overall quality

Table 3 shows estimates relating to several models having QUALITY as dependent variable, from the simplest to the most comprehensive one. For all specifications the Negative Binomial was found to be the most adequate model. Specification in the first column (QUALITY1) only considers the three organisational modes 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 quality is concerned, from governmental

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

[16] These tests are available upon request.

museums, the reference category. The point estimate of autonomous museums is higher than the one associated to outsourced ones. The relative incidence risk ratio (IRR) are 32.81 (AUTO) and 14.55 (OUTS), which quantifies the rise in quality in terms of percentage of these two organisational modes. Including regional dummies (QUALITY2), which turn out to be mostly significant, does not change the picture: the organizational structure effect is robust and sizable.

When we include museum-specific controls (QUALITY3), both the statistical significance and the sign of our variables of interest stay the same, whereas the value of the point estimates of the AUTO and OUTS covariates become much more similar. All controls are highly significant and with the expected sign, save for the dummy capturing museums born 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 the fact of being a museum (TYMUS), rather than a monument or an archaeological site. Our control for the adequateness of personnel conditionally to the surface of the structure (EMPSUR) has a positive and non-linear impact, meaning positive but diminishing returns as an employee is added to a single surface unit. The model including both museum-specific controls and regional dummies (QUALITY4) gives similar estimates to QUALITY3.

Besides including the museum-specific controls, QUALITY5 and QUALITY regressions include environmental controls, namely the number of museums in the same municipality, (log of) provincial population and (log of) the number of available beds of the accommodation facilities in the province. The evidence of a positive impact of competition pressure (NMUS) on QUALITY is weak, whereas the impact of the size of potential local audience (logPOP) is positive and significant. Interestingly, potential tourist audience (logBED) is not significant. The difference in significance between the impact of locals and tourists may be due to a different consideration by museum managers of these two types of audiences. Locals are likely to return to a museum, and accordingly it is important to build a reputation, which is not the case when one thinks of tourists. Alternatively, out of the large number of museums in our sample only a small percentage is likely to be a tourist attraction as many are in non-touristic areas. Finally, the negative sign of logBED might be due to the fact that museums in very touristic places have no incentive to be attractive, because tourists will visit them anyway.[17] Sign, significance and even size of the coefficients of the other covariates are not affected by the inclusion of the environmental controls.

Given that QUALITY is constructed using a large number of dummies, the support of its distribution is large enough to allow us to give it a try at OLS estimates of the most comprehensive model, which

[17] There is evidence that in Italy most tourists are not cultural tourists (Di Lascio et al., 2011).

serves as a check for the robustness of our findings in column 6 of Table 3. It is reassuring to notice that in terms of statistical significance and sign, negative binomial and OLS estimates are very similar. The only difference lies in the fact that with OLS also our measure of competition pressure is significant. Its positive sign hints at the fact that the positive effect of competition for audience in raising museums' quality of service is stronger than the potential negative effect arising from competition for financial resources.

All in all, the most important message Table 3 conveys is that there is robust evidence that when we consider service quality, the organisational mode matters: public museums that have been granted autonomy or have been outsourced outperform governmental museums. This contradicts the quality shading hypothesis. Private museums do not seem to be different, in terms of quality, from traditional public ones. The latter evidence is puzzling, and we only have tentative explanations. Private museums are a miscellany of very different types of institutions. In recent years, for instance, firms of all sizes have opened their own museums - galleries containing archive material and explaining the production of the good they supply. They tend not to have a fixed opening time and many relations with the local environment, as they are often meant as part of a B2B marketing strategy. Many small Church museums might be reluctant to go online because they do not have antitheft alarms.

4.2 Single quality dimensions

Table 4 summarizes our results with reference to the four sub-indexes of quality we built. In the case of ACCESS and LOCALNET we chose Poisson model; FRIENDLINESS was estimated using Negative Binomial, whereas in the case of the dependent variable WEB Zero Inflated Negative Binomial has turned out to be the best choice.

<Table 4 about here>

ACCESS is the index showing the smallest number of significant covariates. Both surface (logSUR) and the dummy capturing old museums (Y46) are statistically significant with the expected positive sign: old and large museums are found to be more easily accessible. The capital/labour mix is also significant (EMPSUR) and there is evidence of a non-linear relationship with decreasing returns. Statistical significance is found for the dummy capturing the prevalent nature of the museum (TYMUS). As for our variables of interest, ACCESS is apparently not explained by the organisational

mode of a museum. Autonomous and outsourced museums seem not to differ significantly from governmental ones with respect to accessibility, whereas private museums are less accessible.[18]

The estimates having FRIENDLINESS, WEB and LOCALNET as dependent variables all show robust evidence that both autonomous and outsourced public museums outperform the governmental ones. In all regressions private institutions do not stand out as statistically different from the reference category with the exception of the WEB one. This may indicate that when private museums are on the internet, their visibility is better than the one of governmental museums.

Evidence on the other covariates is similar to that of Table 3, with the following exceptions. The number of museums in the same municipality impacts LOCALNET negatively (column 5), a sign that service quality in museums may be negatively affected by the competition in attracting resources at the local level. LOCALNET is the also the only sub-index having outsourced museums' point estimate greater than the one of autonomous museums, which may be a sign that the likely involvement of local private institutions in the management of a museum is very beneficial in terms of connections with the local environment.

The regression with FRIENDLINESS as dependent variable (column 2) is the only one having a significant estimated coefficient for the number of accommodation facilities' beds in the province; this estimated coefficient is negative. Considering that FRIENDLINESS is about the direct experience of visitors to the museum, this reinforces the idea that museums located in touristic areas have less incentive to be attractive.

5. Discussion and conclusions

Our estimates highlight that service quality in public autonomous and public outsourced museums is higher than quality in public museums run as sub-units of culture departments and with no financial autonomy. We read this as evidence that decentralisation and outsourcing do not imply quality shading; in fact, they are associated to an improvement in quality, as in the models by Hart et al. (1997) and Besley and Gathak (2003).

[18] However, for autonomous and outsourced museums the picture changes substantially if we consider the three components of ACCESS. As almost all museums in the sample have fixed timetable we ran separate logit models on the other two questionnaire items of the dimension, namely night openings and seasonal opening – not reported. In the first case, both non-governmental public museums outperform governmental ones in line with our predictions. As for seasonal openings, instead, the only significant coefficient capturing the organisational mode is the one associated with outsourced museums, and it is negative.

Yet there is a possible different reading of our evidence. The choice to decentralise or outsource is a discretionary one in the Italian context we examine. Central and local governments may decide to grant autonomy or outsource only those museums having certain characteristics, for instance better quality or better potential for quality growth. In other words, there may be a problem of reverse causation here: it is not the organisational structure influencing service quality, but it is quality determining the organisational structure. This might be the case, for instance, when governments want to outsource but they fear that they will not find private providers interested in signing a contract unless the museum is a blockbuster (some of these contracts are actually not procurement contracts, but concessions).

We have reasons to believe the reverse causation story is not the right one. It is true that central government has selected only prestigious museums for its decentralisation policy, but central government autonomous museums are a one-figure percentage of all autonomous museums in Italy and in our sample.[19] Whether local government have behaved in the same selective way is questionable. It is certainly not the case when one considers their outsourcing decisions. We know from the analysis of the Home Office data on municipalities' outsourcing decisions that when a town has more than one museum, it tends to outsource all of them, and a town's museums are generally very different not just with respect to their type, but also to their quality. Another reason speaking against the reverse causation hypothesis is the prevalence of contracting-in over contracting-out in the museum outsourcing strategy of municipalities. In fact, following Hansmann's (1981) arguments, if the incentive to promote an organisational reform is the perspective to increase revenues through more donations and sponsorships, clearly this incentive is weak if the reform consists of outsourcing to another fully public organisation, and possibly even to a QUANGO institution.

In our view, what our model captures is the impact of museums' organisational structure on service quality. We carefully control for a number of museum-specific determinants of quality, and for potential audience, which is important since we proxy quality with the number of service offered and actions/activities implemented in order to make a museum an effective culture disseminator.

The impact of being decentralised or outsourced is not only positive, but also sizable. This has clear policy implications: governmental museums should be outsourced or, even better, granted more financial autonomy. In fact, our estimates reveal that financial autonomy impacts public museum quality even more than outsourcing. This hints at a difference in strength between the mechanisms

[19] Besides, many of them were granted financial autonomy more than 10 years before 2011, our reference year, so what we capture is the mostly the *effect* of financial autonomy on service quality. If a museum had been better quality at the time of decentralisation, and the quality shading hypothesis held, we would find at best that governmental and autonomous museums perform in the same way.

through which organisational structure impacts quality. If higher donations as in Hansmann's model (1981) were the most relevant factor, we would have a higher coefficient for outsourced museums (provided that at least some of them have been outsourced to fully private non-profit institutions, which is the case). Instead, decentralisation's consequences as to service quality are, in Besley and Gathak's view (2003), improvements due to better alignment on mission preferences of all stakeholders, attenuating incentive problems and allowing to attain higher levels of productive efficiency. Our empirical evidence shows that alignment of mission preferences is of paramount importance.

A second interesting finding of our analysis is that the different quality dimensions we consider are affected by a museum's organisational structure in different ways. Accessibility seems not to be influenced at all, while all other dimensions (visitor-friendliness, 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, while in the case of web visibility being an autonomous museum has a larger impact and in the case of local network a lower impact on quality than being outsourced.

Finally, we find that in Italy being a private museums does not affect quality, if the reference category is governmental museums. This implies that the quality of private museums is lower than the one of 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 to similar service quality, but this is not so. We argue this may have to do with the peculiarities of the Italian context as to the category of private museums. Further investigation is needed distinguishing between the different types of ownership (firms, Catholic Church, foundations).

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Table 1 - service quality dimensions and related items of the questionnaire

Dimension-subdimension	*Item*	*Values*
ACCESS		
Opening time policy, predefined timetable (ref. opening upon request)		yes-no
Open all year (except holidays)		yes-no
Evening or night openings		yes-no
FRIENDLINESS		
Informational devices	info point	yes-no
	info poster at entrance	yes-no
	map at entrance with visiting paths	yes-no
	presence of brochures	yes-no
	posters or captions describing single displays	yes-no
	audio and/or videoguide and/or multimedia booths	yes-no
	signs highlighting visiting paths	yes-no
	paths and info material dedicated to children	yes-no
	info material for disabled people (braille)	yes-no
	info poster at entrance on local context	yes-no
Languages*		only italian=0
		one foreign language=1
		more than one foreign language=2
Facilities	ticket pre-sale/reservation of visit	yes-no
	cloakroom	yes-no
	cafeteria and restaurant	yes-no
	bookshop	yes-no
Guided visits		yes-no
Didactic activities		yes-no
Performances and similar events		yes-no
WEB		
Website		yes-no
Online cataloge for visitors		yes-no
Online scientific cataloge for scholars		yes-no
Access to single selected heritage pieces		yes-no
App		yes-no
Teaching/gaming section in website		yes-no
Online library		yes-no
Online ticket puchase		yes-no
Virtual visit		yes-no
Online calendar of events		yes-no
Newsletter		yes-no
Social media		yes-no
Wifi access		yes-no
LOCALNET		
Presence of volunteers or "civil service" employees		yes-no
Presence of "friends of" clubs		yes-no
Part of structured cultural paths		yes-no
Brochures of local cultural and touristic organisations		yes-no
Advertising campaigns dedicated to locals		yes-no
Partnerships with other local cultural institutions		yes-no

Note – *Languages: this item comprises the answers to the questions on which languages visitors had information about the exhibits from either brochures, or captions, or audioguides, or personnel.

Table 2 – Summary statistics for response variables and regressors

Variable	*Acronym*	*Mean*	*Standard deviation*	*%*
Quality: overall	QUALITY	18.09	6.90	
Quality: actual accessibility	ACCESS	2.09	0.87	
Quality: facilitation of experience	FRIENDLINESS	9.66	3.89	
Quality: visibility	WEB	2.41	2.30	
Quality: local context	LOCALNET	3.93	1.46	
Autonomous museums	AUTO			6.98
Outsourced museums	OUTS			19.09
Private museums	PRI			37.74
Number of museums within the same municipality	NMUS	8.88	19.23	
The institution is a gallery or a museum	TYMUS			86.39
The museum was opened before 1946	Y46			11.27
Surface	SUR	3556.85	35542.81	
Number of employees	NEMP	10.44	24.90	
Number of beds in accommodation facilities of the province (NUTS3)	BED	38693.52	46229.59	
Population of the province (NUTS3)	POP	810570.6	899824.9	
Employees/surface ratio	EMPSUR	3.07	7.51	

Table 3 – Overall quality: regressions results from Negative Binomial model.

	QUALITY1	QUALITY2	QUALITY3	QUALITY4	QUALITY5	QUALITY	OLS
(Intercept)	2.843033 ***	2.924109 ***	1.88098632 ***	1.97042712 ***	1.62581893 ***	1.7246288 ***	-2.348962
	0.013141	*0.030837*	*0.04656189*	*0.05416185*	*0.125162*	*0.16645581*	*2.8342528*
AUTO	0.283777 ***	0.27106 ***	0.19493082 ***	0.18727911 ***	0.20099126 ***	0.19012761 ***	3.7990102 ***
	0.031397	*0.03084*	*0.02817028*	*0.02791719*	*0.02810825*	*0.02787212*	*0.4948389*
OUTS	0.135821 ***	0.139604 ***	0.16508469 ***	0.16329981 ***	0.17381497 ***	0.1677689 ***	2.9828114 ***
	0.022016	*0.02237*	*0.01983249*	*0.02032583*	*0.01989812*	*0.02035831*	*0.3500642*
PRI	0.008445	0.009342	0.02123512	0.0209793	0.02150683	0.02014948	0.3775087
	0.018379	*0.018351*	*0.01663738*	*0.01676033*	*0.01661615*	*0.01674818*	*0.2822637*
Regional dummies	No	Yes	No	Yes	No	Yes	Yes
NMUS					0.00071725 *	0.00064725	0.0150234 **
					0.00040554	*0.00043258*	*0.0075539*
TYMUS			0.19220737 ***	0.1761644 ***	0.18785775 ***	0.17383039 ***	3.1476255 ***
			0.02168201	*0.02170843*	*0.02164473*	*0.02167638*	*0.3642764*
Y46			0.02361236	0.01749737	0.01296253	0.01023028	0.2806904
			0.02259887	*0.02242093*	*0.02286735*	*0.02270805*	*0.3954798*
logSUR			0.12292073 ***	0.1177847 ***	0.11992783 ***	0.11651148 ***	1.9754809 ***
			0.0057674	*0.00578448*	*0.00581567*	*0.00581857*	*0.1019143*
NEMP			0.0009462 ***	0.00101736 ***	0.00082903 ***	0.00094527 ***	0.0261006 ***
			0.00027526	*0.00026988*	*0.00027632*	*0.00027067*	*0.0053465*
logBED					-0.00940571	-0.01669578	-0.2708326
					0.00791093	*0.01022973*	*0.1746219*
logPOP					0.02768606 ***	0.02889802 **	0.5087755 **
					0.01059814	*0.01470815*	*0.2503453*
EMPSUR			0.00960277 ***	0.00901623 ***	0.0092752 ***	0.00902934 ***	0.1256687 ***
			0.00175293	*0.00174769*	*0.00175582*	*0.00174707*	*0.0294241*
EMPSUR2			-0.00005836 ***	-0.00005388 ***	-0.00005689 ***	-0.00005405 ***	-0.0007189 ***
			0.00001274	*0.00001254*	*0.00001269*	*0.00001253*	*0.0001744*

Note – N = 2520. Standard errors in *italics.* 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 – Regression models for considered quality indexes.

Dimension	ACCESS	FRIENDLINESS	WEB		LOCALNET	QUALITY
Model	*P*	*NB*	*ZINB logit*	*ZINB count*	*P*	*NB*
(Intercept)	0.23652854	0.98821273 ***	-2.579764	-1.2652031 ***	0.8104554 ***	1.7246288 ***
	0.33529859	*0.17438703*	*3.722926*	*0.4181145*	*0.24028277*	*0.16645581*
AUTO	0.07004985	0.1659355 ***	-0.959749	0.3826852 ***	0.13835861 ***	0.19012761 ***
	0.05466754	*0.02841396*	*0.730514*	*0.0640686*	*0.04038232*	*0.02787212*
OUTS	0.03732899	0.16671071 ***	0.001053	0.2738181 ***	0.16557613 ***	0.1677689 ***
	0.04085879	*0.02108212*	*0.234898*	*0.0519804*	*0.02934008*	*0.02035831*
PRI	-0.0563648 *	-0.01147669	0.278254	0.2334233 ***	0.030556	0.02014948
	0.03357577	*0.01768546*	*0.213699*	*0.0417198*	*0.02467471*	*0.01674818*
NMUS	0.00093253	-0.00016206	-0.053846 ***	0.0051946 ***	-0.00206738 ***	0.00064725
	0.00084941	*0.00044734*	*0.019036*	*0.0013899*	*0.00066728*	*0.00043258*
TYMUS	0.08309334 *	0.16817703 ***	0.351081	0.4080805 ***	0.12502432 ***	0.17383039 ***
	0.042869	*0.02280915*	*0.420443*	*0.0554328*	*0.03221684*	*0.02167638*
Y46	0.11585209 ***	0.00065582	0.501972	0.0235543	-0.00260897	0.01023028
	0.04323748	*0.02353721*	*0.352834*	*0.0504593*	*0.0335648*	*0.02270805*
logSUR	0.08190924 ***	0.11294141 ***	-1.049994	0.1287232 ***	0.06290663 ***	0.11651148 ***
	0.01128894	*0.00594073*	*0.82577*	*0.0156912*	*0.00839818*	*0.00581857*
NEMP	0.00041259	0.00069867 ***	-0.014844	0.001221 **	0.00064608 *	0.00094527 ***
	0.00047872	*0.00025434*	*0.098593*	*0.0005829*	*0.00034595*	*0.00027067*
logBED	0.00021208	-0.02125132 **	0.002753	-0.009896	-0.01702699	-0.01669578
	0.02060023	*0.01072585*	*0.143495*	*0.025036*	*0.01481536*	*0.01022973*
logPOP	-0.00835054	0.04595043 ***	0.341415 *	0.0568367	0.01391035	0.02889802 **
	0.02972559	*0.01543927*	*0.178388*	*0.0390228*	*0.02119985*	*0.01470815*
EMPSUR	0.009096 ***	0.00622482 ***	-0.090898	0.0296915 ***	0.00928506 ***	0.00902934 ***
	0.00347252	*0.0019123*	*0.412952*	*0.0095906*	*0.00235346*	*0.00174707*
EMPSUR2	-0.00005235 **	-0.00004781 ***	0.00121	-0.0006232 *	-0.00004306 ***	-0.00005405 ***
	0.00002602	*0.00001659*	*0.0098*	*0.0003288*	*0.0000165*	*0.00001253*
log(theta)				1.9815116 ***		
				0.22506		

Note – N = 2520. Standard errors in *italics.* Model codes: *P* (Poisson), *NB* (Negative Binomial), *ZINB logit* (Zero-Inflated Negative Binomial, selection stage), *ZINB count* (Zero-Inflated Negative Binomial, outcome stage). 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).