VISITOR ATTITUDES TO DEACCESSIONING IN ITALIAN PUBLIC MUSEUMS: EMPIRICAL ANALYSIS

Marilena Vecco, PhD
Assistant Professor
Erasmus University Rotterdam, The Netherlands
vecco@eshcc.eur.nl

Andrej Srakar, PhD
Research Associate, Teaching Assistant
Institute for Economic Research, Ljubljana and Faculty of Economics, University of Ljubljana, Slovenia
andrej.srakar@ier.si

Michele Piazzai
PhD Candidate
Delft University of Technology, The Netherlands
m.piazzai@tudelft.nl

Abstract

Deaccessioning is a largely controversial practice involving the sale or disposal of objects within a museum's collection. Although it has received increasing attention in the past few decades as a solution to museums' financial concerns, its implications have rarely been researched in academia. This is mainly due to the 'barely legal' status of deaccessioning as a management practice (Paterson, 2014). Previous research assumes museum visitors' attitudes towards deaccessioning to be largely negative, but this is not assured. On the contrary, research suggests that visitors' responses may vary depending on a number of factors, such as the destination of income generated by deaccessioning operations and the public's perception of the museum collection as a public good. We address this question by analysing visitors' responses. Specifically, we hypothesize that if the good to be deaccessioned has lower cultural significance, or the income generated by deaccessioning is used for the betterment of the collection, then visitors' attitudes tend to be more positive. By contrast, if the collection has a stronger public cultural identity, then attitudes tend to be more stringent. Using structural equation modelling, we are able to estimate several important determinants of visitors' responses. Preliminary results confirm most of our hypotheses, with a determination of the socio-demographic characteristics of the people with most significant relationship to deaccessioning: age and frequency of museum visits. These findings have substantial implications for museum governance.

Keywords: public museums, deaccessioning, Italy, visitor attitudes, structural equations models

1. **Introduction**

Museums are ubiquitous in the social and cultural landscape of Western societies. They are flexible and diverse institutions, varying greatly in ownership patterns, financial models, size and reputation. A cultural, historical, and geographical divide exists between museums based on the Anglo-Saxon model and those based on the Napoleonic model (Mossetto & Vecco, 2001). Museums in the Anglo-Saxon tradition are visitor-oriented, with a focus on exhibition and engagement, while those in the Napoleonic tradition are more item-oriented, with a focus on care and restoration. This difference has thinned over the past few decades as visitors' experience has become increasingly important for Napoleonic museums, as reflected by the increase in 'blockbuster' exhibitions. This is partly because these institutions rely on public funding, but their growth has not been accompanied by a proportionate increase in funding received. This encouraged museum managers to compensate in a number of ways, from higher admission fees to ancillary commercial activities and private sponsorships (Johnson, 2003). Museums' survival thus increasingly relied on the public's satisfaction with their services. Managers devoted increasing attention the visitor experience in order to reduce the likelihood of failure (Crivellaro, 2011; Trione, 2012).

The inefficiencies caused by museum growth are greater in societies where cultural governance is based on the inalienability principle. Continuously accumulating objects without being allowed to discard some of them creates a clear problem of resource allocation (Weil, 1997; Chen, 2009; Dolák, 2010; Fayet, 2010; Mairesse, 2010a; Vilkuna, 2010). As a result of this, museums display only a fraction of their holdings at any given time. This is referred to as the 'Prado effect' (Peacock, 1994). It is reasonable to question whether museums accomplish their mission by collecting objects when they cannot be displayed (Johnson, 2003). The removal of objects from a museum's collection, i.e., deaccessioning, is one of the most debated topics in professional and scholarly literature on museum management. In some contexts, objects cannot be deaccessioned due to legal agreements, resistance by managers, and national laws on cultural heritage. At the same time, economic urges and ethical considerations cause deaccessioning to be viewed as inevitable (Fayet, 2010). Restrictions on object disposal lead to 'ossification' in the museum field (Johnson, 2003, p. 319) by hindering the reallocation of collections over time. The legal standing of museums further complicates the issue: for institutions belonging to the private sphere, deaccessioning more readily allowed. However, the boundary between public and private tends to be fuzzy. Public museums are seldom entirely public, and hybrid setups are commonplace (Severini, 2003). In contexts where there is no strong tradition of donorship and private institutions are viewed by the public as market-driven, deaccessioning represents a capitulation of culture before pragmatic demands (Acidini Luchinat, 1999; Settis, 2003, 2004, 2007). Indeed, museums are by nature opposed to market forces (Grampp, 1989), managers are generally risk-averse (Throsby, 2003b), and the protection of elitist interests is also likely to play a role (O'Hagan, 1998).

Although academic research on deaccessioning is lacking, the adoption of deaccessioning policies by public institutions represents an interesting economic issue. Most existing studies approach this problem from an ethical (Fayet, 2010), micro-economical (Srakar, 2012; 2014), or legal perspective (Chen, 2009). Few of these take the public into account as a primary stakeholder (Whiting-Looze, 2010), and they tend to assume that visitors oppose deaccessioning. Recent research suggests that deaccessioning does not necessarily harm the interests of the public and may even lead to benefits (Cirigliana, 2010). For this reason, it is topical to analyze visitors' attitude towards deaccessioning. This is precisely the point we address in our study. We contest the dominant view that public trust is harmed by implementing deaccessioning in public institutions. We theorize that visitors' attitudes depend on a number of factors, such as the characteristics of objects to be deaccessioned, sale conditions, and proceeds allocation.

We test our predictions using a dataset of 310 randomly administered questionnaires. Responses are analysed via structural equation modelling (SEM) to test four main hypotheses – H1: Among the exogenous factors, determining the attitude towards deaccessioning, age of the respondents and frequency of museum visits are the most significant; H2: The collection driven approach supported by the deaccessioning affects significantly and positively the deaccessioning attitude of the public; H3: A stronger public cultural identity of the collection destination significantly influences the deaccessioning attitude; H4: attitude to deaccessioning significantly affects the decision for visiting museums.

The present study is structured as follows. In the next section we provide a review of relevant literature on deaccessioning and introduce Italian public museums as our chosen empirical context. Then, we describe our data and the methodology employed to test our hypotheses. Finally, we present our preliminary results.

2. Theoretical framework

2.1. Deaccessioning is defined as "the permanent loss"

Deaccessioning is a practice that may be largely ignored outside the museum field. It is defined as 'the permanent removal or disposal of an object from the collection of the museum by virtue of its sale, exchange, donation, or transfer by any means to any person (McKinney, 2004). It received wide publicity in museum management literature – and public media – since the ground-breaking work of Montias (1973). The term is of relatively recent origin, and represents the opposite of 'accessioning', i.e. the insertion of objects into the museum register. It is used to refer to sales and disposals, but also to involuntary losses such as thefts, misplacements and destructions (Merryman et al., 2007; Vilkuna, 2010), and other repurposes (Maranda, 2010). If accessioning indicates the trasnfer of an item from the mundane to the collection-worthy, and thus implies a gain of status, deaccessioning represents the unceremonious revocation of such status. The choice to deaccession suggests that the item is no longer worthy of display, at least

in its current context, and may move to another context or be returned to daily life values. Via deaccessioning, museums implicitly communicate that objects no longer contribute to the museum's mission, and thus undermine its identity (Harris, 2010). The word itself involves a negative prefix applied to a positive action. This generates a host of negative psychological undertones (Vecco & Piazzai, 2015). This is particularly true for museums in the 'Napoleonic' as opposed to the 'Anglo-Saxon' tradition (Mossetto & Vecco, 2001) because there is greater emphasis on conservation and restoration. The two perspectives coexist in Europe due to the EU's adoption of the subsidiarity principle, which implies that heritage management is best pursued at a sub-national level by individual member-states (Barnett, 2001, Vecco & Piazzai, 2015).

As a practice, deaccessioning involves a trade-off across two relevant dimensions, as shown in Figure 1. Firstly, efficiency, which is a purely economic dimension; secondly, ethicality, both with regard to the generation of income, and with regard to cultural consumption as equity. Opponents of deaccessioning usually appeal to a number of ethical and legal arguments related to the role of the State and the impact of this practice on the public accessibility of cultural goods (Besterman, 1991; Acidini Luchinat, 1999). From this perspective, deaccessioning is undesirable for museums because it suggests a profit- rather than public good-orientation (Settis, 2003; Crivellaro, 2011). The problem is usually framed through an ethics of conviction, i.e. the sense that good behavior stems from adherence to clearly defined and absolutely valid rules (Weber, 2000). In this sense, any deviation from the inalienability principle appears to be an unethical capitulation to economic and pragmatic demands (Fayet, 2010). A second line of opposition is fundamentally game-theoretical. Museum managers who make decisions concerning deaccessioning operations may be drawn to misconduct because they are in a position of asymmetric information with respect to their principals, and partly insulated from risk (Srakar, 2014). Managers may thus view their depots as a 'cookie jar of assets' (Krueger, 2008, p. 11). This is particularly problematic if income from deaccessioning can be used to finance daily operations, as opposed to being used only for the betterment of the collection (Stephens, 2011).

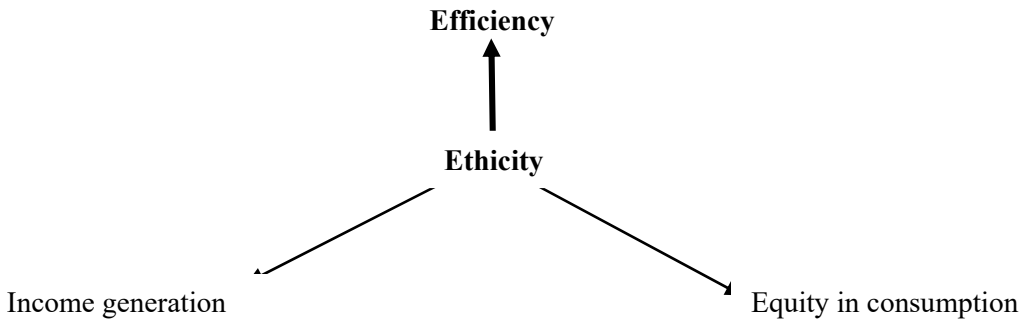


FIGURE 1 – THE TRADE-OFFS OF DEACCESSIONING

By contrast, deaccessioning can be supported based on practical and financial considerations (Montias, 1973; Weil, 1990; Borg, 1991; Mairesse, 2010a). The efficiency-related argument is that the perpetual growth of museum collections is not sustainable in the long run. Museums tend to increase the size of their collections at a rate far exceeding that of disposal (Merriman, 2008). Indeed, if the material production of societies grows exponentially, so does the number of items deemed worthy of collection status. The gap between the number of objects deemed worthy of accession and the number that are actually accessioned will continue to increase as creative human beings continue to work (Fayet, 2010). From this perspective, deaccessioning is closely related to, and inseparable from, broader policies of collections optimization (Neves, 2005; Vilkuna, 2010).

The deaccessioning has been broadly discussed in terms of policies (Di Gaetano & Mazza 2014; Tam, 2012; Shane & Burgess, 2011; O'Hagan 1998), as practice that could influence the attitude of museums donors (Di Gaetano & Mazza 2014; Lanza, 2013). However, in our knowledge no quantitative study dealing with visitor attitudes towards museum deaccessioning has been performed yet.

Ethical considerations, instead, are based on museums' missions as keepers of cultural heritage for present and future generations. Because of this mission, museums cater to both inter- and infra-generational equity. The principle of infra-generational equity has been discussed in terms of the influence of public policy (Baer and Snickars 2001), economic valuation of heritage (Throsby 2002), sustainability (Cassar 2003), needs of present and future museum users (Lindsay 2005), guidance about expected object lifetime (Dillon et al. 2013), and, implicitly, through social discounting (Dillon et al. 2013, Ashley-Smith 1999). Throsby (2002: 107) defines it thusly: "The intra-generational equity dilemma is a classic inter-temporal allocation problem – that is, a choice between present and future consumption." Both present and future consumption entail costs with respect to preservation and maintenance, but is it possible to define the first or second best option within this scenario? The point is to decide how far the principle of intra-generational equity and its authority should be applied, and what the impact on the present generation exactly is. With respect to the welfare of present and future visitors, it is also topical that the preservation of items of marginal importance impedes the acquisition and preservation of more relevant ones (Fayet 2010). The preservation of heritage is hence as much a sacrifice for society as its loss (Babelon & Chastel, 1994).

2.2. Empirical context: Italian public museums

Italy counts among the most conservative environments in Europe with respect to heritage management. Such belief is grounded in this sector's legislative immobility, bureaucratic setup and overall entrenchment onto the status quo. These characteristics have stalled not only change but academic interest as well (Solima, 2008). In such context, researching the public's perspective on museums is increasingly interesting as visitors are shifting from the role of

passive receptors of cultural activities to active protagonists and shapers of their own cultural experiences due to digitization, multi-layered interaction, and efforts of co-creation (Solima, 2008). Furthermore, the Italian context is highly representative of the Napoleonic model, as museum functions are strongly oriented towards conservation and restoration as opposed to display (Mossetto & Vecco, 2001).

The density of cultural heritage and the ancient tradition of conservation make deaccessioning particularly controversial. Keeping items in the territory where they are embedded, as Italian museums are supposed to do (Emiliani, 1994), is viewed favorably by the public. Settis (2007) notes how their enjoyment by the community contributes to civic sense and collective identity. However, the amount of objects in public museums is such that only a fraction of museum holdings are exhibited at any given time. Moreover, individual public museums have relatively little managerial and financial independence, and are essentially 'offices' of the Ministry of Cultural Heritage, headed by a government official (Fedeli & Santoni, 2006; Ripamonti, 2008). Recent attempts to allow private intervention into cultural heritage management and implement deaccessioning policies were largely met with resistance, including allegations that the government was planning the systematic destruction of Italian cultural heritage (Settis, 2007; Tarantino, 2002).

3. Data and methodology

For our data we use dataset of responses to a questionnaire about deaccessioning in Italian public museums. The questionnaire was administered in April 2012 to randomly selected visitors to sites of archaeological and art-historical interest in the city center of Rome. The questionnaire included 22 attitudinal questions on deaccessioning. Five-point Likert scales were offered as possible responses to individual claims, to express respondents' level of agreement. Furthermore, questions on the gender, age, education, number of children and number of yearly museum visits of the respondent were included. Some of the questions were repeated twice, with different wording, in order to assess the validity of responses. In total there were 310 valid answers, which form the sample for our analysis. The questions are the following:

A) I believe the sale can be acceptable for items:
    1) Which originate from a different territory than that of a museum ("Provenance");
    2) Of minor art-historical interest compared to the average for the museum ("Minorinterest");
    3) Of which copies and/or close substitutes exist, e.g. sketches or archaeological fragments ("Substitutes");
    4) That are out of theme compared to other items in the museum ("Outoftheme");
    5) Of more recent origin, as opposed to more ancient ones ("Ageofitem");
    6) That have <u>not</u> been exhibited by the museum for a certain period of time ("Notexhibited");
    7) Belonging to the so-called "minor arts", e.g. ceramics or carvings ("Lesserarts");
    8) That are <u>not</u> within the theme of the museum ("Outoftheme2").

B) I believe selling is acceptable only if:
    9) The item is destined to other museums or collections open to the public ("Opentopublic");
    10) The item was not a gift for the museum, e.g. a testamentary legacy ("Notagift");
    11) Transparency is guaranteed through public negotiations, e.g. notices and auctions ("Transparency");
    12) There is a cap to the number of items that can be sold ("Setalimit");
    13) The museum of destination is within the same territory as the original ("Eqterritory");
    14) The museum of destination is equally relevant as the original, e.g. for the life of the artist ("Eqrelevance");
    15) Future visitability by the public is guaranteed ("Opentopublic2").

C) The proceeds from sales should be used to:
    16) Acquire new items that are more relevant to the collection ("Acquisitions");
    17) Cover building maintenance costs ("Maintenance");
    18) Finance building improvements ("Expansions");
    19) Cover restoration costs for other items ("Restorations");
    20) Create new services for the public, e.g. restoration areas, shuttles or areas for children ("Newservices");
    21) Lower admission fees ("Entrancefees");
    22) Offer new didactic activities, e.g. courses, seminars or conferences ("Neweducation").

Below are some basic descriptive statistics for the variables in the questionnaire. Table 1 shows the statistics for all the attitudinal variables. In Battery 1, the highest average score was for the two variables "Outoftheme", while the lowest was for the age of item and "lesser arts". This shows that respondents in general tend to support deaccessioning as a strategy to improve the possibly outdated collection of the museum, while they do clearly not support selling of museum artworks which are of more recent origin (artworks of recent origin can of course be valued highly) and of lower cultural value.

As for the Battery 2, clearly the respondents value highly the public cultural identity of the collection – of main value to them is if the item is destined to other museums or collections open to the public and if future "visitability" by the public is guaranteed. Also, transparency appears to be crucial to them. They are much less sensitive if the museum of destination is within the same territory as the original or of the same relevance as the original.

In the Battery 3, the respondents think that the proceeds from sales should be used for restoration of other items, they are also more inclined towards usage for education purposes. Creating new services for the public is clearly the most problematic to them which goes in line with the most basic arguments against deaccessioning summarized before.

Table 1- Descriptive statistics, attitudinal questions

	Mean	Median	Coeff. of variation	N
Provenance	2.58	3.00	0.51	310
Minorinterest	2.91	3.00	0.45	310
Substitutes	2.89	3.00	0.48	308
Outoftheme	2.99	3.00	0.45	309
Ageofitem	2.46	2.00	0.52	309
Notexhibited	2.95	3.00	0.47	306
Lesserarts	2.67	2.50	0.49	310
Outoftheme2	3.02	3.00	0.46	310
Opentopublic	4.23	5.00	0.27	310
Notagift	3.41	4.00	0.40	309
Transparency	4.15	5.00	0.30	310
Setalimit	3.55	4.00	0.40	309
Eqterritory	3.10	3.00	0.44	310
Eqrelevance	3.42	3.00	0.37	308
Opentopublic2	4.27	5.00	0.26	309
Acquisitions	3.66	4.00	0.33	308
Maintenance	3.77	4.00	0.34	310
Expansions	3.73	4.00	0.33	308
Restorations	4.16	4.00	0.25	309
Newservices	3.19	3.00	0.41	308
Entrancefees	3.64	4.00	0.37	309
Neweducation	3.80	4.00	0.32	309

Source: Own elaboration.

Table 2 shows the main descriptive statistics for our socio-demographic variables. There are more females than males in the sample, regarding age, the categories of 36-45 and 46-64 years of age are predominant, which shows that most (more than 60%) of the visitors are aged between 36 and 64. Interestingly, people with primary school are almost no-represented in the sample which confirms the importance of education for museum visiting. Interestingly, master degrees are predominant among the university graduates while also PhD degrees are not rare. Most of the people (almost 50%) of those who were interviewed have no children, while approximately the same percentage visits the museum 1-3 times a year. Only about 25% of them do not usually visit museums.

Table 2- Descriptive statistics, socio-demographic variables

		%	N
gender	male	44.26	135
	female	55.74	170
age	up to 19	4.53	14

	20-26	11.33	35
	27-35	17.48	54
	36-45	25.57	79
	46-64	34.95	108
	65 and over	6.15	19
education	primary school	0.34	1
	secondary school	7.88	23
	high school	42.81	125
	bachelor	13.70	40
	master	30.14	88
	PhD/specialisation	5.14	15
number of children	0	49.68	153
	1	15.58	48
	2	28.90	89
	3 or more	5.84	18
museum visits	0	24.01	73
	1-3	49.34	150
	4-7	19.74	60
	8 or more	6.91	21

Source: Own calculations.

Our methodology is composed of three parts. Firstly, we reduce the dimensions of the questionnaire using factor analysis. As we expect the dimensions to be correlated (this is confirmed by results of correlation analysis of the factors) we use oblique oblimin rotation with gamma coefficient set to zero. Secondly, we use structural equation modeling (SEM) to verify most of our hypotheses. We use first and second order SEM with included exogenous covariates. We also include generalized structural equation models using ordered logit regressions to better capture the categorical nature of the original variables in the questionnaire as well as of the exogenous variables. Finally, we use principal components analysis to construct an index of attitudes of deaccessioning and using regression models we test also for the hypothesis 4.

4. Results

a. Factor analysis

Tables 3 and 4 shows the results of oblique oblimin rotated factor analysis. As can be clearly seen, number of factors to be selected is suggested to be 5.

Table 3- Proportion of explained variance, oblique oblimin rotated factor analysis

Component	Rotated Eigenvalues	
	Eigenvalue	Proportion of

		explained variance
1	4.4365	0.2017
2	3.2204	0.1464
3	2.9684	0.1349
4	2.5739	0.1170
5	2.0590	0.0936

Extraction Method: Principal Component Analysis, Oblimin Oblique Rotation with Kaiser normalisation, Gamma=0

Source: Own calculations.

Table 4 (shows how to interpret the five factors. As can be clearly seen, the first factor includes all eight items from the Battery 1 and we, therefore, label it "Items". It can be interpreted as attitudes towards the nature of the items to be deaccessioned. Battery 2 is separated into two factors, namely factor 2 and factor 4. Factor 2 includes items openness to public, transparency of the transaction and public nature of the donation and we, therefore, label it as "Public Identity of the Collection". Factor 4 includes the restrictions on sales and relevance of the location of the museum of destination, we therefore label it as "Limits to the Sales and Museum of Destination".

Finally, Battery 3 groups into factor 3 and factor 5. Factor 5 includes all items related to the infrastructure and collection of the museum, we therefore label it as "Collection Driven Approach of Using the Sales from Deaccessioning". Factor 3, on the other hand, includes all items related to marketing, education and sales and we, therefore, label it as "Marketing Driven Approach of Using the Sales from Deaccessioning". It is also visible that factor loadings on factor 3 are negative, in contrast to factor loadings on all other four factors, which shows that this factor relates negatively to the other four factors.

We summarize this below:
Factor 1 – "Items"
Factor 2 – "Public Identity of the Collection"
Factor 3 – "Marketing Driven Approach of Using the Sales from Deaccessioning"
Factor 4 – "Limits to the Sales and Museum of Destination"
Factor 5 – "Collection Driven Approach of Using the Sales from Deaccessioning"

Table 4- Results of direct oblimin rotated factor analysis

	Component				
	1	2	3	4	5
Provenance	,652				
Art-historical interest	,706				

Scarcity	,548				
Thematic relevance	,760				
Age of the item	,694				
Not exhibited	,672				
Lesser arts	,666				
Thematic relevance (control)	,787				
Public visitability		,843			
Not a gift		,436			
Public negotiations		,726			
Limit to the sales				,491	
Same territory as seller				,822	
Same relevance as seller				,759	
Public visitability (control)		,847			
New acquisitions					,625
Building maintenance					,804
Building improvements					,753
Restoration costs					,701
New services			-,693		
Admission fees			-,734		
Education activities			-,714		

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
Note: all loadings lower than 0.40 are intentionally left blank
Source: Own calculations.

b. Structural equation model (SEM) analysis

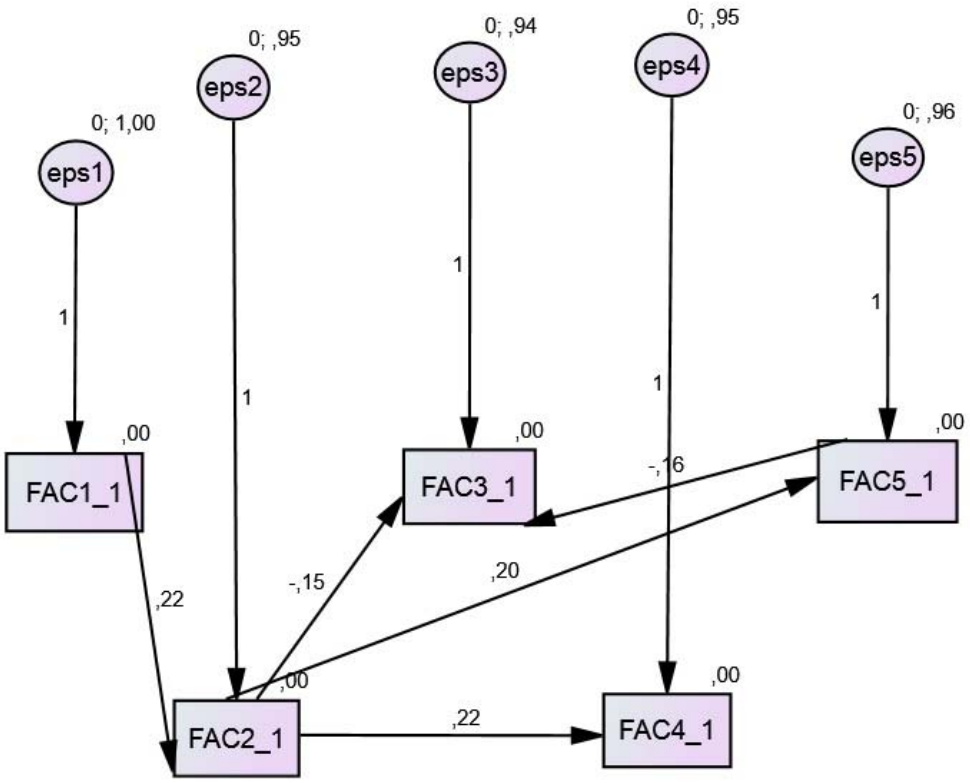
In the second stage, we estimate three different SEM models. Firstly, we model our five factors as interrelated among each other and not determined by some underlying latent construct. The model of relationships that we test is the following:

- factor 1 ("items") positively causes factor 2 (public identity)
- factor 2 (public identity) positively causes factor 4 (limits to the sales) and factor 5 (collection driven approach)
- factor 2 negatively causes factor 3 (marketing driven approach)
- factor 5 (collection driven approach) negatively causes factor 3 (marketing driven approach)

The justification for the tested causal relationships is the following. We expect that among factors for the batteries 2 and 3 (factors 2-5) public identity is the most influential one, as attitudes towards deaccessioning are strongly influenced by the perspective on its relationship to the public nature of museums and their works (see Srakar 2014; Di Gaetano & Mazza 2014). We expect that is positively influences second factor of the battery 2, limits to sales. We also expect it has a positive influence on the justification of funds from deaccessioning spent for collection building purposes. On the other hand, we expect it has a negative influence on justification of funds spent for marketing purposes (which is contrary to a common perception

of the public identity and mission of the museum). We also expect that perceiving the justification of funds spent for collection purposes being valid in negatively related to perceiving the justification of funds spent for marketing purposes being valid – the two are in opposite. Finally, we perceive that the attitude towards the items used for deaccessioning is the most basic attitude and that it, therefore, causes also the public identity factor.

Figure 1: First order model with estimates of the relationships



Source: Own elaboration.

The model was estimated by the maximum likelihood method in the SPSS Amos SEM package. Its fit to the data is acceptable although not perfect (the value of Tucker-Lewis index is rather small) which is shown in Table 8. The results of the model are in Table 5. They clearly confirm all initial hypotheses.

Table 5 – Regression coefficient estimates, first-order model

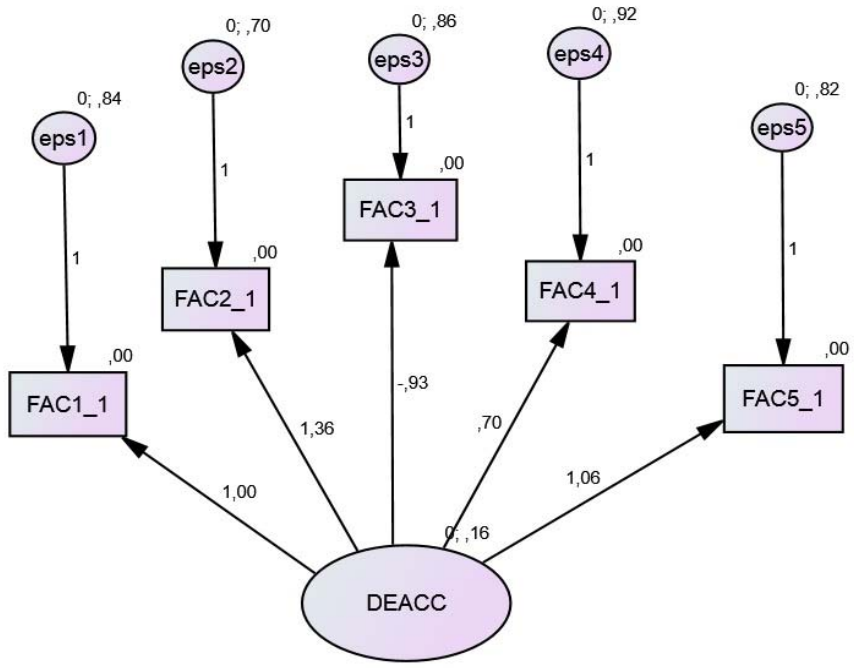
Variable effect	Variable cause	Estimate	S.E.	P
PubIdCol	Items	0.224	0.057	0.000
CollDrApp	PubIdCol	0.199	0.057	0.000

MarkDrApp	PubIdCol	-0.148	0.058	0.010
SellDest	PubIdCol	0.219	0.057	0.000
MarkDrApp	CollDrApp	-0.164	0.058	0.005

Source: Own calculations.

Secondly, we estimate the model of second order with a latent construct, affecting all five factors. In this model, there are no additional possibilities of relationships between factors, as tested by all possible model specifications. In the model, we expect that all five factors relate to the latent construct of deaccessioning attitude. The results from Figure 2 and Table 6 clearly confirm this assumption. Furthermore, the factor most related to our latent construct in the second factor, public identity of the collection, which is in accordance with our previous speculations and results. The fit indices of the model are excellent, but we have a problem with chi-squared statistic, which is insignificant showing that we still need to improve on the model.

Figure 2 – Second-order SEM model with estimates



Source: Own elaboration.

Table 6 – Regression coefficient estimates, second-order model

Variable effect	Variable cause	Estimate	S.E.	P
Items	Deacc	1.000		
PubIdCol	Deacc	1.361	0.385	0.000
MarkDrApp	Deacc	-0.934	0.286	0.001

SellDest	Deacc	0.703	0.252	0.005
CollDrApp	Deacc	1.056	0.308	0.000

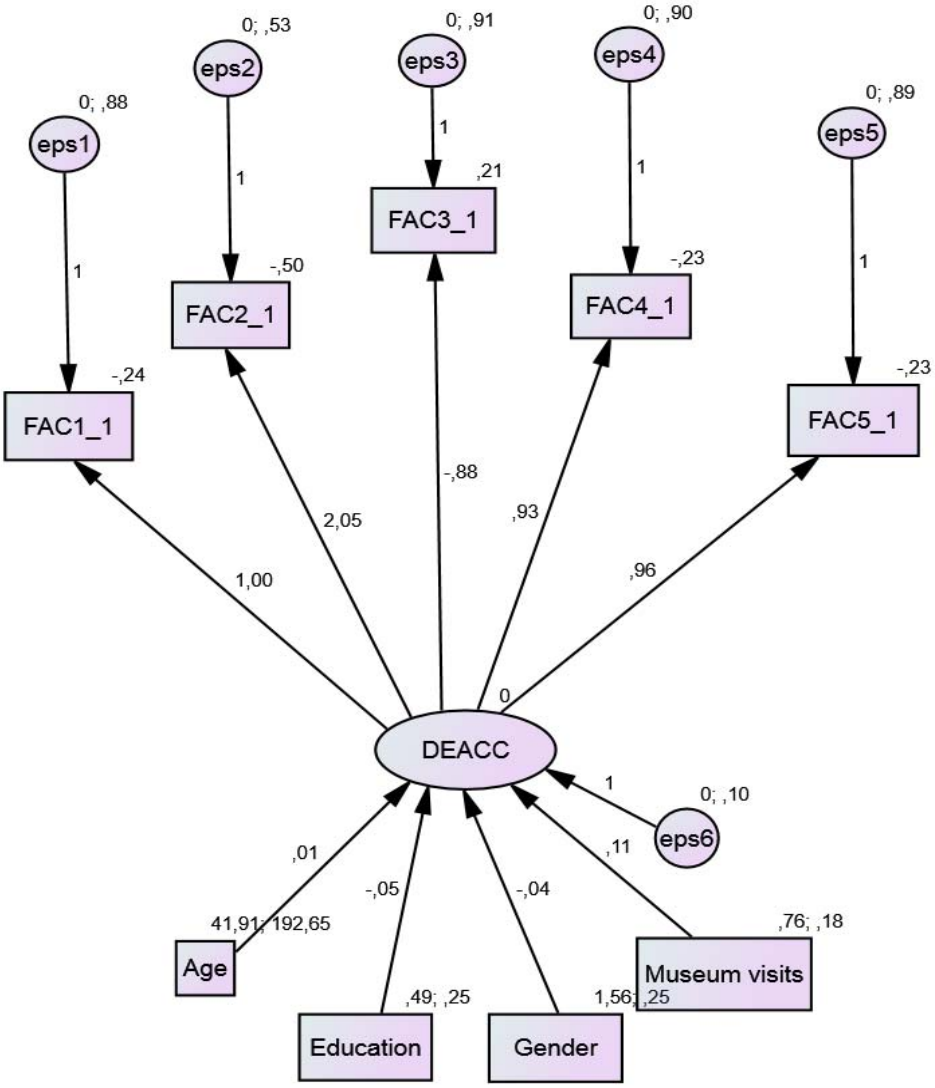
Source: Own calculations.

Finally, we construct a second-order model with exogenous covariates – as shown in Figure 5. We include four exogenous covariates:

- Gender (0-male, 1-female);
- Age;
- Education (0-respondent does not have a tertiary education; 1-respondent has a tertiary education);
- Museum visits (0-no visit of museum per year; 1-one or more visits to museum per year).

The results in Figure 3 and Table 7 show that among the exogenous predictors, only age and number of museum visits predict the attitude to deaccessioning: older people tend to have a more stringent attitude to deaccessioning and people with more visits to museum as well, which is both in accordance with expectations. The coefficients on five factors have the same significance and almost the same magnitude as in previous case. Also, the chi squared statistic is strongly significant, while on the other hand other indices apart from RMSEA are still not perfect.

Figure 3 - Second-order SEM model with exogenous variables, with estimates



Source: Own elaboration.

Table 7 - Regression coefficient estimates, second-order model with exogenous covariates

Variable effect	Variable cause	Estimate	S.E.	P
Deacc	Gender	-0.040	0.052	0.442
Deacc	Age	0.006	0.002	0.010
Deacc	Education	-0.052	0.053	0.329
Deacc	Museum Visits	0.114	0.065	0.083
Items	Deacc	1.000		

PubIdCol	Deacc	2.046	0.591	0.000
MarkDrApp	Deacc	-0.881	0.295	0.003
SellDest	Deacc	0.929	0.302	0.002
CollDrApp	Deacc	0.965	0.307	0.002

Source: Own calculations

Finally, we again look at Table 8 for the results of goodness of fit. In both RMSEA and, particularly, chi-squared statistic, the exogenous second-order model provides the best fit. Of concern are its relatively low values of Comparative fit index (CFI) and Tucker-Lewis Index (TLI), which show that some additional work on the model still to be done before coming to final conclusions.

Table 8- Goodness-of-fit statistics, all three models

	Chi Square	CFI	TLI	RMSEA	AIC
First-order model	11.716 [0.039]	0.880	0.639	0.066	41.716
Second-order model	5.893 [0.317]	0.984	0.952	0.024	35.893
Exogeneous variables model	58,911 [0.000]	0.643	0.404	0.062	112.911

Source: Own elaboration.

c. Index of attitudes to deaccessioning

In the third and final methodological part, we construct an index of attitudes to deaccessioning for the final testing of hypothesis 4. To this end we use and modify the method applied in Fernando, Samita & Abeynayake (2012). The method defines a specific weight to each individual factor from our five dimensions of the attitudes of deaccessioning, and the index assigns a specific numerical value to the final construct. The weight corresponding to a particular factor variable is a function of the correlation coefficient between the factor and the first principle component in the Principle Component Analysis (PCA) of the five factors[1].

In Table 8 we see the basic results of the PCA analysis applied to the set of our five factors. It is clear that first principle component explains almost one third of the total variance.

Table 8 - Eigenvalues and explained variance, principal components

Component	Unrotated - principal

[1] It has to be stated that decisions on weighting in the constructions of the indexes are always in large part arbitrary - as stated in the most referenced OECD Handbook on this topic: "Regardless of which method is used, weights are essentially value judgements. While some analysts might choose weights based only on statistical methods, others might reward (or punish) components that are deemed more (or less) influential, depending on expert opinion, to better reflect policy priorities or theoretical factors." (OECD 2008: 31).

	Eigenvalue	Proportion of explained variance
1	1.6512	0.3302
2	0.9920	0.1984
3	0.8501	0.1700
4	0.8027	0.1605
5	0.7040	0.1408

Source: Own elaboration.

Table 9 show the coefficients of our five factors in the first principle component. To calculate the final weights in the index of attitudes to deaccessioning, we calculated the correlations between each of the five factors and the first principle component. The final equation of calculating the index is in (1).

Table 9 - Construction of weights

	Component 1
Items	0.4464
PubIdColl	0.5269
CollDrApp	0.4751
MarkDrApp	0.4287
SellDest	0.3371

Method used: Principal Components Analysis

Source: Own elaboration.

$$IndDea = 0.5736 * Items + 0.6770 * PubIdColl + 0.6104 * CollDrApp + 0.5509 * MarkDrApp + 0.4331 * SellDest \quad (1)$$

Finally, we are able to use the constructed index to explore the relationship of attitudes to deaccessioning to the museum visiting. We use three models: linear regression (OLS); two-stage least squares, correcting for the reverse causal relationship between index of deaccessioning attitudes and number of museum visits (we use as instrument factor 4, which satisfies both instrumental variables restrictions); and, finally, Poisson regression as museum visits are a count variable. We use six predictors: index of attitudes to deaccessioning; gender; age; age squared; education; and number of children. We expect that all or most of our socio-demographic variables will be significantly related to the museum visiting, particularly that better educated and older people will be more likely to visit museums. We also expect that people with stronger deaccessioning attitude will be more frequent museum visitors.

Table 10 shows the results of our testing. In Poisson model, gender, age, education and number of children are indeed significantly related to the level of museum visits, in accordance with

expectations: women tend to visit museums more frequently; people aged 28 years or younger tend to visit museums less frequently, while when they turn 29 and after they tend to visit museums more frequently; tertiary educated visit museums more frequently than those with lower education; and, finally, respondents will less children tend to visit museums more frequently. However, our prediction on the influence of the index of attitudes to deaccessioning is not supported by the results: there clearly appear to be no correlation between the index and museum visits, the finding is robust over a number of different specifications of the variables and the model itself – it is present in both OLS, 2SLS and Poisson regression.

Table 10 - Regression coefficient estimates, linear regression, 2SLS and Poisson

	Method: OLS			Method: 2SLS			Method: Poisson		
Dep.var.: Number of museum visits	Coefficient	Std. Error	P	Coefficient	Std. Error	P	Coefficient	Std. Error	P
Constant	2.88	1.75	0.10	2.93	1.76	0.10	1.12	0.33	0.00
Index of attitudes to deaccessioning	-0.01	0.06	0.90	0.10	0.13	0.47	0.00	0.01	0.84
Gender	0.37	0.39	0.34	0.39	0.39	0.32	0.13	0.07	0.07
Age	-0.06	0.08	0.47	-0.06	0.08	0.47	-0.02	0.01	0.12
Age squared	0.00	0.00	0.24	0.00	0.00	0.27	0.00	0.00	0.01
Education	0.83	0.39	0.00	0.87	0.39	0.03	0.30	0.07	0.00
Nr. of children	-0.31	0.05	0.00	-1.33	0.51	0.01	-0.50	0.10	0.00
Observations	268			268			268		
Log Likelihood							-693.81		
(Pseudo) R Squared	0.0300			0.0310			0.0454		

5. Conclusion

In our article we used structural equation models to study the attitudes of museum visitors in Italian public museums to deaccessioning practice. It was our initial preposition that several socio-demographic characteristics, such as age, gender and education would have a significant effect on attitudes to deaccessioning and that our constructed factors in the factor analysis of the responses to the questionnaire would all be related and caused by the underlying construct. Second assumption was proven correct – all factors are strongly related to the underlying construct, furthermore, we found evidence that models with underlying construct are better in explaining relationships among the variables in the model than the models without it. We furthermore confirmed several hypotheses, related to relationships among the factors, namely: factor 1 (“items”) positively causes factor 2 (*public identity*), which was explained by the

attitude towards the items used for deaccessioning being the most basic attitude and that it, therefore, causes also the public identity factor; factor 2 (*public identity)* positively causes factor 4 (*limits to the sales*) and factor 5 (*collection driven approach*) which was explained with the observation that among factors for the batteries 2 and 3 (factors 2-5) public identity should be the most influential one, as attitudes towards deaccessioning are strongly influenced by the perspective on its relationship to the public nature of museums and their works. With similar assumption we also explained the finding, that public identity also negatively causes factor 3 (*marketing driven approach*). Finally, factor 5 (*collection driven approach*) negatively causes factor 3 (*marketing driven approach*) which was explained by the two as being in opposite as stated also in cultural economic literature (see e.g. Vecco & Piazzai, 2014; Srakar, 2014).

As for the exogenous predictors, only the influence of age and frequency of museum visits was found. On the other hand, when we included the attitudes to deaccessioning in the regression model of predicting frequency of museum visits (taking into account the endogenous character of the model, using one of the factors as an instrument), there is no visible evidence whatsoever that attitudes to deaccessioning would have an influence on museum visits, which is important for policy purposes and future measures in the field.

To our best knowledge, the article is the first empirical study on deaccessioning providing evidence on many claims, so far heard mostly as speculations or theoretical predictions. There are many drawbacks of the article, not least being a limited sample - geographically based - and limitations of attitudes to deaccessioning as being a relevant concept in explaining deaccessioning - there are at least two other important adverse aspects of deaccessioning practices in economic light, the first one being the perspective of the donors (as analyzed in Di Gaetano and Mazza, 2014) and the other being the managerial practices (as analyzed in Srakar, 2014). As the interest and research on deaccessioning is slowly growing, we sincerely hope our article will be able to provide some ground for its improvement, including the necessary verification and validation of our findings in different contexts and research designs.

References

Acidini Luchinat, C. (1999). *Il Museo d'Arte Americano: Dietro le Quinte di un Mito.* Milan: Electa.

Ackers Cirigliana, J. (2010). Let Them Sell Art: Why a Broader Deaccession Policy Today Could Save Museums Tomorrow. *Southern California Interdisciplinary Law Journal 20*, 1-40.

Ashley-Smith J. (1999). *Risk Assessment for Objects Conservation*. London: Butterworth-Heinmann.Babelon, J.-P., & Chastel, A. (1994). *La Notion de Patrimoine.* Paris: Liana Levi.

Baer, Norbert S., & Snickars F. (2001). *Rational Decision-Making in the Preservation of Cultural Property*. Berlin: Dahlem University Press.

Barnett, C. (2001). Culture, Policy and Subsidiarity in the European Union: From Symbolic Identity to the Governmentalization of Culture. *Political Geography 20*, 405-426.

Besterman, T. (1991). The Ethics of Emasculation. *Museums Journal 91*, 25-28.

Borg, A. (1991). Confronting Disposal. *Museums Journal 91*, 29-31.

Cassar, M. (2003). "Places and Stuff: Is it Only the Language of Conservation that is Changing?" In *Conservation of Historic Buildings and Their Contents: Addressing the Conflicts*, edited by David Watt and Belinda Colston, 41-51. Shaftesbury: Don Head Publishing and De Montfort University.

Chen, S. (2009). Art Deaccessions and the Limits of Fiduciary Duty. *Art Antiquity and Law 14*, 103-142.

Crivellaro, J. (2011). *The Politics of Deaccession: English and American insight into the disposition of Artworks from Museums.* Retrieved May 15, 2012, from Aedon: http://www.aedon.mulino.it/archivio/2011/3/crivellaro.htm

Di Gaetano, L., Mazza, I. (2014). *Better an egg today that a hen tomorrow. On the implications of deaccess policy on donations to museums.* ACEI Working Paper Series AWP-01-2014, Association for Cultural Economics International

Dillon, C., Fouseki, K., Lindsay, W. Taylor, J., Bell, N., Thickett D., France F. and Strlič M. (2013). "Collections Demography: Stakeholders' Views on the Lifetimes of Collections." Paper from *Climate for Collections: Standards and Uncertainties*, proceedings from Doerner Institut, Munich, Germany, November 7-12, 2012: 36-48.

Dolák, J. (2010). On the Issues of Deaccessioning and Repatriation of Museum Collections. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 43-50). Conference proceedings from Shanghai, 7-12 November 2010: International Council of Museums.

Emiliani, A. (1994). Entre Misère et Modernité: Les Musées Italiens. *Le Débat 78*, 116-129.

Fayet, R. (2010). Out of Neverland: Towards Consequentialist Ethics of Alienation. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 51-59). Conference proceedings from Shanghai, 7-12 November 2010: International Conference of Museums.

Fedeli, S., & Santoni, M. (2006). The Government's Choice of Bureaucratic Organization: An Application to Italian State Museums. *Journal of Cultural Economics 30*, 41-72.

Grampp, W. D. (1989). *Pricing the Priceless: Art, Artists and Economics.* New York: Basic Books.

Harris, J. (2010). Institutional Identities, Communities and Deaccession. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 123-133). Conference proceedings from Shanghai, 7-12 November 2010: International Conference of Museums.

Johnson, P. S. (2003). Museums. In R. Towse, *A Handbook of Cultural Economics* (pp. 315-320). Cheltenham: Edward Elgar.

Krueger, M. (2008). *The Deaccession Dilemma.* Indianapolis: Indiana University.

Lanza, E. (2013). Breaking up is hard to do: the sale of a charitable art donation . *Tax Lawyer*, 66(2): 483-499.

Lindsay, W. (2005). "Time Perspectives: What 'The Future' Means to Professionals in Collection-Care." *The Conservator* 29 (1): 51-61.

Mairesse, F. (2010). The Issue of Deaccession: Five Lines of Thought for Reflection. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 13-18). Conference proceedings from Shanghai, 7-12 November 2010: International Council of Museums.

Maranda, L. (2010). Deaccessioning and Repatriation. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 167-174). Conference proceedings from Shanghai, 7-12 November 2010: International Conference of Museums.

Merryman, J. H., Elsen, A. E., & Urice, S. K. (2007). *Law, Ethics and the Visual Arts.* Leiden: Kluwer Law International.

Montias, J. M. (1973). Are Museums Betraying the Public's Trust? *Museum News 51*, pp. 25-31.

Mossetto, G., & Vecco, M. (2001). Modelli di Musei e la Loro Evoluzione. In G. Mossetto, & P. A. Valentino, *Museo contro Museo: Le Strategie, gli Strumenti, i Risultati* (pp. 3-14). Milan: Giunti.

Neves, C. M. (2005). *Concern at the Core: Managing Smithsonian Collections.* Washington, DC: Smithsonian Institution.

O'Hagan, J. (1998). Art Museums: Collections, Deaccessioning and Donations. *Journal of Cultural Economics*, 22(2/3): 197-207.

O'Hagan, J. W. (1998). Art Museums: Collections, Deaccessioning and Donations. *Journal of Cultural Economics 22*, 197-207.

Paterson, R. K. (2014). "The Art of the Sale: Museums and Deaccessioning". In Vadi, V., Schneider H. E.G.S. (2014, ed.), *Art, Cultural Heritage and the Market* (pp. 273-295). Berlin-Heidelberg: Springer Verlag.

Peacock, A. (1994). A Future for the Past: The Political Economy of Heritage. *Proceedings of the British Academy 87*, 189-243.

Ripamonti, D. (2008). *I Musei Italiani? Tanti, Piccoli e Quasi Sempre Pubblici.* Retrieved June 2, 2012, from Università Bocconi: http://www.viasarfatti25.unibocconi.it/notizia.php?idArt=3285

Settis, S. (2003). Il Valore Culturale prima di Qualsiasi Interesse Economico. *Il Giornale dell'Arte 230*, 32.

Settis, S. (2004, March 24). *Patrimonio Culturale: La Svendita di Tremonti.* Retrieved May 20, 2012, from Eddyburg: http://eddyburg.it/article/articleview/270/1/92/

Settis, S. (2007). *Italia S.p.A.: L'Assalto al Patrimonio Culturale.* Turin: Einaudi.

Severini, G. (2003). *Musei Pubblici e Musei Privati: Un Genere, Due Specie.* Retrieved June 1, 2012, from Aedon: http://www.aedon.mulino.it/archivio/2003/2/severini.htm

Shane, R. & Burgess, Ch. (2011). Deaccessioning: A Policy Perspective. *The Journal of Arts Management, Law, and Society*, 41(3): 170-185.

Solima, L. (2008). Visitatore, Cliente, Utilizzatore: Nuovi Profili di Domanda Museale e Nuove Traiettorie di Ricerca. In A. Bollo, *I Pubblici dei Musei: Conoscenza e Politiche* (pp. 65-76). Milan: Franco Angeli.

Srakar, A. (2012). *Economic Analysis of Deaccessioning in American Museums.* Ljubljana: University of Ljubljana.

Srakar, A. (2014). Deaccessioning and agency costs of free cash flow in manager's hands: a formal model. *Economic and Business Review*, Vol. 16, No. 3, 2015, 225-246.

Stephens, H. H. (2011). All in a day's work: how museums may approach deaccessioning as a necessary collections management tool. *Journal of Art, Technology & Intellectual Property Law*, 22(1): 119-181.

Tam, S. (2012). In museums we trust: analyzing the mission of museums, deaccessioning policies, and the public trust. *Fordham Urban Law Journal*, 39(3): 849-871.

Tarantino, M. (2002, December 31). *I Talebani di Roma, Minaccia per il Patrimonio Artistico.* Retrieved February 28, 2012, from PatrimonioSOS: http://www.patrimoniosos.it/rsol.php?op=getarticle&id=420

Throsby, D. (2002). Cultural Capital and Sustainability Concepts in the Economics of Cultural Heritage. In M. De La Torre, *Assessing the Values of Cultural Heritage* (pp. 101-117). Los Angeles: Getty Conservation Institute.

Throsby, D. (2003). Cultural Sustainability. In R. Towse, *A Handbook of Cultural Economics* (pp. 183-186). Cheltenham: Edward Elgar.

Trione, V. (2012, May 13). *L'Infarto della Cultura, Musei, Teatri, Biblioteche: È l'Ora di Chiudere Chi Produce Soltanto Costi.* Retrieved May 30, 2012, from Corriere della Sera: http://lettura.corriere.it/l%E2%80%99infarto-della-cultura/

Vecco, M., & Piazzai, M. (2015). Deaccessioning of museum collections: What do we know and where do we stand in Europe? *Journal of Cultural Heritage 15*(2), 221-227.

Vilkuna, J. (2010). The Deaccession of Cultural and Natural Heritage in the Traditional Museum and the 'Great Museum' - A Finnish View. *Deaccession and Return of Cultural Heritage: A New Global Ethics* (pp. 73-78). Conference proceedings from Shanghai, 7-12 November 2010: International Conference of Museums.

Weber, M. (2000). *Politics as a Vocation.* Minneapolis: Fortress Press.

Weil, S. E. (1990). *Rethinking the Museum, and Other Meditations.* Washington, DC: Smithsonian Institution Press.

Weil, S. E. (1997). *A Deaccession Reader*. Washington, DC: American Association of Museums.

Whiting-Looze, B. M. (2010). *Collections as Communication: Deaccessioning Policies and Public Trust.* Eugene: University of Oregon.