

SENIOR CITIZENS' FRUITION OF CULTURAL INSTITUTIONS: SOME EVIDENCE FROM THE ITALIAN INSULAR REGIONS

Maria Daniela GIAMMANCO¹,
Lara GITTO^{2*},
Ferdinando OFRIA²

Abstract

The goal of this paper is to identify some factors that facilitate elderly visits to cultural institutions in the island Italian regions, Sicily and Sardinia. The sample (ISTAT data) refer to 2018 and considers 550 observations. We test three hypotheses: *i.* Do the intensity of public transport services and the extent of the connection network facilitate senior citizens' visits? *ii.* Does information, even conveyed through social media, may increase the share of elderly visitors? *iii.* May pecuniary considerations influence visitors' choices? Our results could be of interest to policy makers to favor the visit of cultural sites by the elderly.

Keywords: accessibility; museums; elderly visitors; Tobit model; Italian insular region.

JEL codes: L83; Z10; R11; C24.

1. Introduction

The tourism industry recognizes that senior citizens have equal rights to tourism opportunities and services, and this is the reason why accessible facilities, qualified personnel devoted to elderly and ready to take care of them and their necessities and inclusive marketing have developed (APEC, 2003; WHO, 2020; European Commission, 2021). Aging may cause problems of accessibility for the elderly because of the upsurge of some physical impairments. Since the demand for accessible tourism is constantly growing, destinations offer more and more inclusive infrastructures and services, as necessary and functional to the development of a sustainable, competitive and quality tourism offer (UNWTO, 2016; United Nations, 2020).

Physical infrastructure, such as the local transport network, may allow physical accessibility and is paramount in allowing the frailer population to enjoy touristic services (Gamache *et al.*, 2019). Nevertheless, physical accessibility is not the sole dimension to consider. Information is a major dimension of accessibility (Giammanco *et al.*, 2021). In this perspective, the role of digital information is paramount. In fact, digital innovation profoundly changed the ways, times and channels through which users are informed: the relationship between tourism and new technologies is now an inseparable correlation, since the advent of digital technology has not only revolutionized the tourism sector, shaping all its sectors both from the supply and demand side. Digital innovation by facilitating communication represent a crucial component for the development of tourism without any barrier (Baghdadi *et al.*, 2020). An investigation concerning the environmental barriers/enablers of senior tourism, therefore, may, throw some light on possible ways to reduce the burden on the aged population (Giammanco *et al.* forthcoming, 2022; see also Cylus *et al.*, 2019, concerning the burden of ageing).

1 Dipartimento di Scienze Politiche e Sociali, Università di Catania; 2 Dipartimento di Economia, Università di Messina; * corresponding author: Lara.Gitto@unime.it

We observe a sample of cultural institutions located in two Italian regions, Sardinia and Sicily. These regions are not infrastructurally contiguous with the other Italian regions. Hence, this choice allows to better understanding to what extent local infrastructures may impede/facilitate tourism.

Despite being a rather large island, the population of Sardinia is scattered in small towns and villages that try to retain their original character and aim at protecting their cultural heritage and traditions¹. During the past two decades, the European Commission decided to contribute actively to the development of Southern Italian Regions by co-financing the Objective 1 programme for the 2000-2006 period and included the Sardinia region as well. The programme was instrumental in implementing the Community Support Framework for Italian Objective 1 Regions, and structural Funds assistance for Sardinia amounted to around € two billion (European Commission, 2007).

Among the Italian regions that enjoy significant tourist flows, Sicily stands out for the exceptional concentration of historical and archaeological sites, probably the largest in the Mediterranean. Sicily was among the “Convergence” regions that, on 2007, were recognized eligible to the European Regional Development Fund (ERDF) operational programme 2007-2013, receiving Community funding of 3.27 billion euros (European Commission, 2014): according to “Priority 3. Exploiting cultural and environmental resources to attract tourism and promote development”, the promotion of sustainable tourism had to be founded on the enhancement of the cultural and natural potential of the region. The preservation of historical premises and the support to SMEs linked to the management of the cultural heritage and the environmental networks were envisaged.

The present contribution, unprecedented in literature for Italian regions, by means of econometric analysis, tests the following three hypotheses concerning the accessibility of elderly people to the flow of cultural institutions: 1) The dimension of the local public transport services network and the intensity (passengers/Km) of the services it delivers, positively impacts on the elderly visits to cultural sites?² 2) Does information be it targeted and/or delivered by social media play a role in incentivizing senior tourism?³ 3) May pecuniary considerations, captured by reduced fares, influence senior visitors' choices?⁴ The results of the econometric analysis confirm hypotheses 1 and 2.

This paper is organized as follows: the next section will describe the scenario within which the research hypotheses have been framed. Then, data and methodology employed for the analysis will be discussed; the presentation of results of the estimation of a Tobit model will follow. Some comments about the results obtained and limitations of the analysis, together with some policy implications, will conclude the study.

2. Background and hypotheses setting

The EU financial resources directed to Italian insular region make them an interesting framework of analysis, especially looking at the results obtained in terms of social policy and, overall, economic growth. In this perspective, infrastructures related to transports

¹ <https://strictlysardinia.com/beautiful-small-towns-cities-in-sardinia/>

² On the role of transport, see: Tóth *et al.* (2010) and Le-Klähn *et al.* (2015).

³ On the role of social media and digital information, see: McMillen (2017); Pirrelli (2020); Wiastuti *et al.* (2020); Palumbo (2021).

⁴ On the role of monetary reasons, see: Nimrod (2007) and Cavapozzi and Zantomio (2021).

become a key factor in several economic sectors, including, first of all tourism (Tóth *et al.*, 2010; Le-Klähn *et al.* 2015; Liu *et al.*, 2018; Cheng and Brian, 2019).

Since a priority for the tourism industry is accessibility for all, to what extent can elderly people, who may a frailer part of the population and at risk of exclusion, rely on better accessibility, which depends, in turn, on better public transport services and strengthening of the connection network?

This leads to the first hypotheses examined:

A1: The dimension of public urban transport network is correlated to higher shares of elderly visitors to cultural institutions.

A2: The intensity of service, measured by the ratio passenger/kilometers, *i.e.* the seats/km, offered by the public local transport such as tram, bus, metro and funiculars in the chief communality of the province (thousands per inhabitant), is positively correlated to a higher share of senior visitors to cultural institutions. A variable like this one, in fact, may be considered as a proxy accounting for the intensity, *i.e.*, a proxy of the efficiency/quality of the service provided by the network of local transports.

If the quality and extension of the infrastructure endowment characterizing the environment in which a cultural institution is located are relevant and exogenous (from the cultural institution perspective) aspect of its physical accessibility⁵, they may be not sufficient to guarantee the full fruition of cultural heritage by the elderly. It is also necessary to consider some choices made by the cultural institutions, which are positively correlate with the share of elderly visitors to a cultural institution: for example, the implementation of promotional campaigns that create an incentive for the specific category of elderly visitors. Further, promotional campaigns can be performed through the presence of cultural sites on social media: in 2020, 76% of museums were present on, at least, one social media channel⁶, with Facebook confirming the most widespread (76%), followed by Instagram (45%, compared to 26% of the previous year (Pirrelli, 2020)⁷.

Hence, a second group of hypotheses we want to test can be expressed as follows:

B1: Promotional campaigns directed to elderly visitors positively correlate with the share of elderly visitors over the total number of tourists.

⁵ In a previous work dealing with Sicilian museums, the authors have considered some physical characteristics of the cultural sites such as museum structures for people needing assistance, but this variable, though with the right sign in the estimations, was not statistically significant (Giammanco *et al.*, 2021). We think this result was due to the scarce variability of the data, because of the law imposing the abatement of physical barriers in the public sites (law no. 104/1992, article 28) had to be applied to all building, both private and public. In the present context we, therefore, have decided not to proceed along this line of inquire.

⁶ <https://tg24.sky.it/lifestyle/2021/10/22/time-out-uffizi-migliore-museo-mondo>.

⁷ About some museums' promotional campaigns, it is possible to cite "L'arte ti somiglia", realised in 2017 (<https://www.youtube.com/watch?v=ot54GgPqAv0>) or "Io vado al museo", directed to young people and aired in 2019 (<https://www.youtube.com/watch?v=4lkqhmy1lG8>).

B2: The presence on social media of the museums positively correlate with the share of elderly tourists.

Another question is posed by the relevant literature concerning the impact of personal income and other financial resources on cultural consumption. A long standing contribution on cultural consumption by the elderly dates back to 1987 and has been written by McCracken, 1987, who has pioneered a stream of researches on this issues, and raise the question on the pecuniary considerations that might influence elderly visitors' choices. Such choice might be captured investigating the relations between the share of elderly visitors and, respectively, reduced fares for elderly and people needing assistance (among whom elderly may fall) and their accompanying person.

The latest hypotheses to be verified are:

C1: The possibility to enjoy a reduced access fare for seniors positively correlates with the share of elderly visitors.

C2: The possibility to have a reduced access fare for visitors who need assistance positively correlates with the share of elderly visitors.

C3: The possibility to have a reduced access fare for visitors who need assistance positively correlates with the share of elderly visitors.

A control variable is “museum” that identifies the typology of the institution. The choice of “museums”, among other cultural institutions for the present analysis depends on the consideration that museums are easier to visit with respect to other cultural institutions (an archeological park, for example), and physical accessibility may become of paramount importance for the elderly or disabled (Giammanco *et al.*, 2021).

Overall, in the estimations that will be carried out, are included as regressors both exogenous variables, which depend on the local territorial contest and do not rely on choices and strategies realized by the same cultural institution, and endogenous variables that depend, on the other hand, on the type and choices made by the institution.

The level of significance of the regressors identified for each of the hypotheses tested may orient the choice related to the measures to implement, when the final objective is that one of improving cultural supply.

3. Data and methods

The present analysis uses information related to elderly visitors to cultural sites in the insular region of Italy (Sardinia and Sicily) that has been retrieved by the “Survey on Museums and similar institutions” carried out by the National Institute of Statistics (*Istituto Nazionale di Statistica – Istat*) in 2018. The survey (Istat, 2019) has been carried out by online interviews to 5,688 directors of Italian cultural institutions, both public and private, which were open to visitors in 2018.

From the survey, a sub-dataset has been extrapolated for the present analysis, focusing on the two island regions: more than half of the observations (52.73%) pertain to Sardinia and the remaining 47.27% to Sicily.

This information about the regional cultural heritage is summarized in Table 1.

Table 1. Frequencies and % on the total of observations of touristic sites sorted by category and by region				
	Sardinia	Sicily	Total	% on the total of the observations
Museum				67.27%
Frequency	187	183	370	
% on the total of museums	50.54 %	49.46 %		
Archaeological sites				17.82%
Frequency	64	34	98	
% on the total of archaeological sites	65.31 %	34.69 %		
Monumental sites				14.26%
Frequency	36	42	78	
% on the total of Monumental sites	46.15	53.85		
Eco-museum	0	1	1	0.18%
Missing	3	0	3	0.55%
Total	290	260	550	
% on the total of the observations	52.73 %	47.27 %		

The more frequent category of cultural sites is that of museum (370 museums accounting for more than two thirds of the total number of cultural sites). Museums are equally represented in Sardinia and Sicily, with, respectively, a frequency (and a percentage on the row total of museums) of 187 (50.54%) and 183 (49.46%).

Instead, the archaeological sites are 98 and account for 17.82% of the total number of cultural sites, with a higher prevalence in Sardinia (with a frequency of 64 and a raw percentage of 65.31%).

The monumental sites are 78 (the 14.26% of all cultural sites), with a higher prevalence in Sicily (with a frequency of 42 and a percentage on the raw total of 53.85%). Only one eco-museum is present in the Istat dataset, and the information concerning the category to which other three cultural sites belong is missing.

A Tobit model is the estimation strategy that has been chosen to investigate the use of Italian cultural institutions by senior citizens (Tobin, 1958): in fact, the dependent variable is the share of senior visitors over the total number of visitors, *i.e.*, a censored version of a variable Y^* that could present values within a given range $[0, 100]$. Nevertheless, in the observed sample, the share of senior visitors over the total number of visitors has a lower limit of 0 and an upper limit of 80.

The specification of the model is:

$$Y_i = \begin{cases} y_i^* & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases} \quad (1)$$

Concerning this econometric model, other studies on tourism issues have employed the same estimation strategy⁸. Here, the selection of regressors has taken into account the hypotheses to be tested. In fact, the regressors employed, related to each of the hypotheses above described are:

- a variable related to the number of public urban transport networks (tram, trolley bus, metro and funiculars) serving the chief municipality area within 100 Km², that has been chosen as it accounts for the extension of the local transport network (hence, it can be helpful in clarifying hypothesis A1).

Passenger movements, summarized by the ratio passenger/kilometers, are connected to transport intensity and explains hypothesis A2. This variable, as it has been said, accounts for the intensity of the service provided by the network of local transports⁹;

- a dummy variable assuming value =1 if promotional and communication campaigns aimed at elderly visitors have been implemented and = 0 otherwise (hypothesis B1);

- a dummy variable assuming value=1 if the cultural site is present on social media and = 0 otherwise) (hypothesis B2);

- the circumstance that there is a reduced access fare for senior citizens (a dummy variable assuming value =1 if the discounted fare is available for elderly tourists and = 0 otherwise) (hypothesis C1);

- the circumstance that there is a reduced access fare for disabled people (a dummy variable assuming value =1 if the discounted fare is available for disabled tourists and = 0 otherwise) (hypothesis C2);

- the circumstance that there is a reduced access fare to the cultural institution for accompanying people too (a dummy variable assuming value =1 if the discounted fare is available for the accompanying person and = 0 otherwise) (C3);

- about the variable “museum”, which has been chosen as control, it indicates the typology of institution and is a dummy variable assuming value =1 if the site is a museum and = 0 otherwise.

⁸ Deng *et al.* (2020), among others, investigated the impact of the high-speed railway on tourism, while Pekovic *et al.* (2019) have tackled with the relation between personnel's competencies such as patience, personal skills, qualification, etc., and tourists' satisfaction.

⁹ https://transport.ec.europa.eu/index_e

4. Results and discussion

Table 2 presents the descriptive statistics of the variables used in the analysis.

Table 2. Descriptive statistics related to the variables employed

Variables	Observations	Mean	Standard deviation	Min	Max
Proportion of senior tourists on the total	474	31.333	16.46157	0	80
Reduced admission fare for elderly visitors	435	0.430	0.496	0	1
Reduced admission fare for visitors with problems of access	447	0.723	0.448	0	1
Reduced admission fare for accompanying person	445	0.673	0.470	0	1
Museum	549	0.673	0.469	0	1
Targeted information aimed at senior visitors	245	0.522	0.501	0	1
Presence of the institution on social media	491	0.637	0.481	0	1
Number of public urban transport networks	549	96.004	93.418	18.4	413.8
Seat/km offered (transport intensity)	549	1.645	1.139	0.2	5.2

A discounted entrance fare is allowed in 43% of the cultural sites to senior citizens; in the 72.3% of the cultural sites to disabled visitors, and in the 67.2% of them to the accompanying people. Fifty-two per cent of the cultural institutions have implemented communication campaigns directed at elderly visitors and almost 64% of the cultural institutions in the sample are present on social media.

Both the public transport networks (*i.e.* its extension, measured through the number of public transports networks) in each urban area and the ration seat/km offered (intensity of the service) present average values of, respectively, 96.004 and 1.645. As far as the control variable, museum, is concerned, 67.3% of the cultural institutions at study belong to this category.

Table 3 reports the Tobit model estimation results.

Results show a negative, although weakly significant, correlation between the reduced admission fare for elderly visitors and the share of elderly people visiting the institution. This may suggest that though money matters (Cavapozzi and Zantomio, 2021), monetary reasons *tout court* cannot be advocated as major determinants of senior citizen visitors, who may consider reasonable and, therefore, may be willing to pay an entrance ticket if they perceive to pay money for value.

Table 3. Tobit Regression results						
					Number of obs=223	
					Number of obs =221	
Limits: lower = 0					Left-censored =1	
upper = 80					Right-censored =1	
					F(8, 215) = 8.65	
Log pseudolikelihood = -899.77944					Prob > F=0.0000	
	Coefficient	Robust Std. Err.	T	P> t 	[95% Confidence Interval]	
Reduced admission fare for elderly visitors	-3.472	2.038	-1.70	0.090	-7.488	0.545
Reduced admission fare for visitors with problems of access	9.277	4.374	2.12	0.035	0.655	17.899
Reduced admission fare for accompanying person	-9.905	3.520	-2.81	0.005	-16.845	-2.966
Museum	4.160	1.919	2.17	0.031	0.376	7.943
Targeted information aimed at senior visitors	6.149	1.950	3.15	0.002	2.304	9.993
Presence of the institution on social media	7.077	2.791	2.54	0.012	1.575	12.578
Urban transport network extension	-0.060	0.016	-3.76	0.000	-0.091	-0.028
Transport intensity	3.717	1.282	2.90	0.004	1.190	6.24
Constant	20.71354	4.393267	4.71	0.000	12.054	29.373
Var (elderly tourist proportion)	195.8498	20.54905			159.260	240.846

In order to understand fully the sign of the coefficient, a microanalysis on the cultural sites allowing reduced admission fare for elderly visitors should be carried out, in order to determine if other accessibility hindrances counterbalance the discounted fare-luring feature.

Reduced admission fares for visitors with some disabilities have a positive and significant impact, suggesting that elderly people are not always in full health because of ageing; nevertheless, the negative and significant correlation with the possibility to enjoy reduced entrance fares for accompanying people may suggest that, though with some impairments, these people are still in quite good health.

Nevertheless, other factors, peculiar of each cultural site, may play a role that, in order to be correctly interpreted should be studied at a micro level.

The variable “museum” has a positive and significant coefficient: senior visitors might prefer a museum experience rather than the visit of other touristic sites, such as archaeological parks for example, because museums could be more accessible than other cultural sites (Veall *et al.*, 2017).

The variable indicating the presence of information strategies targeted at senior tourists (Corona, 2021) is positively correlated with the dependent variable and is statistically significant. This is consistent with the relevant literature arguing that information is a dimension of accessibility and it is valued by senior tourists (Eichhorn and Buhalis, 2010).

By enhancing senior tourism, information may be considered as a mean to increase intergenerational equality¹⁰. The variable indicating the presence of the touristic institution on social media has a positive and statistically significant coefficient, suggesting that social media have a role in senior citizens' lifestyle (Gitto, 2021) and may be used to convey relevant touristic information to this population group.

At first sight the regression results concerning the two variables capturing the local transport services supply seem contradictory. Nevertheless, they may be explained as they capture different aspects of the transport infrastructure.

In fact, the extension of the network is negatively correlated with elderly visitors share, suggesting that the higher the magnitude of the transport infrastructure, that might imply a higher dimension of the municipality in which the touristic institution resides, the more discouraged the elderly visitors will be.

This situation has been described by Shrestha *et al.* (2017), who stress how public transport is important to older people's quality of life, as they strengthen their sense of freedom and independence (Metz, 2003). Older people tend, in fact, to travel less than other adults, often changing their transport modality (Berg *et al.*, 2015).

In this perspective, it will result clearly how transport intensity has a positive and significant impact on the share of senior tourists, since elderly travelers may choose different modalities of transport; this suggests that effectiveness in the local transport supply may support senior citizens in enjoying their touristic experiences.

The ongoing debate on development policies to be adopted for backward regions (such as Sicily and Sardinia) proposes interventions that enhance infrastructures and fuel endogenous development processes (see, among others, Melo *et al.*, 2013; Farhadi, 2015; Millemaci and Ofria, 2016). To build such infrastructures, Italy must effectively use direct ("Connecting Europe Facility for Transport" and "Recovery funds") and indirect (Structural funds) European financing. In fact, the railway infrastructure networks are among the thematic objectives (ob. 7) of the EU 2014-2020 Cohesion Policy.

Table 4 summarises the hypotheses examined and the conclusions that is possible to draw from the present analysis.

¹⁰ Silva *et al.* (2017) in a research on information needs from the elderly, state how "professionals and academics in gerontology, technology and political science argue that there are several areas of concern about which it is necessary to bring clear information to the elderly. These seven areas are: (1) health care and welfare services; (2) social services; (3) financial services; (4) culture, informal; education and entertainment; (5) security services; (6) local authority services and (7) transport services".

Table 4. Summary of results obtained.

	Hypothesis tested	Independent variable employed	Source	Hypothesis accepted or rejected
Infrastructures	A1: The dimension of public urban transport network is correlated to higher shares of elderly visitors to cultural institutions.	number of public urban transport networks (tram, trolley bus, metro and funiculars) serving the chief municipality area within 100 Km ²	Istat (2021a)	rejected
	A2: The intensity of service is positively correlated to a higher share of senior visitors to cultural institutions.	ratio passenger/kilometres, <i>i.e.</i> the seats/km, offered by the public local transport (thousands per inhabitant)	Istat (2021b)	accepted
Targeted	B1: Promotional campaigns directed to elderly visitors positively correlate with the share of elderly visitors.	dummy variable assuming value =1 if promotional and communication campaigns aimed at elderly visitors have been implemented and = 0 otherwise	Istat (2019)	accepted
	B2: The presence on social media of the museums positively correlate with the share of elderly tourists	dummy variable assuming value=1 if the cultural site is present on social media and = 0 otherwise	Istat (2019)	accepted
Pecuniary incentives	C1: The possibility to enjoy a reduced access fare for seniors positively correlates with the share of elderly visitors.	dummy variable assuming value =1 if the discounted fare is available for elderly tourists and = 0 otherwise	Istat (2019)	rejected
	C2: The possibility to have a reduced access fare for visitors who need assistance positively correlates with the share of elderly visitors.	dummy variable assuming value =1 if the discounted fare is available for tourists with disability and = 0 otherwise)	Istat (2019)	accepted
	C3: The possibility to have a reduced access fare for accompanying people correlates with the share of elderly visitors.	dummy variable assuming value =1 if the discounted fare is available for accompanying people and = 0 otherwise)	Istat (2019)	rejected

For Italy, the Partnership Agreement of October 29, 2014 indicates the actions and financial instruments necessary to achieve the thematic objectives of the Cohesion Policy. This Agreement, among other things, provides for the “National Operational Programmes” (NOP) actions “Infrastructures and networks”, to implement the “strengthening of the railway mode at national level and improvement of services in terms of quality and travel times”. Therefore, quickly transforming European funding into infrastructure is the way forward to generate economic development for the Italian backward regions. Current laws of public procurement slow down bureaucratic

processes. An immediate structural reform of the legislation relating to the construction of public works is needed in Italy. Applying this law for the realization of all Italian public works is the economic policy path to follow to contrast the economic development gaps between the Italian regions.

5. Conclusions

The present contribution has tackled with the possible correlates of the share of senior visitors in the total number of visitors in the Italian insular region, with the aim of highlighting factors that may impede/facilitate senior tourism.

1) May the efficiency of public transport services and the extent of the connection network facilitate senior citizens' visits? 2) Does information, be it expressly directed to the elderly by it conveyed through social media, play a role in increasing the share of elderly visitors? 3) May pecuniary considerations, captured by the possibility of reduced entrance fees, influence visitors' choices?

Econometric results confirm hypotheses 1 and 2. These results are in line with what emerges by the literature (Fuchs, 2001). In particular, the Tobit analysis results suggest that monetary reasons may not be the main obstacle to the enjoyment of cultural sites by aged people: in this sense, the evidence of a negative and significant correlation between the share of elderly visitors and, respectively, the presence of reduced discounted access fares for elderly people may suggest that senior citizens are ready to pay money for a touristic value experience. This could be explained by the "activity theory", according to which senior travelers have access to both a large amount of spare time and conspicuous financial resources (Nimrod, 2007; Cavapozzi and Zantomio, 2021). The negative and significant correlation between the share of senior visitors and reduced access fares for accompanying people, together with a significant and positive correlation with the variable related to disability, might suggest that, in spite of some impairment due to age, the support from accompanying people is not really necessary to the elderly to visit a cultural site. The fact that institutions as museums positively influence the senior citizens share of visits imposes us to speculate about the physical accessibility of this kind of cultural site.

The relevance of both targeted information aimed at senior visitors and the presence of the cultural institution on social media suggest that, in order to ameliorate accessibility by conveying relevant information to senior customers, social media may be used.

The local nature of the study limits the relevance of its finding that may be stronger if enriched by making comparisons with other national areas (Northern Italy, Central Italy; all Italian regions) and this will be the next immediate research direction. However, the results obtained from this research offer important indications to both at the micro and meso level: they suggest that managers of the cultural institutions, in order to facilitate senior tourism may implement actions directed to improve communication to this ever-growing group of customers. As communication specifically targeted to the elderly seems to matter, this should take into account that the targeted population are elderly that because of age may have some disability. Results may be useful to policy makers, when assessing the effects of money spend on local transport infrastructure that by favoring elderly visit enlarge the share of the population enjoying the cultural sites and increase the efficiency in the local cultural supply.

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