Spatially Disaggregated Cultural Consumption: Empirical Evidence of Cultural Sustainability from Austria

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Abstract: The determinants of cultural consumption are rarely explored by means of travel demand (i.e., travel cost) models. In this paper, the empirical results are presented in regard to the frequency of attendance to cultural events as an indicator of cultural sustainability. Approximately 50% of the respondents who participated in a representative household survey in Austria stated that they would participate in cultural events at least once a year. The average frequency of attendance came to about 3 to 4 times a year, depending on the kind of cultural event (e.g., drama/opera performances, museum visits, concerts in schools of music). The estimations support the notion that the distance from the respondent's residence to the cultural event is negatively correlated with the frequency of attendance. Other determinants include the typical socio-economic characteristics of respondents (e.g., education, income). However, the availability of cultural infrastructure in urban or rural areas, as well as municipal cultural spending, are the main spatial and public finance variables influencing attendance frequency. Based on the econometric estimations of the travel cost model, the economic value of attending a cultural event (consumer surplus) varies from EUR 38 (cinema) to EUR 55 (theater, opera) on average. The results suggest that local and regional cultural infrastructure are significant contributors to cultural sustainability.

Keywords: cultural consumption; cultural infrastructure; cultural sustainability; travel demand models; statistical-econometric estimations; attendance frequency; cultural participation

1. Introduction

The 2005 UNESCO convention on the protection and promotion of the diversity of cultural expressions is an important framework of current cultural policies to which the Republic of Austria has committed itself [1]. Several levels of government (central, regional and local governments) shape the cultural policies in Austria as a federal state. For local cultural infrastructures, in Austria, the nine Federal Provincial Governments (*Bundesländer*) provide legal foundations, while municipalities co-fund many of these institutions [2]. For instance, local governments often provide and financially support local museums, music schools, theaters, and cultural venues. Austrian cultural policy, especially since the 1970s, was committed to broaden cultural consumption for general audiences under the umbrella of *Culture and the Arts for all* (*Kultur für alle*; cf. [3]). This ambitious program tackled the then existing unequal access to cultural goods and services between urban and rural populations, as well as different social groups, by aiming to support regional and local governments in funding cultural participation, by improving cultural infrastructure and by enhancing arts education (e.g., by establishing local music schools). Since the 1970s, the Austrian Ministry of Education and Culture has commissioned some studies on examining cultural participation and ascertaining the socio-economic determinants of cultural consumption (e.g., [4]; cf. [5]).

The potential influential factors of the benefits derived from cultural infrastructure (cultural institutions; cf. [6])–such as museums, theaters, concert venues, libraries, cinemas–have been discussed widely in the cultural literature on economics and policy. For instance, McCarthy et al. [7] present a comprehensive overview of the (individual) participation in the arts in regard to the empirical literature, the theoretical foundations, as well as the implications for practitioners and policy-makers. Of course, there are many approaches to studying the determinants of cultural consumption and attendance to cultural events, such as surveys eliciting individual choices and behavior and linking these to the individual characteristics of respondents (see Section 2 for a review). Emphases have been laid, among other factors of the attendance frequency of citizens at cultural events, on the socio-economic determinants of cultural consumption–such as education, age and income (see, e.g., the reviews of [5,8,9]), on preferences and values (e.g., [10]), and on childhood experiences (e.g., [11]). Sociological theories infer, for example, that cultural preferences and attendance depend on the different levels of social classes and social distinction (cf. [12]). Of course, others have also skeptically reviewed such methodological and theoretical approaches as not being adequate for studies on cultural institutions (e.g., [13]).

For the purpose of this paper, *cultural consumption* is defined as the enjoyment of artistic (cultural) events in a wide sense ranging from the opera and theater shows to popular music festivals and events in schools of music. These events take place in cultural infrastructure (institutions) such as the ones mentioned above (a more detailed list of cultural infrastructure and institutions will be provided below). *Attendance* is defined as being present at and taking part in cultural events measured by the annual frequency, while *participation* refers to citizens' basic interest in the arts, expressed as having a minimum attendance of one time a year. Cultural attendance (consumption) and participation are both understood as important indicators of cultural sustainability (cf., [14,15]). However, it must be noted that cultural sustainability is usually conceptualized by scholars in a much wider meaning. From a viewpoint of cultural economics, cultural sustainability was operationalized by the cultural capital approach [16,17]. Furthermore, cultural sustainability and regional cultural capital provide an important foundation of regional (economic) development [18]. In general, cultural sustainability is often discussed also in the context of the cultural dimensions of an ecologically sustainable development [19] and the role of cultural policies in contributing to sustainability [20]. In this paper a narrower perspective on cultural sustainability is explored, focusing on cultural consumption and cultural participation.

For this paper, the focus of the analysis is, however, widened from a rather narrow definition of cultural consumption of highbrow cultural events to a broader view on *cultural infrastructure*. Citizens—regardless of whether they are able to spend their income on cultural goods and services, or whether they enjoy a higher formal education—may all want to satisfy their cultural needs according to their individual preferences, and their socio-economic possibilities. If it is assumed that everybody has (individual levels of) cultural needs to be satisfied, the question remains how these needs are to be satisfied in concrete economic, social and spatial contexts. Cultural consumption might therefore be different not only in regard to the socio-economic status of citizens, but also in regard to the local and regional availability of cultural infrastructure.

This paper therefore deals with cultural consumption in a wider sense, i.e., in a socio-economic as well as a spatial perspective. It closes a research gap as it brings together a revealed preference approach for cultural consumption, and the public spending of municipalities for cultural infrastructure (municipal cultural spending), in a joint analytical framework. In other words, the effects of municipal spending for cultural infrastructure as part of the *supply side* are studied, in regard to cultural consumption as part of the *demand side* of cultural policies. In order to explore these relations, an Austrian (nation-wide) representative household survey provided the empirical basis. Furthermore, the frequency of attendance and cultural participation are investigated in a spatial perspective by differentiating between urban and regional populations.

The structure of the paper is as follows: A brief review on the literature on the empirical evidence of the determinants of cultural consumption (frequency of attendance and participation in cultural events) is given in Section 2. The methodological approaches of the paper are presented in Section 3,

while descriptive results are to be found in Section 4. Section 5 includes econometric evidence and the economic value of cultural events, while in Section 6, the results are summarized and conclusions are drawn.

2. The Determinants of Cultural Consumption: A Brief Review

There are, of course, numerous theoretical and empirical approaches to be found in various disciplines, which scholars have developed to explore the determinants of cultural consumption. Owing to the lack of space, this brief review focuses only on literature dealing with the individual determinants of cultural consumption, such as the socio-economic characteristics of citizens, and on individual data collected by means of household surveys. Furthermore, some of the papers dealing with travel cost demand models in regard to cultural consumption will be discussed.

Briefly, many empirical studies support the view that citizens with a higher education, and a higher income, are usually assumed to consume more cultural goods and services, especially considering highbrow culture, such as opera, museums, and theaters. High-income groups have also exhibited a greater likelihood to participate in cultural events. Falk and Katz-Gerro [21] conclude that even for very different European countries, the explanatory power of characteristics such as household income, and education, is equally significant if visits to museums, art galleries and cultural monuments are considered. However, the income of households as an influential factor may correlate to cultural consumption in different directions. While high-income households may generally be more likely to attend cultural events (cultural participation), the frequency of visits to cultural events (attendance of cultural events) may be negatively correlated with income, if the latter is considered as a measure of the opportunity costs of time (cf. [5,9,22]).

Age and gender, as demographic variables, seem to have an influence on participation in the arts as well, but to a varying degree depending on the contexts in the countries studied (e.g., [23]). In line with these findings, education is also considered to be the main reason to be present at live performances in Italian regions [24]. Attendance frequency at symphony concert performances is found to depend on the level of education as well, besides the quality of the symphony, ticket prices, and other determinants. In the paper written by Toma and Meeds [25], it is interesting to note that the frequency of attendance of people with a very high income is below the average level. In his survey of studies on the demand for the performing arts, Seaman [9] concludes that education and income are the important determinants of arts consumption. However, the quality of the performance, habit formation, and life-style related factors, to mention but a few, might play significant roles as well. His paper suggests that–while basic economic laws are certainly relevant for modeling the demand for performing arts–there is no clear-cut list of determinants. Studies show that also the methodological approach matters for detecting the most prominent influential factors for demand [5].

Time spent for attending cultural events may also depend on age and education. Molina et al. [26] find that households with a higher income spend more of their leisure time for theater and museum attendance, as do elderly people. Differences in regard to the kind of cultural goods and services (e.g., theaters vs. cinemas) may also be due to the age of the citizens.

The probability of being present at a performing arts event, and the frequency of attending, might have different determinants. Wen and Cheng [22] find that education and income are influential for the likelihood of attending such events but prove to be insignificant in regard to the frequency of attendance. Furthermore, they find that memberships in institutions and associations of the arts, and personal involvement in the arts, may influence the likelihood and frequency of attendance.

While papers regularly report on the frequency of attendance to cultural events, the individual tastes for specific cultural goods and services are studied less often. However, it seems that cultural tastes, especially for highbrow cultural events, also follow the above-mentioned patterns. For instance, Favaro and Frateschi [27] find that musical tastes are closely related to education, age and gender. Furthermore, the development of preferences in the course of time may begin with childhood experiences in regard to cultural events [11].

The supply side of cultural infrastructure also plays an additional role in determining cultural consumption. Diniz and Machado [28] find that supply variations (and historic pathways) influence cultural spending, besides the well-known determinants of income and education. Brook [29] explores whether the distribution of cultural consumption is spatially unequal, and suggests that one of the main determinants are the possibilities for access to museums and theaters. This result is also important with regard to different spatial distributions of income and education. Municipal and regional policies supporting cultural democratization and providing cultural infrastructure can be considered paramount in increasing cultural participation by marginal or low-income groups [30].

Prieto-Rodríguez et al. [31] examine music tastes (e.g., popular and classical music) in regard to the socio-economic attributes of respondents including spatial variables. While their results indicate that education has a positive influence on classical music, households living in urban areas may also behave differently. It seems that listening to (classical) music "can be classified as urban behavior" [31]. Other studies also indicate differences between urban and rural populations, and between genders, in regard to cultural attendance (e.g., [32]). Besides income, education and professional status, Huber [33] stresses the potential differences between urban and rural populations concerning musical tastes and music consumption in Austria.

Concerning the empirical literature on valuing cultural goods and services (events), there are a few studies dealing with travel cost demand models. The main objective of such models is linking travel costs (transportation costs, opportunity costs of travel time) to the frequency of trips (visits) to a venue or area, and to deriving the economic value in terms of the consumer surplus on the basis of an econometrically estimated demand curve (e.g. [34]). The economic reasoning behind the application of non-market valuation methods, such as travel cost, contingent valuation, or choice experiment methods lies in the public goods character of cultural goods and services, and in externalities connected to cultural consumption, which prevent the easy use of market prices for valuing these goods and services (e.g., [35–38]).

In regard to cultural goods and services, and cultural heritage sites, Poor and Smith [39] apply a zonal travel cost model to estimate the benefits of visitors to the historic St. Mary's City of Maryland. Willis et al. [40] use aggregate booking data to estimate a demand function of rural theater attendance in England. The model estimations combine socio-economic variables with travel cost data, and are the basis for calculating the consumer surplus per visitor. Alberini and Longo [41] combine revealed and stated travel frequencies of cultural heritage sites and use a single-site travel cost model for calculating the consumer surplus per trip, and the potential increase of benefits accruing from improving the quality of sites (cf., [42,43]).

As an alternative to single-site travel cost models, Forrest et al. [44] estimate a zonal travel cost model linking the number of visitors of theaters to the distance from a specified zone to a specified theater in England, and compute the zonal consumer surplus. In addition, they also point out that the education level is a major determinant of theater attendance, and use their results to argue for an economic justification of public subsidies for these theaters, as the consumer surplus is larger than the subsidies paid.

The following conclusions for this paper can be drawn from this brief literature overview:

- Socio-economic attributes of art consumers matter, especially education, and to varying degrees, income, age, gender and professional status.
- There might be different preferences or attendance frequencies between urban and rural areas, even when accounting for socio-economic differences.
- Travel-cost approaches have been used successfully to compute the consumer surplus of single sites, or of attendances to cultural events.
- Socio-economic characteristics of respondents might influence the frequency of attendance, and the participation in cultural events, differently.

Based on these broad conclusions, the next section provides an overview of the empirical approach to answer the research questions in this paper.

3. Methods

3.1. Representative Household Survey

In order to ascertain answers to the broad research topics raised in Section 1, two empirical data sources are used; (1) a representative household survey of the Austrian population, and (2) municipal cultural spending data drawn from the Austrian budgetary statistics.

In regard to the empirical survey, a questionnaire was developed aiming at collecting a wide range of data dealing with cultural consumption and cultural preferences. The structure of the questionnaire was as follows:

- Introductory questions related to the levels of knowledge, importance and satisfaction of local and regional cultural infrastructure;
- Travel distance of cultural infrastructure from the respondent's residence;
- Frequency of attendance and level of satisfaction with cultural events in general;
- Description of the two most memorable cultural events attended in the last year;
- Experiences with cultural events during childhood;
- Equipment and use of digital media in the respondents' households;
- Elicitation of willingness-to-pay for sustaining and improving regional cultural infrastructure, and general assessment of cultural policy issues;
- Voluntary or full-time work of respondents for cultural institutions.

This paper uses data only in regard to the first six issues. The discussion on willingness-to-pay for (local and regional) cultural infrastructure, and voluntary work in cultural institutions, is published in [40].

Table 1 presents a brief overview of the socio-economic characteristics of the survey sample compared to the Austrian average.

Table 1. Socio-economics and residence of the respondents: descriptive statistics.

Socioeconomic Attributes of Respondents	Survey Sample	Austrian Average [a]
Gender (female)	50.02%	50.84%
Education		
Fundamental school	23.04%	25.74%
Apprenticeship/Master	46.47%	45.78%
High-school	17.30%	15.07%
College/university	12.19%	13.41%
Share of respondents living in Vienna	15.15%	21.41%
Share of respondents living in urban centers	55.06%	52.79%
Income (EUR)	EUR 2540 (mean), EUR 1,082 (std. dev.)	EUR 2,594
Age (years)	41.75 years (mean), 15.17 years (std. dev.)	42.60 years

Notes: [a] Data retrieved from Statistics Austria (STAT, 2020). The Austrian average is the respective mean (average) for the variables. Source: Own calculations, 2020.

The questionnaire was developed within a period of about one year (January 2018 to February 2019) with reference to existing comprehensive surveys, such as former Austrian surveys (e.g., [4]), or the US Survey of Public Participation in the Arts (e.g., [45]). Drafts of the questionnaire were presented in several seminars and to focus groups. Various scholars of the Vienna University of Music and Performing Arts commented on survey drafts. Before the fieldwork, a certified market research company reviewed the questionnaire, which was also pre-tested in the field with a small sample of 108 respondents. After several revisions of the questionnaire, the survey was implemented as a web-based survey in April and May 2019. The sample was drawn from an existing household

panel based on a random-quota procedure, and was representative for the Austrian population in regard to age, gender, region (province), profession and income. (The field work took place from April 4 to May 14, 2019 (39 days). Invited households of the household panel amounted to 22,672, of which 2611 respondents began with the survey (response rate: 11.52%). 333 questionnaires were quit, 2171 respondents finalized the questionnaire. 144 questionnaires were randomly removed owing to the surpassing of quotas. The average length of an interview was 21 min).

3.2. Budgetary Data and Statistics

The second data source consists of budgetary data for all Austrian municipalities (around 2100) for the period of 2004 to 2018 (15 years). In order to smooth possible unusual spikes in spending, average per-capita cultural spending of municipalities for the last three years was computed (EUR at 2015 constant prices). Besides per-capita levels of cultural spending, the percentage ratio of municipal cultural spending to total spending is included in the database. Furthermore, the database includes a classification of municipalities according to their centrality and their location, originating from the Austrian Statistical Office (Statistik Austria). Municipalities are classified in three main classes, urban centers, urban periphery & regional centers, and rural & peripheral regions.

Both data sources (representative household survey, official cultural budgetary data and urban/rural classifications) are then combined by means of each respondent's place of residence (statistical code of each municipality).

Based on the data sources described above, this paper presents some descriptive evidence on cultural consumption in Section 4. For analyzing attendance rates (i.e., frequency of attending cultural events), a count-data model is used (details are described in Section 5.1). In order to ascertain determinants of cultural participation (i.e., whether the respondent participated in cultural events at least once per year), a standard logit model will be applied (see Section 5.2).

The following sections provide an overview of selected descriptive and econometric evidence of the survey in combination with the urban-rural classification and municipal cultural spending.

4. Descriptive Empirical Results: The Frequency of Cultural Consumption

The first part of the representative household survey dealt with the respondents' perception of and information about the cultural infrastructure in the municipality and the region, respectively. Furthermore, the distance to the cultural infrastructure and the frequency of attending cultural events were ascertained. As a starting point, the survey opened with a general question regarding the self-reported importance of cultural activities in comparison to other leisure activities. The majority of respondents (40.4% of the respondents) stated that he/she would value cultural activities as being equally important to other leisure activities. However, the distribution of answers is slightly turned towards items indicating that other activities would, on average, be more important than cultural activities.

Table 2 displays the average importance of cultural activities on a 5-point Likert Scale, which amounts to a value of 3.16. As can be seen from the results, there is clearly no difference between respondents living in urban centers, in regional centers or in rural areas. This result already suggests that there might not be a clear-cut distinction between urban and rural populations with regard to preferences for cultural activities and cultural events.

Concerning the self-reported level of information about cultural events in the respondent's region, the results of Table 3 indicate that the information levels might be quite different between urban and rural areas. For instance, information levels with regard to concerts and festivals may be higher in urban areas, while performances in schools of music, as well as dance events exhibit higher information levels in rural areas. For theater performances, there do not seem to be significant differences between urban and rural areas.

Table 2. Descriptive analysis: the importance of cultural activities.

Classification of Municipalities	Importance of Cultural Activities [a]		
	Mean	Std. dev.	n
Urban centers	3.15	1.02	1078
Urban periphery/regional centers	3.13	1.02	422
Rural/peripheral regions	3.21	1.00	527
All respondents	3.16	1.02	2027

Notes: [a] 'Importance' measured on a 5-point Likert Scale ('1' = Significantly more important than other leisure activities; '5' = Significantly less important than other leisure activities). Source: Own calculations, 2020.

Table 3. Descriptive analysis: Information [a] levels about cultural events in the region.

Classification of Municipalities		Cinema	Concerts/ Festivals	Museum, Exhibition	Theater	Perfor-Mances of Schools of Music	Opera, Ballet	Dance, Musical
Urban centers	Mean	2.19	2.35	2.62	2.77	3.04	2.86	3.13
	n	1038	1037	1029	1040	1033	978	1017
	Std. Dev.	1.08	1.04	1.11	1.12	1.24	1.20	1.15
Urban periphery/ regional centers	Mean	2.48	2.48	2.83	2.81	2.81	3.15	2.98
	n	372	387	386	397	394	330	390
	Std. Dev.	1.21	1.08	1.13	1.11	1.19	1.21	1.15
Rural/peripheral regions	Mean	2.49	2.49	2.72	2.68	2.72	3.20	2.96
	n	475	489	476	485	500	391	490
	Std. Dev.	1.10	1.06	1.08	1.09	1.16	1.13	1.15
All respondents	Mean	2.32	2.41	2.69	2.75	2.91	2.99	3.06
	n	1885	1913	1891	1922	1927	1699	1897
	Std. Dev.	1.12	1.06	1.11	1.11	1.21	1.19	1.15
	ANOVA Prob.	***	**	***		***	***	***

Notes: [a] 'Information' measured on a 5-point Likert scale ('1' = very well informed; '5' = Not informed at all); ANOVA tests for differences between groups (Prob. *** $p < 0.01$; ** $p < 0.05$). Source: Own calculations, 2020.

The results of Table 4 suggest that the accessibility of different types of cultural infrastructure, explored in this paper, largely depends on the spatial location of the respondent's residence. On average, local libraries, cinemas, and schools of music are generally very close to the respondents' residence within a travel time (distance) of about 10 to 16 min, depending on whether the respondents' homes are located in Austria's capital city of Vienna or in another municipality. (In order to simplify the questionnaire, the survey required distances to be expressed only in minutes. For the travel-cost estimations presented in Section 5, the travel time is the most important factor of travel costs, while the distance in kilometers, relevant for calculating variable costs of transportation, is only of minor importance.)

Museums and theaters are also rather close to the respondents' residence while art schools, open air and festival venues, and opera houses in particular, are much further away. Furthermore, the results of Table 4 also indicate that the type of municipalities–as an indicator of the spatial location of the municipality in reference to urban or regional centers–significantly affects travel time. Respondents living in urban centers clearly have the advantage of a shorter time to travel to cultural infrastructures, such as theaters, museums, and opera houses. For instance, respondents in urban centers stated that the average time needed to travel to the next theater would be 17.63 min, while respondents in the urban periphery or in regional centers face a distance of 22.18 min. Respondents in the rural periphery have to travel 22.34 min on average. However, the results also show that (local) libraries and schools of music–both prominent local cultural infrastructures–are accessible to the same extent for all respondents regardless of the location of their residence. Besides cinemas, local libraries are available to the respondents in about 89% to 94% of the regions.

Table 4. Descriptive analysis: travel time from the respondent's residence to the cultural infrastructure (distance in minutes).

	All Municipalities with/without Vienna				Municipalities According to the Urban-Rural Classification of Statistik Austria						
	Municipalities Outside Vienna		Vienna		Urban Centers		Urban Periphery/Regional Centers		Rural/Peripheral Regions		Share [a]
	Mean	SD. [b]	Mean	SD.	Mean	SD.	Mean	SD.	Mean	SD.	
Theater	20.02	16.17	22.11	13.18	17.63	12.71	22.18	16.30	24.34	19.59	84.95%
Opera house	37.44	20.84	26.98	13.07	27.42	17.42	40.10	18.94	49.68	17.57	75.53%
Music/concert hall	23.51	18.39	24.10	13.30	19.78	14.47	24.82	18.54	30.45	20.75	83.77%
Museum, exhibition venue	19.36	16.13	22.69	12.87	17.82	12.84	20.43	15.96	23.57	19.79	86.43%
Cinema	18.08	12.79	16.07	10.29	14.37	10.95	20.54	13.39	22.60	12.52	93.78%
Library	10.17	9.87	12.07	8.96	11.09	9.61	9.92	9.61	9.53	10.11	88.60%
Performances of schools of music	13.82	12.44	19.67	13.63	14.46	12.13	14.00	12.39	14.75	13.92	79.43%
Art school	24.89	18.27	20.38	13.36	19.56	14.01	27.18	18.55	31.37	20.76	67.34%
Open air/festival venue	26.27	19.43	25.37	15.73	22.83	16.50	29.01	19.30	30.74	21.84	77.75%

Notes: [a] Share of respondents with cultural infrastructure in their region. [b] Standard deviation. Source: Own calculations, 2020.

In regard to the availability and accessibility of cultural infrastructure, an interesting question is: do these have an effect on the frequency of presence at cultural events? Cinemas are visited most often, with an average frequency of 4.21 times each year (considering only those respondents who went to the movies; see Table 5). It is also interesting that the frequency of cultural events is within a rather small range, varying from 3.25 times per year (at theaters) to 3.61 times a year (at concerts and music festivals), and up to 3.92 times a year for dancing events. Distances to the cultural events attended are smaller than the average distances to the cultural infrastructure displayed above in Table 4 (the distances to cultural events vary from about 12 to 19 min). However, in Table 5 it is also indicated that the highest frequency of the attendance of respondents was for the cinemas. Close to 70% of the respondents attended a cinema show at least once a year, while dancing events, and operas and musicals were attended by only about one third of the respondents. In total, taking all answers (including non-attendance) into account, the frequency of cinema attendance was about 2.90 times each year, while the respondents were present at dancing, and opera performances for only about once a year. A direct comparison of travel distances and the frequency of presence suggests that there is a clear correlation between these two variables.

Table 5. Descriptive analysis: annual frequency of attending cultural events (attendance) and cultural participation.

Cultural Event	Attendance: Frequency of Visits (Sub-Sample of Attending Respondents)		Distance to the Preferred Venue (Minutes)		Share of Respondents Participating	Frequency of Visits (Total Sample)	
	Mean	Std.Dev.	Mean	Std.Dev.	(%)	Mean	Std.Dev.
Theater	3.25	4.79	17.10	13.05	46.7%	1.52	3.65
Opera, ballet, or musical	3.50	5.49	28.76	18.92	34.1%	1.19	3.61
Dancing or folk dancing event	3.92	5.75	15.86	11.56	31.1%	1.22	3.68
Concert or music festival	3.61	5.34	23.08	17.35	56.3%	2.03	4.39
Museum or (art) exhibition	3.48	5.02	19.81	15.47	52.7%	1.83	4.03
Cinema	4.21	5.15	17.21	12.27	69.0%	2.90	4.70
Performances of schools of music	3.62	5.45	14.79	12.84	35.2%	1.28	3.67

Source: Own calculations, 2020.

This result is further confirmed by data presented in Table 6. Densely populated areas, such as urban centers, also exhibit a significantly higher frequency of visits to cultural events than rural areas. For instance, theater attendance of respondents living in urban areas amounts to about 3.63 times per year, while respondents in rural areas attend theater performances about 2.63 times per year.

Table 6. Descriptive analysis: annual frequency of attending cultural events (attendance) and cultural participation.

Cultural Event	Urban Centers		Urban Periphery Regional Centers		Rural Peripheral Regions	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Theater	3.63	5.30	2.90	4.28	2.63	3.75
Opera, ballet, or musical	3.85	5.89	3.57	5.69	2.43	3.69
Dancing or folk dancing event	4.62	6.60	2.64	3.68	3.50	4.94
Concert or music festival	3.98	5.91	3.22	4.65	3.05	4.27
Museum or (art) exhibition	3.89	5.70	2.78	3.33	2.97	4.07
Cinema	4.68	5.68	3.74	4.50	3.47	4.15
Performances of schools of music	4.10	6.04	3.12	4.81	3.03	4.50

Source: Own calculations, 2020.

5. Econometric Results: The Economic Value of Cultural Events

5.1. Determinants of the Frequency of Attendance at Cultural Events (Cultural Consumption)

The descriptive statistics above have shown that there may be a close correlation between travel distances, presence at cultural events, and the location of municipalities. In order to find the potential determinants of cultural consumption further, the following analysis provides a more detailed account of possible correlations and causal effects between determinants of cultural consumption. Besides distances, socio-economic variables, as well as spatial, and cultural spending variables will be accounted for. Table 7 provides an overview of the dependent and the explanatory variables in an extended travel demand model.

As briefly outlined in Section 2, there are only few travel demand (travel cost) models for cultural infrastructure or cultural events. Therefore, the following model is used as an exploratory model, which incorporates a number of variables suggested by scholars to exert explanatory power on the frequency of being at cultural events. The following model is econometrically estimated:

$$A_i = f\,(C_i,\, S_i,\, L_i,\, P_i) \tag{1}$$

with the frequency of visits to cultural events (cultural attendance) by respondent i denoted as A_i (all variables are described in Table 7). Attendance is assumed to depend, first of all, on the availability and accessibility of cultural infrastructure, measured by travel distances to the venue of the cultural event (C_i). The vector C_i furthermore includes dummy variables for the different cultural events in order to mirror different attendance rates of cultural events based on, e.g., different average costs of the respective event. The vector S_i denotes the preferences and socio-economics of respondents. For instance, the expectations of cultural events are codified, as are income, age and the education of respondents.

In regard to the different cultural events (vector C_i), the dichotomous variables only denote whether attendance to the ith cultural event took place. However, it has to be noted that cultural events do not only differentiate in regard to the distance between the residence of the respondents and the cultural venue. Attending cultural events is, of course, connected with costs that are different within and between the groups of events. The dummy variable captures only the average of costs between groups of cultural events, but not variances within these groups. In other words, it is assumed that attending a theater has some average cost per event. The different frequencies of attendance of cultural events are therefore attributed to the following factors:

- Existence of (regional/local) cultural infrastructure, i.e., how large is the distance to travel between the household's residence and the cultural venue (variable distance); and

- average costs of attending a certain event out of seven different groups of events denoted by the dummy variables Event01 to Event07.

In order to account for potential spatial differences, the vector L_i includes two dummy variables which are included alternatively. Finally, the vector P_i denotes cultural spending of respondent i's municipality for cultural goods and services, with two alternative realizations.

Equation (1) is empirically estimated in the framework of a count-data model with a negative binomial distribution assumed (maximum-likelihood estimation). As the dataset potentially includes several observations (i.e., frequency of visits of cultural events) for each respondent, every respondent also bears an ID number in order to build ID clusters. The standard errors and covariance are therefore cluster-robust. (An intuitive explanation for using ID clusters lies in the different probabilities of each respondent to attend cultural events. Observations of each individual in the pooled data set are not independent of each other. Using ID cluster-robust standard errors therefore corrects for this potential overestimation of the standard errors of the coefficients).

Table 7. Dependent and explanatory variables of the statistical-econometric analyses.

Variables	Description
Dependent variables	
A_i Frequency	Frequency of visits (times per year) of cultural events (cultural consumption) (attendance)
E_i Visit-all	=1 for respondent's participation in a cultural event during the last year (participation)
Visit-hb	=1 for respondent's participation in a highbrow cultural event during the last year (participation)
Explanatory variables	
C_i Distance	Distance of the respondent's residence to the cultural event (hours)
Event01	=1 for attendance at a theater
Event02	=1 for attendance at an opera, ballet, or musical
Event03	=1 for attendance at a dancing or folk dancing event
Event04	=1 for attendance at a concert or music festival
Event05	=1 for attendance at a museum or (art) exhibition
Event06	=1 for attendance at a cinema
Event07	=1 for attendance at a performance of music schools
S_i Expect	=1 for expectations that cultural events mainly provide entertainment
Income*Pref	Household income (ln EUR, after taxes) (variable combined with high or very high cultural preference/importance)
Income	Household income (ln EUR, after taxes)
Age	Respondent's age (ln years)
Education	=1 for formal education of respondents equal or higher than a high-school diploma
Digital	=1 for re
Childhood	=1 for respondents who stated that they have fond memories of their visits to cultural events such as museums together with their parents when they were a child
L_i Vienna	=1 for respondent's residence in Vienna
Urban	=1 for respondent's residence in urban centers
P_i Exp-Share	Share of cultural spending of respondent's municipality (% of total municipal spending, average 2015 to 2018)
Exp-PC	Cultural spending of respondent's municipality (ln EUR per capita and year, average 2015–2018, 2015 prices)

Notes: The empirical estimations, and the vectors of variables denoted by A_i, E_i, C_i, S_i, L_i, P_i, are described in Sections 5.1 and 5.2. Source: Own concept, 2020.

Table 8 shows the results of the first set of estimations. Est. 1 first present a model estimation that only includes a basic model explaining trip frequency solely by travel distance and the dummy

variables for each cultural event. The estimation clearly exhibits a highly significant and negative coefficient for the travel distance variable indicating that the frequency of attendance is less with longer distances from the respondent's residence to the cultural venue. However, as can be seen from the different size of the coefficients, the frequency to be at the various cultural events varies across the field of cultural activities. For instance, as can be expected, respondents stated that going to the movies (variable Event06) is a significantly more frequent cultural activity than visits to theaters or to the opera.

Table 8. Demand model of cultural consumption: travel cost and socio-economic determinants.

Variable	Est. 1			Est. 2			Est. 3		
	Coeff.	z-Stat.	*p*	Coeff.	z-Stat.	*p*	Coeff.	z-Stat.	*p*
Constant	1.248	21.919	***	1.319	20.431	***	3.736	7.565	***
Distance	−0.240	−2.595	***	−0.234	−2.581	***	−0.196	−2.259	**
Event02	0.107	1.796	*	0.102	1.733	*	0.074	1.240	
Event03	0.185	2.924	***	0.184	2.889	***	0.178	2.686	***
Event04	0.124	2.485	**	0.127	2.554	**	0.171	3.356	***
Event05	0.075	1.391		0.072	1.347		0.133	2.472	**
Event06	0.259	5.368	***	0.266	5.551	***	0.312	6.462	***
Event07	0.102	1.766	*	0.098	1.697	*	0.115	1.997	*
Expect				−0.184	−3.161	***	−0.147	−2.592	***
Income*Pref							0.061	6.694	***
Income							−0.134	−2.034	**
Age							−0.460	−6.252	***
Education							0.187	3.048	***
S.E. of regression	5.241			5.232			5.226		
Log likelihood	−15,778.1			−15,749.0			−12,103.8		
LR statistic	12,974.0 ***			13,032.3 ***			11,559.3 ***		
N (respondents)	1723			1723			1331		
n (observations)	6589			6589			5151		

Notes: Dependent variable: 'Frequency'. Estimations: maximum-likelihood count-data model, negative binomial distribution, with ID clusters and cluster-robust standard errors & covariance. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Own calculations, 2020.

However, our assumption is that a bare travel cost model does not account for the various potentially significant determinants of cultural consumption as described above in Section 2. Therefore, as a next step, general expectations in regard to visits to cultural events are included as an explanatory variable. The results of Est. 2 (Table 8) indicate that the frequency of respondents, who rather expect entertainment from cultural events, is less. These respondents might substitute cultural events more easily by other leisure activities providing entertainment. The other coefficients of the estimation remain broadly unchanged, and the explanatory power of the estimation (denoted by the Log Likelihood) improves slightly.

In order to account for the influence of socio-economic variables, which are generally hypothesized to determine individual cultural consumption, four additional variables in Est. 3 are included. First of all, the income variable (interrelated to the sub-sample with high preferences for cultural activities in their leisure time) is highly significant and indicates that respondents with an above-average income report a higher frequency of attendance. However, the income variable alone leads to a significant negative coefficient, pointing to the effect of higher opportunity costs of leisure time of high-income households devoted to cultural events.

The coefficient of the age of respondents is significantly negative. This direction of influence points to the fact that younger respondents exhibit higher frequencies of attendance. Again, as the list of cultural events also includes some events that are very attractive for young audiences (e.g., music festivals, movies), the result is not surprising. Education also exhibits a positive influence on attendance rates.

Having presented a standard travel cost model of cultural consumption including the potential socio-economic attributes of respondents, it was necessary to turn immediately to a broader concept of cultural consumption in order to carry out the test on the spatial and fiscal (supply-side) determinants of cultural consumption.

The Est. 4 (Table 9) basically adds the variable Vienna to the estimation, which differentiates the respondents: those who live in Austria's capital city of Vienna, and those who do not. There is a clearly positive coefficient for this variable inferring that the respondents living in Vienna report a higher frequency of visits to cultural events. However, the significance of the coefficient is rather weak.

Table 9. Demand model of cultural consumption: travel cost, socio-economics, and the importance of spatial and fiscal policy determinants.

Variable	Est. 4			Est. 5			Est. 6			Est. 7		
	Coeff.	z-Stat.	p	Coeff.	z-Stat.	p	Coeff.	z-Stat.	p	Coeff.	z-Stat.	p
Constant	3.674	7.396	***	3.395	6.893	***	3.374	6.863	***	3.128	6.081	***
Distance	−0.209	−2.507	**	−0.150	−1.758	*	−0.149	−1.738	*	−0.144	−1.674	*
Event02	0.073	1.228		0.061	1.010		0.061	1.015		0.061	1.022	
Event03	0.175	2.657	***	0.179	2.723	***	0.180	2.741	***	0.181	2.756	***
Event04	0.169	3.332	***	0.169	3.306	***	0.169	3.310	***	0.167	3.286	***
Event05	0.128	2.368	**	0.126	2.349	**	0.126	2.354	**	0.124	2.314	**
Event06	0.305	6.360	***	0.309	6.415	***	0.310	6.440	***	0.309	6.465	***
Event07	0.122	2.119	**	0.125	2.171	**	0.125	2.172	**	0.123	2.155	**
Expect	−0.145	−2.614	***	−0.130	−2.375	**	−0.130	−2.374	**	−0.130	−2.389	**
Income*Pref	0.059	6.633	***	0.059	6.772	***	0.059	6.749	***	0.058	6.666	***
Income	−0.127	−1.922	*	−0.118	−1.837	*	−0.117	−1.828	*	−0.112	−1.746	*
Age	−0.460	−6.360	***	−0.436	−6.052	***	−0.435	−6.019	***	−0.434	−6.044	***
Education	0.161	2.666	***	0.170	2.841	***	0.171	2.853	***	0.171	2.851	***
Vienna	0.191	2.274	**									
Urban				0.201	3.749	***	0.197	3.475	***	0.138	2.222	**
Exp-Share							0.004	0.378				
Exp-PC										0.057	1.809	*
S.E. of regression		5.217			5.212			5.213			5.210	
Log likelihood		−12,088.5			−12,065.9			−11,021.8			−12,060.9	
LR statistic		11,589.9 ***			11,615.8 ***			11,616.3 ***			11,625.8 ***	
N (respondents)		1331			1330			1330			1330	
n (observations)		5151			5146			5146			5146	

Notes: Dependent variable: 'Frequency'. Estimations: maximum-likelihood count-data model, negative binomial distribution, with ID clusters and cluster-robust standard errors & covariance. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Own calculations, 2020.

In order to explore spatial determinants further, Est. 5 includes a variable that accounts for respondents living in urban centers (including Vienna), and excludes the variable Vienna. The variable Urban is highly significant suggesting that respondents living in municipalities classified as urban centers generally exhibit a higher frequency of visits to cultural events. As discussed above in Sections 2 and 4, this result might be attributed to lower availability of cultural infrastructure in rural areas. It might also conform to some sociological theories in regard to differences of cultural preferences between urban and rural populations.

In order to include municipal cultural spending and to test the influence of fiscal policy on cultural consumption, Est. 6 includes municipal cultural spending as a percentage of total municipal spending. It seems that this variable does not explain cultural attendance. However, as Est. 7 infers, the absolute measure of cultural spending (municipal cultural spending per capita) is significantly related to attendance frequency. This means that municipalities devote a higher amount of their finances to cultural venues and events (e.g., by providing a local cultural venue, or by subsidizing cultural events); this result may suggest that their citizens attend cultural events more often.

The estimations displayed on Table 10 (Est. 8 to 10) are based on the extended model of Table 9 (Est. 7), but account (1) for the respondent's use of online video streaming and gaming as a potential substitute for visiting cultural events. Interestingly, the coefficient of the Digital variable is significantly positive. The frequency of attendance is thus positively correlated with the use of digital media. (2) The estimations of Table 10 also include a variable denoting the respondent's recalling of own childhood experiences. Again, this variable is positively correlated with the cultural attendance inferring that respondent with fond memories of their own cultural experience during childhood exhibit a higher frequency of attending cultural events. However, these estimations have some

econometric problems such as a potential multicollinearity, and the (partial) lack of significance of the Distance variable. These results will be discussed further in the conclusions.

Table 10. Demand model of cultural consumption: additional variables in the travel demand model.

Variable	Est. 8			Est. 9			Est. 10		
	Coeff.	z-Stat.	*p*	Coeff.	z-Stat.	*p*	Coeff.	z-Stat.	*p*
Constant	2.950	5.774	***	2.947	5.805	***	2.780	5.533	***
Distance	−0.132	−1.526		−0.143	−1.678	*	−0.131	−1.536	
Event02	0.058	0.962		0.062	1.03		0.059	0.972	
Event03	0.183	2.791	***	0.182	2.737	***	0.183	2.773	***
Event04	0.167	3.282	***	0.161	3.199	***	0.162	3.200	***
Event05	0.119	2.236	**	0.120	2.229	**	0.115	2.158	**
Event06	0.317	6.659	***	0.299	6.216	***	0.307	6.41	***
Event07	0.126	2.206	**	0.118	2.075	**	0.122	2.126	**
Expect	−0.123	−2.270	**	−0.134	−2.484	**	−0.128	−2.368	**
Income*Pref	0.057	6.600	***	0.055	6.73	***	0.054	6.681	***
Income	−0.117	−1.851	*	−0.126	−1.984	**	−0.130	−2.075	**
Age	−0.409	−5.810	***	−0.378	−4.729	***	−0.356	−4.516	***
Education	0.161	2.646	***	0.169	2.884	***	0.159	2.68	***
Urban	0.138	2.244	**	0.139	2.271	**	0.140	2.298	**
Exp-Share	0.057	1.855	*	0.053	1.684	*	0.053	1.729	*
Digital	0.166	2.681	***				0.161	2.648	***
Childhood				0.099	2.584	***	0.096	2.474	**
S.E. of regression	5.201			5.195			5.188255		
Log likelihood	−12,045.3			−12,045.3			−12,030.63		
LR statistic	11,657.1			11,656.9			11,686.34		
N (respondents)	5146			5146			5146		
n (observations)	1330			1330			1330		

Notes: Dependent variable: 'Frequency'. Estimations: maximum-likelihood count-data model, negative binomial distribution, with ID clusters and cluster-robust standard errors & covariance. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Own calculations, 2020.

The estimations presented in Tables 8 and 9 present the determinants of cultural consumption for all of the seven broad categories of cultural events. However, much of the literature on cultural consumption has concentrated on highbrow cultural events. In order to complement the econometric analysis discussed so far, Table 11 includes the results of an estimation (Est. 11) analogous to the full model presented by Est. 7 for highbrow events, such as theater, opera, ballet and art museums. The results show that–while the coefficients are slightly different–the direction of influence of the socio-economic and spatial variables remains in the same order of magnitude. The distance between the venue and the residence of a respondent is negatively correlated with the frequency of attendance. However, highbrow cultural events seem to be less concerned about the distance than average cultural events since the coefficient is larger than in Est. 7 (the difference is not significant at the $p < 0.1$ level in a Wald coefficient test). The municipality's cultural spending is not significantly correlated with cultural attendance of highbrow cultural events, and thus points to the importance of municipal cultural spending for cultural infrastructure for broader (local) audiences.

Based on Est. 7 of Table 9, the economic value of single cultural events can be computed by using the coefficient for the distance variable as the slope of the inverse demand curve of visits to cultural events. Table 12 presents the estimates of the consumer surplus per visit for the single cultural events (both in hours and computed in EUR derived from the value of leisure time). The table shows that theater and opera events exhibit the highest economic value per visit (about EUR 55), followed by concerts in schools of music (EUR 49), and museum visits and concerts (EUR 47). The absolute value

of the consumer surplus in EUR, of course, depends on assumptions about the value of leisure time. For Austria, a value of EUR 8 per hour has been assumed for transport planning [46] and for valuing recreation activities [47].

Table 11. Demand model of cultural consumption for highbrow cultural events (e.g., theater, opera, ballet): travel cost, socio-economics, and the importance of spatial and fiscal policy determinants.

Variable	Est. 11		
	Coeff.	z-Stat.	p
Constant	3.633	6.067	***
Distance	−0.228	−2.375	**
Expect	−0.143	−2.165	**
Income*Pref	0.065	6.371	***
Income	−0.165	−2.161	**
Age	−0.376	−4.301	***
Education	0.185	2.569	**
Urban	0.126	1.638	*
Exp-PC	0.001	1.370	
S.E. of regression		5.139	
Log likelihood		−6160.4	
LR statistic		6128.0 ***	
N (respondents)		1111	
n (observations)		2675	

Notes: Dependent variable: 'Frequency'. Estimations: maximum-likelihood count-data model, negative binomial distribution, with ID clusters and cluster-robust standard errors & covariance. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Own calculations, 2020.

Table 12. Consumer surplus of different cultural events based on the travel cost estimations.

Cultural Event	Consumer Surplus per Visit (hours)	Consumer Surplus per Visit (EUR)
Theater	6.849	54.79
Opera, ballet, or musical	6.849	54.79
Dancing or folk dancing event	5.623	44.99
Concert or music festival	5.822	46.58
Museum or (art) exhibition	5.918	47.34
Cinema	4.747	37.97
Performances of music schools	6.075	48.60

Notes: Computed based on the coefficients of Table 9 (Est. 7); economic value of one hour of leisure time: EUR 8. Source: Own calculations, 2020.

5.2. Factors Explaining Cultural Participation

The literature review in Section 2 included papers that highlighted the importance of differentiating between models explaining the *frequency* of cultural events attended (*cultural consumption/attendance*), and the (principal) participation in cultural events (*cultural participation*). The following model of cultural participation as a dichotomous choice between participation and non-participation in cultural events is econometrically estimated:

$$E_i = f\ (S_i, L_i, P_i), \tag{2}$$

with the principal participation in cultural events by respondent i denoted as E_i (all variables are described in Table 7). In contrast to Equation (1) described in Section 5.1, the different cultural events are not included. The dependent variables E_i (Visit-all and Visit-hb) take the value of '1' if respondent i participated at least in one of the possible cultural events in the last year. Equation (2) is estimated by a standard maximum-likelihood logit model (Table 13). Again, ID clusters account for the dependence between the pooled observations of the single individuals, in order to prevent that the standard errors (and thus, the significance of coefficients) are overestimated.

Table 13. Participation in cultural events: socio-economics, and the importance of spatial and fiscal policy determinants.

Variable	Est. 12			Est. 13		
	Coeff.	z-Stat.	*p*	Coeff.	z-Stat.	*p*
Constant	−1.797	−2.94	***	−2.608	−3.724	***
Expect	−0.039	−0.586		−0.001	−0.007	
Income*Pref	0.088	8.069	***	0.099	8.06	***
Income	0.348	5.136	***	0.359	4.668	***
Age	−0.383	−4.499	***	−0.232	−2.375	**
Education	0.402	5.616	***	0.386	4.718	***
Urban	0.147	1.876	*	0.183	2.022	**
Exp-PC	0.001	1.246		0.001	0.143	
S.E. of regression		0.488			0.484	
Log likelihood		−7231.8			−4086.3	
LR statistic		512.9 ***			287.4 ***	
N (respondents)		1546			1546	
n (observations)		10,822			6184	
n (observations with Visit = 1)		47.6%			43.3%	

Notes: Dependent variables: Visit-all, Visit-hb. Estimation method: maximum-likelihood logit model, with ID clusters and cluster-robust standard errors & covariance. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: Own calculations, 2020.

Therefore, Table 13 includes the results of two logit estimations exploring the determinants of the likelihood of participation in cultural events.

In order to facilitate a comparison between the frequency of attendance (discussed in Section 5.1) and the participation in cultural events, the explanatory variables of Est. 7 (Table 9) are included, except the variables denoting the different cultural events (Event01 to Event07). The results of Est. 12 (and similarly, Est. 13) indicate that the Age, Education and Urban variables again have the same direction. For instance, Est. 7 and Est. 9 both show that the visits of the elderly respondents to cultural events are less frequent, and they are also less likely to participate in cultural events.

An interesting difference can be detected in regard to the Income variable. While respondents with high cultural preferences combined with higher incomes are again more *likely to participate*, the income variable, alone, becomes highly significant and positive. In other words, the *likelihood of participation* is, with increasing income, greater (Est. 9 and Est. 10 of Table 12), while the *frequency* of visits to cultural events (attendance) is–ceteris paribus–less with higher income, owing to the higher opportunity cost of leisure time. This important distinction between the *cultural participation* (measured as a dichotomous variable of the attendance of a cultural event at least once a year) and *cultural consumption* (frequency of visits to cultural events) is one of the main results of this paper.

6. Discussion, Summary and Conclusions

This paper explores the determinants of cultural consumption by means of an extended travel-cost model based on a representative survey of Austrian households (attendance frequency) and a logit-model (participation likelihood). The estimations account for characteristics of cultural events (e.g., distance, costs), socio-economic determinants (e.g., age, education, income), spatial heterogeneity (e.g., urban vs. rural areas), and municipal cultural spending. Models of the frequency of attending cultural events (count-data models) and participation in cultural events (logit estimations) show that the significant determinants of cultural consumption support various cultural economic theories, such as the influence of education and income, opportunity cost of time, and availability of cultural infrastructure. In regard to personal benefits, the value of a single attendance to a cultural event ranges from about €38 in the case of cinemas to about €55 for theaters and operas. These minimum values are solely based on the estimations of the travel cost models. Furthermore, the respondents noted that the cultural venues are, on average, about 15 to 30 min away from their residence, which is an indication of rather well-developed local and regional cultural infrastructures. 70% of respondents

stated that they would visit a cinema show at least once a year; about 30% attended theater, music or opera performances at least once a year. Depending on one's own cultural preferences and tastes, the cultural venues are visited about 3 to 4 times a year.

A major point of discussion about the reliability and validity of the results of this paper certainly is the adequacy of the chosen survey method. A household survey, implemented as a web-based questionnaire, has major advantages in terms of representativeness and practicability. It also facilitates that a broad concept of cultural infrastructure can be used. However, some dimensions of cultural consumption had to be elicited by mostly quantitative instruments, which necessarily depend on pre-defined categories. For instance, the survey had to be restricted to categories, such as travel distance, expectations, or cultural policy statements, for which qualitative and face-to-face interviews (with their own shortcomings) might lead to different insights.

However, the scholarly literature on empirical estimations of cultural consumption has further explored additional determinants, which have been tested in additional estimations in the course of the research work for this paper.

First of all, cultural consumption may have changed owing to the digitalization of cultural media, for example, music and movies, which are readily available on streaming platforms, and may be a substitute for live performances or other forms of music consumption (cf., [33,48]). The survey on which the empirical results of this paper are based included questions regarding the respondent's equipment and use of digital media. The estimations exhibited a significantly positive correlation of the availability and use of digital media with the cultural attendance and the cultural participation of respondents. However, the availability and use of digital media (such as music and movie streaming) is correlated with some of the socio-economic variables (e.g., cultural preferences, education) that are included in the estimations. Therefore, the results infer that including the use of digital media as explanatory variables may lead to multicollinearity. Anyway, the results also infer that digital media may not function as a substitute for live events.

Secondly, preferences for cultural consumption, or different arts (e.g., music preference) have been hypothesized to develop in the course of time, especially in regard to socialization and childhood experience. The empirical survey presented in this paper revealed that respondents who stated that they remember pleasant experiences during childhood when going to museums or theaters also frequent cultural events more often. However, the estimations show that there are significant correlations between the respondent's education and income with the frequency and experience of cultural events during childhood (a phenomenon that might be labeled 'inherited cultural education' or preference formation). The statistical estimations that include childhood experiences are prone to multicollinearity of regressors, and are thus not fully reliable.

In regard to cultural policies and municipal spending for cultural infrastructure, the results of the paper reveal that about half of the respondents use some kind of cultural infrastructure at least once a year. The average frequency of the full sample is skewed upwards by smaller groups of respondents who have definite preferences for various kinds of art, and who rank cultural activities high in comparison to other leisure activities. Many satisfy their cultural needs locally, depending on the available cultural infrastructure. On the one hand, this paper shows that the local and regional cultural infrastructure is highly important for covering cultural needs. For instance, a surprisingly large number of respondents are present at concerts in local schools of music. Local (municipal) spending is clearly correlated with the frequency of visits to cultural events. Cultural infrastructure in cities or agglomerations contributes to more visits as well, even if socio-economic and distance variables are taken into account. The statistical models of this paper control for these differences. However, differences between urban and rural populations still remain, and may be attributed to individual characteristics (e.g., lifestyles, sociological milieus) for which the underlying survey could not account for.

As a general conclusion of this paper, the existing cultural policy frameworks in Austria seem to account for the diverse cultural preferences of citizens. The continuous development over several

decades and the provision of cultural infrastructure is an important contribution to building up cultural capital and to cultural sustainability. While this study is not a longitudinal study in regard to cultural participation, it seems that the cultural policy frameworks of the 1970s (*Culture and the Arts for all*) have had significant impacts, in terms of the availability of cultural infrastructures, in urban and rural areas alike. The municipal level certainly has an important role to play in areas that are more rural since local cultural infrastructure may also satisfy the various cultural needs of the local population. Of course, cities and urban areas have major advantages in terms of population density, and economies of scale and scope. However, this paper shows that citizens benefit from cultural infrastructures in different ways and forms. Whether cultural policy preferences are indeed different between urban and rural areas, or between the Austrian Federal Provinces, must be left to future research.

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