

# Cultural participation in Europe: Can we identify common determinants?

Martin Falk · Tally Katz-Gerro

Received: 10 June 2013 / Accepted: 19 February 2015  
© Springer Science+Business Media New York 2015

**Abstract** This article examines the extent to which demographic and socioeconomic characteristics influence the decision to visit and the number of visits to museums, art galleries, historical monuments, and archaeological sites. Using ordered probit models based on data for 350,000 adults in 24 EU countries, we find that the likelihood and number of such visits depend mainly on per capita household income, education, labor market status, and country of birth. Attained characteristics such as education and income have remarkably similar positive effects on cultural participation across the countries in our sample, while the effects of age and gender are both weaker and less consistent across countries. We conclude that cultural distinctions along the lines of socioeconomic attainment are stable even in very different country contexts with varying cultural policies and economic conditions. We discuss the way these results inform three research topics: identification of the characteristics of visitors to museums and historical sites in order to attract new audiences; the effect of public spending on culture on accessibility to cultural sites; and cross-national variation in cultural stratification.

**Keywords** Cultural participation · Cross-National comparison · Cultural policy · Europe

---

M. Falk

Austrian Institute of Economic Research (WIFO), Arsenal Objekt 20, 1030 Vienna, Austria  
e-mail: Martin.Falk@wifo.ac.at

T. Katz-Gerro (✉)

Department of Sociology and Anthropology, University of Haifa, 31905 Haifa, Israel  
e-mail: tkatz@soc.haifa.ac.il

## 1 Introduction

In recent decades, the organizations that manage cultural sites such as museums and historical attractions have faced challenges arising from a number of factors. These include stagnant (or even reduced) government funding; changes in the structure of leisure activities, coupled with increased diversification in the leisure market; and new competition from the Internet (Everett and Barrett 2009; Lynch et al. 2000; Vogel 2004). These challenges have resulted in an increased need to identify the socioeconomic and demographic characteristics of visitors to museums and historical sites in order to attract new audiences and inform decisions concerning public spending on culture (Fullerton 1991). An understanding of the characteristics of individuals who visit museums and historical sites is also a central concern for students of cultural stratification in contemporary societies. These cultural sites are part of a “legitimate” cultural repertoire associated with privileged groups in society, one that shapes and reproduces inequality based on cultural capital (Bourdieu 1984; DiMaggio 1996).

In this paper, we employ a cross-national comparative perspective to address these issues. First, we investigate the extent to which demographic and socioeconomic characteristics influence the decision to visit and the number of visits to museums, galleries, historical sites, and archaeological sites (henceforth “museums and historical sites”). Second, we contribute to discussions about the influence of cultural policy on making cultural sites more accessible to visitors with limited financial resources and disposable income, which serves as a significant tool in attenuating social exclusion and inequality. Finally, by analyzing commonalities and differences in the determinants of cultural attendance in a large number of European countries, we add to a growing but still limited body of research on cross-national variation in cultural stratification patterns and inequality in access to cultural capital (Katz-Gerro 2011).

We draw on internationally comparable individual and household data from the European Union Statistics on Income and Living Conditions (EU-SILC) database and the cultural and social participation module for 2006 (EUROSTAT 2010). This is a unique comparative data set that encompasses all European member-states in the year 2006 with a sample size of  $\sim 350,000$  respondents. To our knowledge, this is the first micro-level study on the determinants of museum and historical site visits, which is based on a comprehensive and representative body of data from a large number of countries and respondents (but see also Gerhards 2008; Katz-Gerro and Lopez-Sintas 2013; Van Hek and Kraaykamp 2013; and Virtanen 2007). We use an ordered probit model to estimate the impact of both demographic characteristics (age, gender, country origin) and socioeconomic factors (education, income, labor market status, occupation) on the likelihood of visiting museums and historical sites, as well as on the number of such visits. Our main contribution lies in depicting commonalities and differences in the factors that influence cultural participation across countries in order to inform a general theoretical framework for the analysis of cultural stratification and cultural policy. In the following section, we review the literature on these two issues.

## 2 Literature review

### 2.1 Cultural stratification

In his influential work, Bourdieu (1984, 1987) argues that social class and cultural consumption are strongly associated in complex ways. Different social classes use their choice of cultural tastes and practices to distinguish themselves from each other, recognize peers, and reproduce their cultural, economic, and political privileges. Consequently, members of a social elite (e.g., professionals, university graduates) are more likely to consume legitimate, “highbrow” culture—for example, by visiting museums and historical sites—and do so more frequently than members of other classes. Research published since Bourdieu’s work has adopted his emphasis on the strong link between class position and cultural participation, but has also shed light on additional important correlates. In summarizing recent empirical literature on the determinants of cultural participation, Katz-Gerro (2011) concludes that higher education, income, occupational prestige, occupational status, and class position tend to be associated with more frequent cultural participation. The literature on the characteristics of museum and historical site visitors in particular also agrees that the higher an individual’s educational attainment, social class, and household income are, the more likely he or she will be to visit museums, art galleries, and historical sites more frequently (see e.g., Schuster 1991 for the US and Schuster 2007 for a survey of related literature). Well-educated individuals have the necessary skills and motivation to fully enjoy and benefit from museums, art galleries, and historical and archaeological sites (Frey and Meier 2006); upper-class occupations come with expectations of a certain cultural lifestyle (Katz-Gerro 2002); and available disposable income enables more cultural consumption (Katz-Gerro 2011). Research on the visiting public also shows that decisions to visit museums are unevenly spread among adult populations, with higher participation rates for better-educated and higher-income adults (Davies 2005; Hooper-Greenhill 1994). Older people and those without children are also among the most frequent museum and gallery visitors (Davies 2005). Finally, the related research also documents persisting gender differences in cultural participation patterns. Specifically, women are more likely than men to participate in traditionally highbrow leisure activities, such as going to art museums (e.g., Bennett et al. 2013; Christin 2012; Coulangeon 2013).

Overall, there is broad consensus in the literature about the direction of the influence socioeconomic and demographic characteristics have on the decision to visit museums and historical sites, as well as on the frequency of visits. However, the question remains as to which characteristics play the most important role (as measured by marginal effects) and whether any single model is applicable in different countries. Previous research on cross-national comparative patterns of association between the socio-demographic characteristics of individuals and their cultural participation has often relied on separate nationally representative surveys. Studies based on national surveys are typically difficult to compare because the survey questions are phrased differently, variables are operationalized differently, and samples are not always nationally representative (Kawashima 1995; Schuster

2007). Indeed, in a recent meta-analysis of studies on cultural consumption, Kirchberg and Kuchar (2014) conclude that the comparability of these studies is limited and a detailed juxtaposition is not yet possible. Cross-national comparative studies of cultural participation based on European-level data sets include, for example, Virtanen (2007), Gerhards (2008), Katz-Gerro and Lopez-Sintas (2013), and Van Hek and Kraaykamp (2013). However, the extent to which the determinants of cultural participation differ across countries and what the underlying factors could be are still open questions. Education, for instance, may play a less important role in countries that already have a labor force with a relatively high proportion of individuals with post-secondary education (Coulangeon 2005). Furthermore, the income effect may be less pronounced in countries with generous state subsidies for cultural institutions or free entrance policies, such as the Scandinavian countries and some other Western European nations (Katz-Gerro 2004). From the standpoint of cultural policy, it is particularly interesting to observe the extent to which countries are successful in evening out the effects of income and education on patterns of cultural participation, a topic on which we elaborate in the next section.

## 2.2 Cultural policy

European countries are characterized by several models of cultural policy that differ in their mechanisms for articulating policy (e.g., government ministries, arts councils), in their policy components (e.g., subsidies, tax incentives), and of course, in the ideology underlying cultural policy (e.g., promoting excellence, social welfare, or political goals; Boorsma et al. 1998; Hillman Chartrand and McCaughey 1989; van der Ploeg 2005).

Recent literature distinguishes between two possible influences of cultural policy on cultural participation. One approach argues that the role of cultural policy lies in *the provision of art* and that public funding of culture serves as an equalizing force in expanding the public's ability to access culture despite barriers related to income or education. State intervention seeks to provide cultural access even in the presence of market-related or economic difficulties (Pick et al. 1988). The second approach emphasizes how the public funding of culture drives the *reproduction of distinction* by preserving or heightening inequality between social groups in the accumulation and exchange of cultural capital through support and subsidies for certain arts organizations and not others. The consumption of certain art forms is linked to a specific social position and thus also plays a role in constructing social hierarchies (Feder and Katz-Gerro 2012, 2015).

Although European countries differ significantly in various dimensions of cultural policy, a recent comprehensive report prepared for the European Commission concluded that systematic research on cross-national differences in cultural policy and its consequences is not readily available (Bina et al. 2012). Therefore, we will not be able to provide a direct estimate of the association between cultural policy and patterns of cultural participation. However, we are in a position to provide some circumstantial evidence about differences in patterns of cultural participation in countries characterized by different cultural policies, which

enables us to demonstrate whether cultural participation is associated with equal access or with the reproduction of unequal access to culture.

### 3 The EU-SILC survey on cultural participation

The data used to estimate the determinants of the likelihood and number of museum and historical site visits come from the cultural and social participation module of the European Union Survey of Income and Living Conditions (EU-SILC), which was carried out in the EU-27 countries, Iceland, and Norway in 2006 (EUROSTAT 2010).<sup>1</sup> The EU-SILC has become the reference source for comparative statistics on income distribution, living conditions, and social exclusion in the EU (EUROSTAT 2008). It is a nationally representative sample of households and individuals. In most EU countries, its framework involves a stratified simple random sample of either households or individuals aged 16 or older that is drawn from population registers. The sampling stratification is based on geographical criteria (e.g., county, district, or municipality) and degree of urbanization, with a probability of selection that is proportional to the number of either individuals or households (see EUROSTAT 2008). The response rates are quite high, averaging 80 % across countries (EUROSTAT 2008).

Since Bulgaria and Romania joined the EU after the survey year (2006) and no data were available for Malta, these three countries are not included in our analysis. Information on individuals who belong to the same household is available for 19 countries. In the remaining five countries (Denmark, Finland, the Netherlands, Slovenia, and Sweden), only one individual was interviewed per household. The final sample for the analysis contains information on about 353,000 individuals in 24 EU countries (the EU-15 countries, plus the EU-10 countries except for Malta).<sup>2</sup>

The survey provides information on whether or not individuals had visited museums, galleries, historical monuments, and archaeological sites, and if they did, on their visiting frequency during the 12-month period prior to the second quarter of the survey year (2006). The variable includes five response categories: no visits in the given year (0), 1–3 visits (1), 4–6 visits (2), 7–12 visits (3), and 13 or more visits (4). The percentage of missing values on this question is <5 % for most of the countries, except for Ireland (33 % missing), the Netherlands (48 % missing), and the United Kingdom (9 % missing; EUROSTAT 2010). We note that the geographical boundaries of cultural visits are not clearly defined in the special SILC module. The variable could be interpreted as referring to both domestic visits and visits during travel abroad. In order to gauge the magnitude of the potential of visits abroad by domestic residents, we turned to the most recent data from the Eurobarometer survey 2013, which included such information. Our analysis of these data shows that within the EU, the percentage of population visiting historical sites

<sup>1</sup> Note that Eurobarometer 2007 also contains a cultural module. Its sample size, however, is much smaller than that of the Survey of Income and Living Conditions.

<sup>2</sup> EU-10 includes the following countries: Cyprus (CY), the Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Malta (MT), Poland (PL), Slovenia (SI), and Slovakia (SK).

in another EU country in the last 12 months is about 12.3 %. The corresponding number for visits to festivals and exhibition is 10.7 %. Although the question on cultural participation in the Eurobarometer is not directly comparable to the variable we use in the SILC data and also refers to a different time period, it is evident that the propensity of visits abroad is rather low. Thus, we conclude that the SILC question of cultural participation is a good approximation of individuals' cultural participation in their country of residence. Future surveys about cultural participation should distinguish between cultural visits in country of residence and abroad, to provide a more accurate distinction between the two types of activity.

EU-SILC also contains information about a large number of individual characteristics, such as education, labor market status, country of birth, age, citizenship, health status, occupation, and labor market sector affiliation. Information on occupation is available only for employed individuals. Descriptive statistics for the variables are presented in Table 5 (see Appendix Table) and discussed in Sect. 4.2.

## 4 Empirical model and hypotheses

### 4.1 Empirical model and the dependent variable

Following the literature on cultural stratification reviewed in Sect. 2.1, we posit the decision to visit and the frequency of visits to historical monuments, museums, art galleries, or archaeological sites as functions of respondents' demographic and socioeconomic characteristics. We analyze these activities together because, as mentioned above, previous research has shown that these specific activities tend to be not only highly correlated, but also driven by similar social position variables (Virtanen 2007). Other forms of cultural participation—related to the performing arts—are also available in the data set, but we believe they merit separate analysis; as indicated by previous research (Katz-Gerro and Lopez-Sintas 2013), they measure participation in a different realm. The dependent variable is originally measured on an ordered scale where the distances between the categories are not equivalent, meaning that categories indicating the number of visits have different ranges (no visits, 1–3, 4–6, 7–12, and 13 or more visits). Given that the distances between the categories are not equivalent, and in order to account for the ordinal nature of this variable, we use an ordered probit model (see Greene and Hensher 2010). While the ordered response model can also be estimated by an ordered logit model, related research suggests that probit and logit models tend to yield similar results (Amemiya 1981), and both have been used in the context of research on cultural participation (see Borgonovi 2004 for an ordered logit model and Masters et al. 2011 for an ordered probit model). Our preliminary analysis affirmed that the results of the two models are similar, but we present the results of the ordered probit model because they are better suited to the distribution of the dependent variable.

In this model, the latent variable,  $Y^*$ , is assumed to depend linearly on two sets of explanatory variables,  $X_{ki}$  and  $X_{hi}$ . For each country, the ordered probit model is specified as:

$$Y_i^* = \sum_{k=1}^K \beta_k X_{ki} + \sum_{h=1}^H \beta_h X_{hi} + u_i, \quad u_i \sim N(0, 1), \tag{1}$$

where  $i$  is the individual.  $Y_i^*$  is the latent response variable that represents the number of museum visits, ranging from  $-\infty$  to  $+\infty$ . The observed variable  $Y$  is only available in discrete form with five possible values, ranging from zero (no visits in the given year) to four (13 or more visits in the given year). The correspondence between the latent variable and the observed dependent variable is expressed as follows:

$$Y_i = \begin{cases} 0 & \text{if } -\infty < Y_i^* \leq \gamma_1 & \text{(no visit)} \\ 1 & \text{if } \gamma_1 \leq Y_i^* < \gamma_2 & \text{(1 – 3 visits)} \\ 2 & \text{if } \gamma_2 \leq Y_i^* < \gamma_3 & \text{(4 – 6 visits)} \\ 3 & \text{if } \gamma_3 \leq Y_i^* < \gamma_4 & \text{(7 – 12 visits)} \\ 4 & \text{if } \gamma_4 < Y_i^* \leq +\infty & \text{(13 + visit).} \end{cases}$$

$\gamma_1, \dots, \gamma_4, \beta_k$ , and  $\beta_h$ , respectively, represent the four threshold parameters and the two vectors of coefficients to be estimated.  $u_i$  is the error term, which is assumed to be normally and identically distributed with a mean of zero and variance normalized to one.  $X_{ki}$  is a vector that includes individual-specific characteristics (gender, age, education, labor market status, and country of birth in non-EU countries).  $X_{hi}$  includes  $H$  variables that indicate household and regional characteristics, such as household income (adjusted for household size), household size, and degree of urbanization.

The ordered response model is estimated using maximum likelihood techniques, with the assumption that the error term is independently and identically distributed. In this data set, however, different individuals are assigned to the same household, which leads to correlation in the cultural visit patterns within households. Moreover, individuals in the same household often share similar characteristics, such as preferences for specific leisure activities. In the presence of clustered errors, standard ordered probit models may produce erroneous standard errors. A natural generalization is to assume that observations are correlated within households, but uncorrelated across different households. Therefore, the ordered probit model is estimated with cluster-robust standard errors by allowing individuals to correlate within the same household (Nichols and Schaffer 2007). Again, we note that this is carried out for 19 of the 24 countries, and the model is based on unweighted data. Instead of weighting, we control for degree of urbanization, as controlling for a measure of stratification is considered a strategy superior to using weighted data.

#### 4.2 Explanatory variables and hypotheses

Table 1 lists the definitions of the explanatory variables and the expected direction of their marginal effects on the likelihood and number of visits. The main hypotheses have to do with the variables identified in the literature as those most central in shaping cultural participation. We expect that the higher an individual’s educational attainment, household income, and occupational class are, the more

**Table 1** Summary of the explanatory variables and expected effects

Factor	Measure	Expected marginal effect
Age	Six age categories, with age group 16–24 as the reference category	+ (nonlinear)
Female	Dummy variable equal to one for women, zero otherwise	+
Educational attainment	Two dummy variables, with primary education [ISCED (0–2)] as the reference category	+
	Intermediate education (i.e., upper-secondary/post-secondary/non-tertiary, ISCED 3–4), tertiary education (i.e., university and doctoral degrees, ISCED 5–6)	+
Household income (per household member)	EUR per person, transformed into natural logarithm	+
Country of birth	Dummy variable equal to one for persons born in non-EU countries, zero for those born in EU countries	
	Six dummy variables, with full-time workers as the reference category	
Labor market status	Part-time employee	+
	Unemployed	∓
	School-age and university students	+
	Retired	∓
	Disabled	–
Household size	Other status (e.g., parental leave)	–
	Five dummy variables for household size, with one household member as the reference category	–
Living in large cities	Two dummy variables, with rural areas as the reference category	
	Densely populated areas	+
	Intermediate urbanized areas	∓
Single	Dummy variables equal to one for individuals with single status, zero otherwise	∓
Occupations	Eight dummy variables, with service workers as the reference category	
	Legislators, senior officials and managers (ISCO 1)	+
	Physical, mathematical, engineering science, life science, health professionals (ISCO 21-22)	+
	Teachers, other professionals (business, social science, writing, creative or performance art) (ISCO 23-24)	+
	Technicians and associate professionals (ISCO 3)	∓
	Clerks (ISCO 4)	–
	Service workers, shop & market sales workers (ISCO 5)	–
	Craft, related & agricultural workers (ISCO 6-7)	–
	Plant engineers, machine operators and assemblers (ISCO 8)	–
Elementary occupations (ISCO 9)	–	

*ISCO* international standard classification of occupations (ISCO-88), *ISCED* international standard classification of education



likely he or she will be to visit museums and historical sites more frequently. The hypothesized effect of age on cultural participation is not clear-cut; visiting frequency may increase with age, but the association may be nonlinear. Finally, we expect that women will report more visits to museums and historical sites compared to men. While the other associations articulated in Table 1 are also interesting—we will make further note of them in the discussion of our findings—our focus is on a cross-national comparison of the relative effects of education, income, occupation, and age on cultural participation.

Table 5 (see Appendix Table) in the appendix reports the means and percentages of the dependent and explanatory variables. A small proportion of the sample reported visiting museums and historical sites more than seven times during the year in question, while the majority of the sample visited 1–3 times. Observing the main variables of interest, we note that gender is almost equally distributed in the sample and the median age is 47. In the analysis, we use a set of age dummy variables that make it possible to investigate whether there is a nonlinear relationship with cultural participation. Education is split into three dummy variables measuring primary education, intermediate education (upper-secondary education and post-secondary non-tertiary education, completion of high school), and tertiary education (university, other tertiary education). The labor market status variable covers unemployed individuals, part-time employees, school-age and university students, retired and disabled persons, and those in other situations (e.g., parental leave), with full-time employees serving as the reference group. For full-time employees, we have a measure of occupational status at our disposal that the International Standard Classification of Occupations (ISCO-88) has grouped into the nine categories detailed in Table 1.<sup>3</sup> Finally, we control for family status (single) and interpret having been born in a country outside of the EU as a proxy of ethnic origin and a measure of migrant status.

In addition to individual characteristics, we also account for household characteristics and urban status. Household income is adjusted for household size and transformed into the natural logarithm. To allow for a nonlinear relationship between household income and cultural participation, we treat income as a set of five dummy variables based on income quintiles. The quintiles are country-specific in order to adjust for differences in living standards. Household size is included as a proxy for family constraints on cultural participation. Finally, we control for degree of urbanization using the survey's information on three different types of agglomerations based on population density and total population at the NUTS 5 level (the level of local municipalities or communes; EUROSTAT 2008). Densely populated areas are those with at least 50,000 inhabitants in a contiguous local area and more than 500 inhabitants per square kilometer. Intermediate urbanized areas are those with a population density ranging between 100 and 499 inhabitants per square kilometer and a population of at least 50,000 inhabitants. Thinly populated areas are those that do not fall into either of these two categories.

<sup>3</sup> The occupational classification is not available for unemployed individuals.

## 5 Empirical results

### 5.1 Descriptive statistics

For an initial overview of the association between cultural participation and the explanatory variables, Table 2 presents the visiting rates and the frequency of visits categorized by socioeconomic and demographic characteristics. The descriptive statistics are based on individual weights that take into account the design weights (the inverse of selection probabilities) and the patterns of non-response (EU-SILC 2010). About 43 % of the adult population (aged 16 years or older) visited historical monuments, museums, art galleries, or archaeological sites in the 12 months prior to mid-2006 (based on weighted percentages for the EU-24 countries). About 27 % of the sample reported having attended 1–3 events; 9 %, 4–6; 4 %, 7–12; and 3 %, 13 or more.

Attendance rates and the number of visits to museums and historical sites vary across the different socioeconomic and demographic characteristics. The cross table shows that women, individuals aged 16–44, those living in households with a large per capita income, the more educated, part-time workers, school-age and university students, and adults living in large urban agglomerations have both higher visit rates and a higher number of visits. In contrast, unemployed individuals, those aged 65 years or more, and retired or disabled individuals are less likely to visit or visit less frequently. Among the various occupations, professionals have the highest visit rates and a larger number of visits. In particular, those in the fields of business, social science, writing, and creative or performing arts (ISCO 23-24) have higher visit rates and numbers of visits than those in other fields (physical, mathematical, engineering, and life sciences, as well as health care; ISCO 21-22). The share of visitors in these two groups of professionals are 79 and 73 %, respectively, compared to 30 % for plant engineers, machine operators, assemblers, and other basic occupations.

### 5.2 Ordered probit model estimates

Tables 6 and 7 in the appendix report the separately estimated results of the standard ordered probit model for each of the EU-15 and EU-10 countries. The tables show the standardized coefficients ( $\beta$ s) and z-values based on clustered standard errors that are robust to correlations between individuals within the same household, except in the case of five countries for which information is available only for one household member (Denmark, Finland, the Netherlands, Slovenia, and Sweden). Unreported results indicate that the threshold parameters are statistically significant in all cases and show the expected ordering.

A positive and significant coefficient in Tables 6 and 7 means that individuals are significantly more likely to fall within the highest category of 13 visits or more (and significantly less likely to fall within the lowest attendance category, corresponding to no visits at all) when the explanatory variables change by one unit (from 0 to 1 in the case of dummy variables, and by one unit for continuous variables). The ordered probit estimates show that in the majority of EU countries, the probability and

**Table 2** Descriptive statistics of visits to historical monuments, museums, art galleries, or archaeological sites in 24 EU countries (percentages)

	Distribution of visits within categories (percentages)				
	Visitor rates	1–3	4–6	7–12	13+
Total	43	27	9	4	3
Household income p. person <EUR 3567 (<25th percentile)	29	21	5	2	1
Household income p. person EUR 3567–EUR 8325 (25th to 50 p.)	33	23	6	2	2
Household income p. person EUR 8325–EUR 14,000 (50th to 75 p.)	43	29	9	3	2
Household income per person >EUR 14,000 (>75th percentile)	60	34	15	7	5
Basic education (ISCED 0-2)	26	19	5	2	1
Intermediate education: (ISCED 3-4)	46	31	9	3	2
Tertiary education (ISCED 5-6)	70	36	18	9	7
Ages 16–24	48	33	9	3	2
Ages 25–34	46	30	10	4	3
Ages 35–44	47	31	10	4	2
Ages 45–54	44	28	9	4	3
Ages 55–64	44	26	10	4	3
Ages 65+	32	20	7	3	2
Female	44	28	9	4	3
Single	42	27	9	4	3
Country of birth (non-EU country)	41	28	8	4	2
Full-time employees	48	31	10	4	3
Part-time employees	53	34	11	4	3
Unemployed	29	20	5	2	1
School-age and university students	60	39	13	5	3
Retired	36	22	8	3	2
Disabled	23	16	4	2	2

Table 2 continued

	Distribution of visits within categories (percentages)				
	Visitor rates	1–3	4–6	7–12	13+
Other status	29	20	6	2	2
Household size = 1	44	25	11	5	3
Household size = 2	45	28	10	4	3
Household size = 3	42	27	8	3	2
Household size = 4	44	29	9	3	2
Household size = 5 or more	36	26	6	3	1
Densely populated areas	48	29	11	5	3
Intermediate urbanized areas	42	28	9	3	2
Rural areas	34	24	6	2	1
	Occupations (employed people only)				
Legislators, senior officials, and managers (ISCO 1)	59	34	14	7	4
Physical, mathematical, engineering science, life science, and health professionals (ISCO 21-22)	73	39	19	9	7
Teachers, other professionals (business, social science, writing, creative or performance art; ISCO 23-24)	79	38	22	10	8
Technicians and associate professionals (ISCO 3)	61	39	14	5	3
Clerks (ISCO 4)	53	35	11	4	3
Service workers, shop & market sales workers (ISCO 5)	42	30	8	3	2
Craft, related & agricultural workers (ISCO 6-7)	31	24	5	2	1
Plant engineers, machine operators, and assemblers (ISCO 8)	32	23	6	2	1
Elementary occupations (ISCO 9)	30	23	5	2	1

Source Eurostat, SILC. Weighted percentages, authors' own calculations

The number of observations for the sample of individuals in occupation is 207,040; number of observations for the full sample is 358,312

frequency of visits to museums and historical sites depend significantly on education, age, and two labor market status categories: disabled persons and school-age and university students. Gender and degree of urbanization also play a role to some extent, but the coefficients are only significant for some countries.

Our next step is to study a model for the pooled sample. Table 3 provides the marginal effects of the ordered probit estimates based on the unweighted means for the 24 EU member-states. These estimates measure the effect a single-unit change in each explanatory variable has on the probability of falling within one of the five categories of the dependent variable. We calculate the marginal impact of each independent variable while holding all of the other independent variables constant at their means. In addition, we report the number of significant marginal effects and their standard errors.

The marginal effects show that the probability of visits increases with a rise in per capita household income and education for all four frequency categories (1–3, 4–6, 7–12, and 13 or more visits), while the category “no visits” decreases with the same two variables. In general, the marginal effects of level of education, income, and some labor market status variables are quite large, whereas those of gender and age are much smaller. This result indicates two important findings. First, as hypothesized, cultural participation (as measured here) is strongly delineated along the lines of education, income, and labor market status. This evidence seems to be widespread across all European countries, which might mean that state policies designed to make cultural sites more accessible to the wider public are not able to achieve this goal. Second, cultural participation is more dependent on attained status than on ascribed characteristics, such as age and gender. This finding speaks to one of our research questions concerning the relative importance of the factors that shape cultural participation: It appears that policy intervention could be more successful in modifying the effect of attained rather than ascribed status characteristics on cultural participation.

Looking more closely at the effect of each explanatory variable, we first find that the marginal effect of tertiary education on the propensity to visit museums and historical sites is higher than that of intermediate education. Being a college or university graduate reduces the probability of having no visits by 35 percentage points compared to less educated persons (ISCED0–2, based on unweighted means across countries; cell frequency 57 %).<sup>4</sup> The probability of visits in the four categories increases by between 11 percentage points for one to three visits (cell frequency 27 %) and seven percentage points for 13 or more visits (cell frequency 3 %). The findings regarding education correspond to our expectations and hold true for all EU countries, as indicated by the number of significant effects.

Moving on to the subject of finances, we find that an increase in per capita disposable household income leads to a decrease in non-participation and an increase in cultural attendance in all countries. The marginal effects are significant at the 1 % level in all EU countries except one. An increase in one standard deviation in household income (from €7200 to €19,600, adjusted for household size) will reduce the probability of no visits by 35 % points and increase the probability

<sup>4</sup> ISCED is the International Standard Classification of Education.

**Table 3** Marginal effects for the EU-24

	None	1–3	4–6	7–12	13+
<i>Intermediate education (ISCED 3-4)</i>					
Mean	-0.145	0.066	0.041	0.021	0.017
Number (#) of significant marginal effects	24	24	24	24	24
Standard deviation of marg. Eff.	0.043	0.030	0.016	0.013	0.015
<i>Tertiary education (ISCED 5-6)</i>					
Mean	-0.353	0.113	0.108	0.066	0.066
Number (#) of significant marginal effects	24	23	24	24	24
Standard deviation of marg. Eff.	0.055	0.076	0.027	0.029	0.042
<i>Log disp. Household income (adj.)</i>					
Mean	-0.130	0.066	0.036	0.017	0.012
Number (#) of significant marginal effects	23	23	23	23	23
Standard deviation of marg. Eff.	0.040	0.035	0.015	0.010	0.010
<i>Ages 25–34 (ref. 16–24)</i>					
Mean	0.024	-0.018	-0.005	-0.001	0.000
Number (#) of significant marginal effects	13	13	13	13	13
Standard deviation of marg. Eff.	0.051	0.030	0.013	0.008	0.006
<i>Ages 35–44</i>					
Mean	-0.011	-0.003	0.005	0.004	0.004
Number (#) of significant marginal effects	14	14	13	13	13
Standard deviation of marg. Eff.	0.067	0.034	0.019	0.011	0.009
<i>Ages 45–54</i>					
Mean	-0.005	-0.014	0.006	0.006	0.007
Number (#) of significant marginal effects	17	19	17	17	17
Standard deviation of marg. Eff.	0.101	0.052	0.028	0.015	0.012
<i>Ages 55–64</i>					
Mean	-0.011	-0.016	0.009	0.009	0.009
Number (#) of significant marginal effects	19	20	19	19	19
Standard deviation of marg. Eff.	0.117	0.057	0.033	0.019	0.016
<i>Ages 65+</i>					
Mean	0.051	-0.045	-0.007	0.000	0.002
Number (#) of significant marginal effects	16	16	16	16	16
Standard deviation of marg. Eff.	0.121	0.068	0.032	0.017	0.012
<i>Female</i>					
Mean	-0.040	0.021	0.011	0.005	0.003
Number (#) of significant marginal effects	19	19	19	19	19
Standard deviation of marg. Eff.	0.028	0.019	0.008	0.005	0.004
<i>Single</i>					
Mean	0.041	-0.018	-0.012	-0.006	-0.005
Number (#) of significant marginal effects	15	15	15	15	15
Standard deviation of marg. Eff.	0.031	0.014	0.010	0.006	0.007
<i>Non-EU country of birth</i>					
Mean	0.058	-0.030	-0.015	-0.007	-0.005

**Table 3** continued

	None	1–3	4–6	7–12	13+
Number (#) of significant marginal effects	14	14	14	15	15
Standard deviation of marg. Eff.	0.057	0.033	0.016	0.010	0.007
<i>Labor market status: Part-time workers</i>					
Mean	−0.023	0.009	0.007	0.004	0.003
Number (#) of significant marginal effects	9	7	9	9	9
Standard deviation of marg. Eff.	0.037	0.021	0.010	0.006	0.007
<i>Disabled people</i>					
Mean	0.118	−0.067	−0.030	−0.013	−0.008
Number (#) of significant marginal effects	21	19	21	21	21
Standard deviation of marg. Eff.	0.040	0.036	0.013	0.007	0.007
<i>Other status</i>					
Mean	0.040	−0.023	−0.010	−0.004	−0.003
Number (#) of significant marginal effects	12	12	12	13	13
Standard deviation of marg. Eff.	0.044	0.028	0.012	0.006	0.006
<i>School-age &amp; university students aged 16 and older</i>					
Mean	−0.256	0.082	0.077	0.047	0.050
Number (#) of significant marginal effects	23	20	23	23	23
Standard deviation of marg. Eff.	0.081	0.067	0.027	0.028	0.054
<i>Retired people</i>					
Mean	0.021	−0.015	−0.004	−0.001	−0.001
Number (#) of significant marginal effects	8	9	8	8	8
Standard deviation of marg. Eff.	0.047	0.029	0.012	0.006	0.006
<i>Unemployed people</i>					
Mean	0.050	−0.026	−0.014	−0.006	−0.004
Number (#) of significant marginal effects	15	13	16	16	16
Standard deviation of marg. Eff.	0.035	0.020	0.012	0.006	0.005
<i>Densely populated areas (ref rural)</i>					
Mean	−0.050	0.015	0.015	0.010	0.010
Number (#) of significant marginal effects	1	1	1	1	1
Standard deviation of marg. Eff.	0.060	0.023	0.019	0.016	0.020
<i>Intermediate urbanized areas</i>					
Mean	−0.019	0.005	0.006	0.004	0.004
Number (#) of significant marginal effects	1	1	1	1	1
Standard deviation of marg. Eff.	0.033	0.015	0.010	0.007	0.007

Marginal effects are based on unweighted means across countries

For the ordered probit estimates, see Table 10 in the appendix

Coefficients for household size dummies are not reported due to space constraints

of one to three visits by 18 % points. For the remaining three categories, the increase in probability ranges between one and four percentage points. The finding that income conditions cultural participation not only fits with our hypothesis, but

also reinforces circumstantial evidence that cultural policy—in the form of subsidies, for example—might be able to alter patterns of cultural inequality.

Since education and income are the only variables that are consistently significant in all countries, we then pose the question of whether income is more relevant than education in determining the probability and frequency of visits. A comparison of the marginal effects of income and education based on the pooled ordered probit estimates indicates that this is not the case: Education is slightly more important than household income in increasing both the likelihood and frequency of visits to cultural sites.

Age, meanwhile, is only significant in some countries. For instance, the age categories 45–54 years and 55–64 years exhibit an effect in 17 of the 24 EU countries. The age effect is positive on average, indicating that the older a person is, the more likely he or she will be to visit museums and historical sites more frequently. However, we find a negative effect for the age category of 65 years and older, indicating a nonlinear, inverted *U*-shaped relationship. In particular, people between 55 and 64 years of age are one percentage point more likely to have no visits and 1.6 percentage points more likely to have between one and three visits compared to the youngest age category. Overall, the magnitude of the marginal effects of age is very small when compared to household income and education.

On average, women are significantly more likely to visit museums and historical sites compared to men, as evidenced by 19 EU countries. Again, the magnitude of the marginal effects of gender is quite small, for example, being female reduces the probability of having no visits by only four percentage points. This finding confirms previous reports in the literature, but we add new information on the relatively small importance of the gender effect.

Turning to the effects of labor market status, we find that the unemployed and people with disabilities are less likely to visit museums and historical sites, and more likely than average to refrain from visiting them at all. In particular, disabled persons are 12 % points more likely to have no visits. Students, on the other hand, are significantly more likely to visit museums and historical sites and less likely not to visit them at all. The marginal effects for students are also quite large: Depending on the response category, visits are more likely by 5–8 % points. A possible explanation for these findings is that students' free time is more flexible than that of employed individuals.

Individuals born in non-EU countries are more likely not to visit museums and historical sites, indicating a limited level of integration with local culture. The marginal effects include six percentage points for no visits and three percentage points for one to three visits. Household size also has a negative effect on museum and historical site visits, but is not significant in the majority of countries. A higher degree of urbanization, on the other hand, has a positive influence on participation and number of visits, indicating that cultural opportunities and preferences differ greatly between rural and urban areas. Individuals living in larger cities might be more likely to visit museums and historical sites, reflecting both demand and supply factors. The marginal effects of urbanity, however, are not that large.

To estimate the association between occupational category and cultural participation patterns, we present an analysis of the marginal effects of occupational



categories on the dependent variable in a sample of employed individuals in Table 4. As expected, when controlling for the other socioeconomic and demographic factors in play, professionals and managers are significantly more likely to visit museums and historical sites and less likely not to visit these sites at all. The effects of occupational categories are significant in almost all of the countries. In particular, teaching professionals and professionals in business and social science (ISCO 23-24) are 21 % points less likely to have no visits and 6 % points less likely to have between one and three visits compared to the reference

**Table 4** Marginal effects for occupations for the EU-24 (employed workers only)

	None	1–3	4–6	7–12	13+
<i>Legislators, senior officials, and managers (ISCO 1)</i>					
Mean	−0.12	0.04	0.04	0.02	0.02
Number (#) of significant marginal effects	22	23	22	22	22
Standard deviation of marg. Eff.	0.04	0.03	0.02	0.01	0.01
<i>Life science and health professionals (ISCO 21-22)</i>					
Mean	−0.13	0.04	0.04	0.02	0.02
Number (#) of significant marginal effects	23	22	22	22	22
Standard deviation of marg. Eff.	0.04	0.03	0.02	0.02	0.02
<i>Teaching, other professions (business, social science, writing, creative or performance art) (ISCO 23-24)</i>					
Mean	−0.21	0.06	0.07	0.04	0.04
Number (#) of significant marginal effects	24	22	24	24	24
Standard deviation of marg. Eff.	0.04	0.05	0.02	0.02	0.03
<i>Technicians and associate professionals (ISCO 3)</i>					
Mean	−0.09	0.04	0.03	0.01	0.01
Number (#) of significant marginal effects	21	21	21	21	19
standard deviation of marg. Eff.	0.04	0.02	0.01	0.01	0.01
<i>Clerks (ISCO 4)</i>					
Mean	−0.05	0.02	0.02	0.01	0.01
Number (#) of significant marginal effects	14	16	13	12	10
Standard deviation of marg. Eff.	0.03	0.02	0.01	0.01	0.00
<i>Craft, related &amp; agricultural workers (ISCO 6-7)</i>					
Mean	0.04	−0.02	−0.01	−0.01	0.00
Number (#) of significant marginal effects	11	9	12	13	13
Standard deviation of marg. Eff.	0.03	0.02	0.01	0.01	0.01
<i>Plant engineers, machine operators, and assemblers (ISCO 8)</i>					
Mean	0.05	−0.02	−0.02	−0.01	−0.01
Number (#) of significant marginal effects	11	9	11	11	11
Standard deviation of marg. Eff.	0.04	0.02	0.01	0.01	0.01
<i>Elementary occupations (ISCO 9)</i>					
Mean	0.07	−0.03	−0.02	−0.01	−0.01
Number (#) of significant marginal effects	16	13	16	16	16
Standard deviation of marg. Eff.	0.03	0.02	0.01	0.01	0.01

The reference category consists of ISCED 5 (service workers)

category (service workers). Overall, the marginal effects of occupation are somewhat lower compared to those of education and household income. This is another finding that sheds new light on the relative importance of the socioeconomic dimensions underlying cultural inequality.

### 5.3 Country differences

Tables 8 and 9 in the appendix show the marginal effects calculated for each response category of the dependent variable, sorted by country. Due to space limitations, we report only the country-specific marginal effects of age (Table 8), education, household income, and gender (Table 9).<sup>5</sup>

We find remarkable cross-country differences in the determinants of museum and historical site visits and the frequency thereof. In the majority of the countries, visits to museums and historical sites occur significantly more often as age increases. However, in Portugal, Greece, and the member-states that joined the EU in 2004, age has a significantly negative effect on visits. The gender effect, meanwhile, is highest in the new EU member-states and lowest in Ireland, the Netherlands, Sweden, and the United Kingdom.<sup>6</sup> The impact of per capita household income and education on the likelihood and number of visits does not vary much across countries. Interestingly, we find that the marginal effects of per capita household income are lowest for Sweden. This result may be related to the free entrance reform introduced there between 2004 and 2006 (Lampi and Orth 2009). We also find lower-than-average marginal effects of household income in Denmark, Finland, Ireland, and the United Kingdom. The relatively low magnitude of the relationship between income and cultural visits in these countries might indicate that museums are regarded as a necessity rather than a luxury. Another possible explanation relates to the effect of recent policy initiatives to broaden museum attendance and other cultural participation.

The impact of education on the likelihood and number of visits is another factor that varies little across countries. The marginal effect of tertiary education is slightly larger than average in Austria, the Czech Republic, Portugal, and Hungary—countries that are characterized by labor forces with significantly lower-than-average shares of tertiary education. In contrast, the influence of tertiary education on the likelihood and number of museum and historical visits is less pronounced in skill-rich countries such as Sweden, Denmark, and Finland.

Overall, the findings suggest that the effect of education and income on museum attendance and frequency of attendance is somewhat less pronounced in the EU-15 countries than in the EU-10 countries. This result indicates that the former group of countries has been more successful in reducing the disparities in cultural participation between poor, undereducated people and wealthy, skilled people.

The results of the pooled ordered model, presented in Table 10 (see Appendix Table), make it possible to investigate the extent to which cultural participation

<sup>5</sup> All of the variables except income are dummy variables.

<sup>6</sup> The coefficients of urbanization are not reported due to space limitations.

differs across countries when controlling for socioeconomic and household characteristics. The country dummy variables show large and significant differences in the probability and number of museum and historical site visits across the EU countries after controlling for individual and household factors. We find that the probability and number of visits are significantly higher for Sweden, Denmark, Finland, and the United Kingdom when compared to the benchmark country, Germany. Participation in cultural activities in the Netherlands and Luxembourg is similar to that of Germany, while in the remaining countries, participation is significantly lower. The lowest participation can be observed in Italy, Estonia, Poland, Lithuania, and Cyprus. Again, we point to cultural policy—and more specifically, admission fees—as a possible explanation for cross-country differences in participation rates. In the United Kingdom and the Scandinavian countries, the majority of government-funded museums and art galleries are free of charge. British museums, for instance, stopped charging admission fees in 2001, and most of Denmark's large museums offer free admission to their permanent exhibitions.

The finding that income, education, and occupation are the most important factors influencing the decision to visit museums and historical sites is consistent with Bourdieu's hypothesis (1984, 1987) and recent empirical literature (Ateca-Amestoy and Prieto-Rodriguez 2013). However, the notion that income, education, and occupation have a positive impact in almost all EU countries is a new empirical discovery. To reinforce the robustness of this finding, we conduct two additional analyses. First, we estimate the ordered probit models with four categories (0, 1–3, 4–6 and 7+) instead of five by combining the two highest visiting rates due to the low number of cases in each. Unreported results again show that education and income are the main determinants of museum and historical site visits. The relationships among the remaining characteristics and the probability and number of visits remain virtually unchanged. Second, we estimated the zero-inflated ordered probit model introduced by Harris and Zhao (2007). This model allows non-visits to be generated by two distinct processes: one that describes the decision to visit and another that describes the probability of a certain number of visits (including zero visits). Here, the decision to visit is estimated by a probit model (the inflation part) and the outcome equation is an ordered probit with three categories (0, 1–3, 4+). Correlation among the error terms of the equations is allowed. Table 11 (see Appendix Table) shows that the direction of the association between participation and visitors' characteristics does not differ much between the participation portion of the model and the frequency of visits, except for in terms of age.<sup>7</sup> Again, income and education are the main factors influencing visits to museums, art galleries, historical sites, and archaeological sites. The marginal effects on the probability of observing 1–3 or four or more visits show that education is more important than income in determining the frequency of visits (results are available upon request).

<sup>7</sup> The zero-inflated ordered probit model with correlated errors is estimated by the ZIOPC code (see <http://myweb.fsu.edu/dwh06c>).

## 6 Discussion and conclusions

Using unique comparative micro-level data for 24 EU countries, we investigate the characteristics of visitors to museums, art galleries, historical sites, and archaeological sites. We advance the current state of research by focusing on a defined set of cultural sites and analyzing nationally representative surveys from a large number of countries and a very large number of respondents. Ordered probit models estimated using data on 350,000 adults indicate that, across countries, the likelihood and number of visits to cultural sites depend significantly and consistently on demographic and socioeconomic characteristics. Accordingly, *our first main conclusion* is that, as indicated by the marginal effects, level of education, per capita household income, higher-level occupations (e.g., professionals), and student status are the most important variables in determining the probability and number of visits. Furthermore, education is slightly more important than household income in increasing the likelihood and number of visits, meaning that human capital is more important than economic capital as a driver of cultural inequality. In other words, cultural stratification and inequality of access to the cultural competencies that legitimate cultural capital entails are mainly a result of attained status.

These findings are important for two reasons. First, they provide revealing evidence of cross-national regularity in the determinants of cultural participation, which can inform theories of cultural capital and stratification. Due to the lack of a significant body of cross-national comparative research on cultural stratification, theories in this area are mainly tested on empirical evidence from single countries, rendering cross-national generalization impossible. Moreover, while many of the existing cross-national comparisons in this area are based on western countries, we offer a more diverse comparison of economic and political contexts. The second reason why our finding on the relative importance of human and economic capital is significant is that it provides information for cultural and arts managers, urban planners, and museum and tourism marketing research—that is, those aiming to encourage disadvantaged groups to participate in the arts. For private museums and art galleries, meanwhile, knowledge of their visitors' characteristics is of great value in shaping promotions and pricing. Our findings on the cross-country differences in the influence of characteristics on the probability of museum and historical site visits are also quite relevant from a policy point of view. They can provide guidance to cultural policy makers with respect to the probability of such visits and their frequency depending on age, gender, income, and education across countries.

Our *second main conclusion* is that after accounting for socioeconomic and demographic correlates of cultural participation, there are still large differences in the probability of museum and historical site visits across countries. In particular, this probability is highest in the Scandinavian countries and in the UK, and lowest in southern Europe; the other large EU countries (Germany, France, the Netherlands, and Spain) are in the middle group. One possible interpretation of these findings is that the differences in the probability of visits to cultural sites across the EU countries are associated with national differences in cultural policies and in per

capita government expenditures meant to encourage visits to museums and historical sites. Unfortunately, systematic data that compare public spending and subsidies for museums and historical sites cross-nationally are lacking (Bina et al. 2012). It is therefore still difficult to ascertain direct links between cultural policy and cultural participation. Nevertheless, the conclusions we draw from our analysis represent a significant step forward in the discussion of these issues because we show that even after accounting for individual differences, there is still a great deal of variation among the EU countries and the corresponding antecedents merit further exploration.

Our *third main conclusion* is that there is surprisingly little variation in the influence of education and income across countries, but the impact of both variables is somewhat smaller in the Scandinavian countries. This finding may offer initial insight in the debate between the *provision of art* and the *reproduction of distinction* approaches to cultural policy discussed above, in support of the latter approach. In comparing countries with varying forms of cultural spending (such as the EU-24), we would have expected to find significant variation in the effect of education and income as the main signals of demand for culture. The assumption is that in countries with generous cultural policies, education and income should have less of an effect on cultural participation. However, our findings indicate that this is not the case, and that the impact of both educational and economic conditions is only somewhat smaller in the Scandinavian countries. This result means that even in the context of very different policies, there is no attenuation of inequality.

To complement our conclusions, we provide two suggestions for future research. First, the SILC data contain additional information on cultural attendance at performing arts venues (plays, concerts, operas, ballet, and dance performances). An examination of these alternative indicators of cultural participation, which represent an additional dimension of cultural consumption, could complement the analysis presented in this paper. Second, given the relatively complex relationship between age and cultural participation, it would be interesting to analyze the determinants of visits by younger and older respondents separately.

In summary, this research demonstrates that it is possible to apply a single model to EU countries to estimate the relationship between socioeconomic and demographic variables and a composite measure of cultural participation. Overall, human capital resources (education) are somewhat more important than economic resources (income) in shaping the probability and frequency of cultural participation. There is no significant indication that countries with different cultural policies are able to attenuate the effect of education and income on cultural participation. Finally, more research is required to explore large cross-national differences in cultural participation that are not accounted for by the set of explanatory variables typically discussed in the literature.

## Appendix

See Tables 5, 6, 7, 8, 9, 10 and 11.

**Table 5** Descriptive statistics of the dependent and independent variables (median and percentages)

Variable	Median/ percent
No visits	0.60
1–3 visits	0.26
4–6 visits	0.08
7–12 visits	0.04
13+ visits	0.03
Female	0.53
Age in years (standard deviation in parentheses)	47 (18)
Educational attainment	
Basic education (ISCED 0–2) (reference category)	0.36
Intermediate education (ISCED 3 + 4)	0.45
Tertiary education (ISCED 5 + 6)	0.19
Labor market status	
Full-time employee (reference category)	0.43
Part-time employee	0.08
Unemployed	0.05
School-age and university students	0.08
Retired persons	0.22
Disabled	0.03
Other status	0.10
Single	0.37
Country of birth (non-EU country)	0.05
Disposable household income in € (median)	19,867
Disposable household income adjusted for household size in € (median) (standard deviation in parentheses)	7232 (10,802)
Household size	
Household size = 1 (reference category)	0.12
Household size = 2	0.29
Household size = 3	0.22
Household size = 4	0.23
Household size = 5 and more	0.14
Degree of urbanization	
Densely populated areas	0.43
Intermediate urbanized areas	0.29
Rural areas (reference category)	0.28
Number (#) of observations	353,273

EU-SILC 2006 for EU 15 and EU-10 countries (excluding Malta)

Unweighted percentages

**Table 6** Ordered probit model for museums and historical visits for the EU-15 countries

	AT		BE		DE		DK		ES	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Log household income (adj.)	0.29***	9.07	0.41***	11.41	0.32***	17.14	0.17***	4.07	0.26***	11.36
Intermediate education (ref. basic)	0.59***	17.54	0.37***	11.13	0.34***	14.31	0.26***	6.65	0.47***	22.14
Tertiary education	1.17***	27.17	1.01***	26.86	0.82***	30.21	0.81***	18.25	0.84***	35.66
Age between 25–34 (ref 16–24)	0.17***	2.77	-0.03	-0.54	-0.11***	-2.82	-0.19**	-2.21	-0.06*	-1.74
Age between 35–44	0.32***	5.40	0.09	1.32	-0.09**	-2.34	0.03	0.37	0.02	0.63
Age between 45–54	0.21***	3.54	0.29***	4.49	-0.10**	-2.48	0.15*	1.81	0.09**	2.25
Age between 55–64	0.19***	2.88	0.41***	5.56	0.03	0.74	0.38***	4.27	0.00	0.04
Age 65+	-0.01***	-0.16	0.33***	3.80	0.07	1.42	0.29**	2.57	-0.27***	-5.47
Female	0.23***	10.34	0.07***	3.09	0.14***	10.43	0.11***	3.54	0.07***	4.65
Single	-0.20***	-5.51	-0.04	-0.94	-0.08***	-2.90	-0.01	-0.17	-0.12***	-5.15
Country of birth: non-EU	-0.35***	-6.06	-0.06	-1.09	-0.04	-1.27	-0.32***	-3.69	-0.33***	-6.68
Part time (ref. full time)	0.21***	5.40	0.05	1.34	0.12***	5.73	0.06	1.11	-0.03	-0.77
Unemployed	-0.06	-0.75	0.06	1.12	-0.26***	-6.64	-0.15	-1.39	-0.07**	-2.23
School-age & university students	***1.37	19.14	0.74***	10.72	0.63***	17.24	0.34***	4.61	0.56***	14.58
Retired persons	-0.02	-0.54	-0.06	-1.00	-0.03	-0.79	-0.07	-0.98	-0.06	-1.64
Disabled	-0.26	-0.84	-0.45***	-4.53	-0.37***	-5.84	-0.26***	-2.82	-0.33***	-5.08
Other status	0.02	0.39	0.04	0.72	0.00	0.05	-0.19*	-1.77	-0.04	-1.48
Densely populated (ref. rural)	0.22***	6.45	0.10	1.33	0.21***	7.86	0.34***	9.18	0.18***	7.46
Intermediate areas	0.21***	6.09	-0.08	-1.04	0.11***	3.95	0.08**	2.13	0.04	1.27
Number (#) of observations	11,935		10,495		25,386		5549		26,158	

Table 6 continued

	FI		FR		GR		IE		IT	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Log household income (adj.)	0.30***	9.10	0.45***	13.90	0.29***	8.13	0.28***	7.09	0.38***	21.29
Intermediate education	0.28***	9.73	0.38***	16.39	0.29***	7.08	0.53***	12.69	0.53***	31.55
Tertiary education	0.76***	23.15	0.99***	32.90	0.80***	16.03	1.01***	22.25	1.06***	44.85
Age between 25–34 (ref 16–24)	-0.03	-0.66	0.05	1.01	-0.24***	-3.38	-0.01	-0.09	-0.12***	-3.99
Age between 35–44	-0.02	-0.38	0.27***	5.52	-0.06	-0.73	0.17*	1.84	-0.05	-1.48
Age between 45–54	0.09*	1.71	0.33***	6.62	-0.11	-1.31	0.22**	2.46	-0.01	-0.17
Age between 55–64	0.09	1.54	0.32***	6.02	-0.24**	-2.57	0.31***	3.15	-0.12***	-2.96
Age 65+	-0.06	-0.76	-0.01	-0.19	-0.43***	-4.11	-0.01	-0.14	-0.49***	-11.1
Female	0.09***	3.92	0.14***	9.67	0.10***	3.87	0.01	0.35	0.08***	6.63
Single	-0.20***	-5.23	-0.29***	-8.47	-0.03	-0.55	-0.19***	-3.80	-0.06***	-2.97
Country of birth (non-EU)	-0.03	-0.25	-0.19***	-4.77	-0.37***	-4.17	-0.08	-0.74	-0.18***	-4.24
Part time (ref. full time)	0.17***	3.83	0.06*	1.78	-0.02	-0.21	-0.01	-0.29	0.05*	1.71
Unemployed	-0.12**	-2.30	-0.06	-1.49	-0.12	-1.56	0.05	0.52	-0.17***	-5.09
School-age & university students	0.48***	9.02	0.71***	13.94	0.61***	8.04	0.52***	5.17	0.69***	21.44
Retired persons	-0.08	-1.29	0.18***	4.58	-0.04	-0.53	0.02	0.27	-0.03	-1.19
Disabled	-0.16***	-2.83	-0.19***	-3.37	-0.78***	-3.11	-0.50***	-5.05	-0.50***	-5.83
Other status	-0.22***	-3.55	-0.04	-0.91	-0.04	-0.76	-0.14**	-2.58	-0.14***	-6.01
Densely populated (ref. rural)	0.53***	19.69	0.16***	5.21	0.15***	3.43	0.41***	9.91	0.11***	4.76
Intermediate areas	0.14***	4.55	0.04	1.32	0.14**	2.36	0.12***	2.81	0.03	1.22
Number (#) of observations	10,603		18,950		12,088		7502		45,497	



Table 6 continued

	LU		NL		PT		SE		UK	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Log household income (adj.)	0.45***	10.85	0.33***	9.90	0.41***	10.92	0.08**	2.12	0.29***	12.24
Intermediate education	0.37***	10.62	0.43***	12.72	0.57***	13.04	0.32***	7.68	0.56***	21.05
Tertiary education	0.96***	21.40	0.98***	26.82	1.08***	19.66	0.90***	19.47	0.93***	31.40
Age between 25–34 (ref 16–24)	0.15*	1.94	0.04	0.42	-0.12**	-2.07	-0.06	-0.89	0.11**	2.27
Age between 35–44	0.25***	3.04	0.21**	2.45	-0.10	-1.39	0.04	0.67	0.26***	5.43
Age between 45–54	0.37***	4.55	0.35***	4.05	-0.20***	-2.91	0.17***	2.54	0.34***	7.13
Age between 55–64	0.42***	4.72	0.46***	5.08	-0.20***	-2.66	0.23***	3.19	0.39***	7.34
Age 65+	0.14	1.45	0.33***	3.31	-0.27***	-2.91	0.23***	2.12	0.23***	3.60
Female	0.07***	2.74	0.05*	1.80	0.04	0.74	-0.01	-0.31	0.00	-0.10
Single	-0.16***	-3.31	-0.17***	-3.39	-0.07	-1.42	-0.04	-0.81	-0.21***	-6.30
Country of birth (non-EU)	-0.04	-0.62	-0.19***	-2.91	-0.36***	-2.90	-0.44***	-7.32	-0.07*	-1.95
Part time (ref. full time)	0.09*	1.69	0.10***	2.64	0.00	-0.07	-0.04	-0.99	0.13***	4.42
Unemployed	-0.15**	-1.97	-0.25**	-2.52	-0.10	-1.51	-0.25***	-3.09	-0.09	-1.15
School-age & university students	0.82***	10.25	0.74***	8.56	0.62***	9.81	0.40***	5.82	0.62***	10.83
Retired persons	0.02	0.36	0.11*	1.86	-0.11*	-1.68	-0.09	-0.99	0.20**	4.48
Disabled	-0.26**	-2.55	-0.42**	-5.44	-0.23	-1.36	-0.27***	-3.48	-0.26***	-4.55
Other status	-0.01	-0.25	0.05	0.92	-0.13**	-2.02	-0.03	-0.26	0.03	0.70
Densely populated (ref. rural)	0.02	0.49			0.06	1.23	0.40***	11.00	-0.01	-0.19
Intermediate areas	0.03	0.71			-0.16***	-3.22	0.21***	5.13	0.03	0.52
Number (#) of observations	7704		8731		8529		6352		16,459	

Dummy variables measuring the household size are included but not shown due to space limitations. Standard errors are clustered by households except for SE, DK, FI NL and SI

The reference categories are primary education, age between 16–24 years, male, not single, country of birth in EU countries, full time employed and living in rural areas \*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10 % levels, respectively

**Table 7** Ordered probit model for museums and historical visits for the EU-10 countries

	CY		CZ		EE		HU		LT	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Log disp. household income (adj.)	0.53***	13.69	0.48***	13.75	0.40***	13.62	0.41***	14.99	0.42***	12.15
Intermediate education (ref. basic)	0.31***	7.18	0.49***	14.74	0.34***	10.52	0.39***	14.40	0.31***	7.15
Tertiary education	0.97***	19.05	1.12***	24.00	1.05***	25.74	1.04***	28.27	1.00***	18.41
Age between 25 and 34 (ref 16–24)	-0.05	-0.69	0.08	1.55	-0.20***	-3.57	-0.24***	-4.82	-0.40***	-5.07
Age between 35 and 44	0.16**	2.04	0.15***	2.72	-0.17***	-2.90	-0.19***	-3.75	-0.26***	-3.27
Age between 45 and 54	0.13	1.61	-0.10	-1.74	-0.29***	-4.83	-0.41***	-7.96	-0.40***	-5.15
Age between 55 and 64	0.07	0.75	-0.21***	-3.34	-0.31***	-4.64	-0.44***	-7.32	-0.47***	-5.55
Age 65+	-0.01	-0.07	-0.41***	-5.54	-0.36***	-4.39	-0.76***	-10.77	-0.60***	-5.68
Female	0.07***	2.67	0.22***	13.68	0.31***	14.62	0.14***	9.12	0.19***	8.57
Single	-0.15***	-2.77	-0.21***	-6.28	-0.11***	-2.95	-0.05	-1.64	-0.05	-1.18
Country of birth: non-EU	-0.15**	-2.35	-0.17	-1.24	-0.42***	-9.69	-0.02	-0.22	-0.18***	-2.59
Part time (ref. full time)	0.19**	2.53	0.09	1.35	0.18***	2.82	0.10*	1.73	-0.04	-0.45
Unemployed	-0.19*	-1.79	-0.26***	-4.71	-0.16**	-2.01	-0.19***	-3.84	-0.16**	-2.15
School-age & university students	1.02***	14.07	0.95***	16.61	0.91***	16.94	0.74***	14.17	0.75***	9.64
Retired persons	-0.06	-0.60	-0.03	-0.59	-0.40***	-6.35	-0.02	-0.34	-0.31***	-4.35
Disabled	-0.21***	-0.71	-0.41***	-6.55	-0.51***	-5.87	-0.20***	-4.58	-0.25***	-3.19
Other status	0.01	0.14	-0.36***	-6.76	-0.33***	-5.46	-0.16***	-3.67	-0.21**	-2.42
Densely populated (ref. rural)	-0.05	-1.01	-0.01	-0.45	-0.01	-0.27	0.05	1.48	0.06*	1.71
Intermediate areas	-0.02	-0.35	-0.02	-0.55			-0.03	-0.77		
Household size dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number (#) of observations	8601	14,743		12,946		16,395		9947		

Table 7 continued

	LV		PL		SI		SK	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z
Log disp. household income (adj.)	0.47***	14.01	0.44***	22.45	0.45***	8.29	0.39***	11.11
Intermediate education (ISCED 3–4)	0.38***	9.25	0.35***	15.47	0.41***	12.52	0.34***	8.93
Tertiary education (ISCED 5–6)	1.03***	19.68	1.04***	32.58	1.02***	18.75	0.80***	15.91
Age between 25 and 34 (ref 16–24)	-0.26***	-4.03	-0.28***	-8.30	-0.06	-0.83	-0.11**	-2.20
Age between 35 and 44	-0.31***	-4.76	-0.25***	-6.55	0.10	1.36	-0.15***	-2.75
Age between 45 and 54	-0.52***	-7.92	-0.39***	-10.91	0.03	0.45	-0.41***	-7.45
Age between 55 and 64	-0.58***	-7.94	-0.42***	-9.41	0.09	1.03	-0.39***	-5.56
Age 65+	-0.77***	-9.12	-0.70***	-13.65	-0.17*	-1.80	-0.62***	-7.43
Female	0.21***	8.25	0.11***	9.79	0.09***	3.59	0.15***	8.63
Single	-0.09**	-2.40	-0.06**	-2.49	-0.09***	-2.60	0.03	0.99
Country of birth: non-EU	-0.30***	-6.36	0.22*	1.95	-0.17***	-3.64	0.09	0.55
Part time (ref. full time)	0.23***	2.95	0.00	-0.09	-0.23**	-2.11	0.05	0.73
Unemployed	-0.20***	-2.85	-0.13***	-4.33	-0.08	-1.32	-0.30***	-5.88
School-age & university students	0.71***	10.21	0.68***	19.12	0.63***	9.11	0.55***	10.03
Retired persons	-0.26***	-4.08	-0.10***	-2.90	-0.07	-1.14	-0.20***	-3.55
Disabled	-0.68***	-4.61	-0.33***	-8.41	-0.54*	-1.87	-0.40***	-3.70
Other status	-0.08	-1.21	-0.15***	-4.49	-0.33***	-3.11	-0.26**	-2.67
Densely populated (ref. rural)	-0.12***	-3.30	0.27***	12.22			0.03	0.78
Intermediate areas	Yes		0.10***	3.39	Yes		0.07*	1.91
Household size dummies	Yes		Yes		Yes		Yes	
Number (#) of observations	8967		34,771		9372		12,576	

Dummy variables measuring the household size are included but not shown due to space limitations

Standard errors are clustered by households, see Table 6

\*\*\*, \*\* and \* denote statistical significance at 1, 5, and 10 % levels, respectively

**Table 8** Marginal effects for age categories

	None	1-3	4-6	7-12	13+	None	1-3	4-6	7-12	13+
Age 25-34	AT	-0.09	0.03	0.02	0.02	IE	0.00	0.00	0.00	0.00
Age 35-44	AT	-0.13	0.04	0.03	0.03	IE	-0.06	0.02	0.01	0.01
Age 45-54	AT	-0.09	0.03	0.02	0.02	IE	-0.08	0.02	0.01	0.01
Age 55-64	AT	-0.11	0.03	0.03	0.03	IE	-0.11	0.03	0.01	0.01
Age 65+	AT	-0.01	0.00	0.00	0.00	IE	0.01	0.00	0.00	0.00
Age 25-34	BE	0.01	-0.01	0.00	0.00	IT	0.03	-0.01	0.00	0.00
Age 35-44	BE	-0.03	0.01	0.01	0.01	IT	0.01	0.00	0.00	0.00
Age 45-54	BE	-0.12	0.05	0.04	0.02	IT	0.00	0.00	0.00	0.00
Age 55-64	BE	-0.16	0.06	0.05	0.03	IT	0.03	-0.01	0.00	0.00
Age 65+	BE	-0.13	0.05	0.04	0.02	IT	0.13	-0.03	-0.01	0.00
Age 25-34	CY	0.01	-0.01	0.00	0.00	LT	0.12	-0.02	0.00	0.00
Age 35-44	CY	-0.05	0.03	0.01	0.00	LT	0.08	-0.01	0.00	0.00
Age 45-54	CY	-0.04	0.03	0.01	0.00	LT	0.12	-0.02	0.00	0.00
Age 55-64	CY	-0.02	0.01	0.00	0.00	LT	0.14	-0.02	0.00	0.00
Age 65+	CY	0.00	0.00	0.00	0.00	LT	0.18	-0.03	-0.01	0.00
Age 25-34	CZ	-0.03	0.02	0.01	0.00	LU	-0.06	0.02	0.01	0.01
Age 35-44	CZ	-0.06	0.03	0.02	0.01	LU	-0.10	0.03	0.02	0.02
Age 45-54	CZ	0.04	-0.02	-0.01	0.00	LU	-0.14	0.04	0.03	0.03
Age 55-64	CZ	0.08	-0.05	-0.02	-0.01	LU	-0.16	0.04	0.03	0.03
Age 65+	CZ	0.16	-0.09	-0.04	-0.01	LU	-0.06	0.02	0.01	0.01
Age 25-34	DE	0.04	-0.02	-0.02	-0.01	LV	0.09	-0.07	0.00	0.00
Age 35-44	DE	0.03	-0.01	-0.01	-0.01	LV	0.10	-0.02	0.00	0.00
Age 45-54	DE	0.04	-0.01	-0.02	-0.01	LV	0.17	-0.03	-0.01	0.00
Age 55-64	DE	-0.01	0.00	0.01	0.00	LV	0.18	-0.03	-0.01	0.00
Age 65+	DE	-0.03	0.01	0.01	0.00	LV	0.24	-0.05	-0.01	0.00

Table 8 continued

	None	1-3	4-6	7-12	13+	None	1-3	4-6	7-12	13+
Age 25-34	DK	0.07	-0.02	-0.03	-0.01	NL	-0.01	0.01	0.00	0.00
Age 35-44	DK	-0.01	0.00	0.00	0.00	NL	-0.08	0.03	0.02	0.01
Age 45-54	DK	-0.06	0.01	0.02	0.01	NL	-0.14	0.05	0.03	0.03
Age 55-64	DK	-0.14	0.02	0.06	0.03	NL	-0.18	0.06	0.04	0.04
Age 65+	DK	-0.11	0.02	0.04	0.02	NL	-0.13	0.05	0.03	0.02
Age 25-34	EE	0.07	-0.05	-0.01	0.00	PL	0.09	-0.01	0.00	0.00
Age 35-44	EE	0.06	-0.04	-0.01	0.00	PL	0.07	-0.01	0.00	0.00
Age 45-54	EE	0.09	-0.07	-0.02	0.00	PL	0.12	-0.02	-0.01	0.00
Age 55-64	EE	0.10	-0.07	-0.02	0.00	PL	0.12	-0.02	-0.01	0.00
Age 65+	EE	0.12	-0.09	-0.02	-0.01	PL	0.19	-0.03	-0.01	-0.01
Age 25-34	ES	0.02	-0.01	-0.01	0.00	PT	0.04	-0.01	0.00	0.00
Age 35-44	ES	-0.01	0.00	0.00	0.00	PT	0.03	-0.01	0.00	0.00
Age 45-54	ES	-0.03	0.01	0.01	0.01	PT	0.07	-0.01	0.00	0.00
Age 55-64	ES	0.00	0.00	0.00	0.00	PT	0.07	-0.01	0.00	0.00
Age 65+	ES	0.11	-0.05	-0.03	-0.01	PT	0.09	-0.02	-0.01	0.00
Age 25-34	FI	0.01	0.00	0.00	0.00	SE	0.02	-0.01	-0.01	0.00
Age 35-44	FI	0.01	0.00	0.00	0.00	SE	-0.02	0.01	0.00	0.00
Age 45-54	FI	-0.03	0.00	0.01	0.01	SE	-0.06	0.02	0.02	0.01
Age 55-64	FI	-0.03	0.00	0.01	0.01	SE	-0.08	0.03	0.02	0.02
Age 65+	FI	0.02	0.00	-0.01	-0.01	SE	-0.09	0.03	0.03	0.02
Age 25-34	FR	-0.02	0.01	0.01	0.00	SI	0.02	-0.01	0.00	0.00
Age 35-44	FR	-0.11	0.04	0.04	0.02	SI	-0.04	0.01	0.00	0.00
Age 45-54	FR	-0.13	0.05	0.05	0.02	SI	-0.01	0.00	0.00	0.00
Age 55-64	FR	-0.13	0.04	0.05	0.02	SI	-0.03	0.01	0.00	0.00
Age 65+	FR	0.00	0.00	0.00	0.00	SI	0.06	-0.02	-0.01	0.00

**Table 8** continued

	None	1-3	4-6	7-12	13+	None	1-3	4-6	7-12	13+
Age 25-34	GR	<b>0.04</b>	<b>-0.04</b>	<b>0.00</b>	<b>0.00</b>	SK	<b>-0.03</b>	<b>-0.01</b>	<b>0.00</b>	<b>0.00</b>
Age 35-44	GR	0.01	-0.01	0.00	0.00	SK	<b>-0.04</b>	<b>-0.02</b>	<b>0.00</b>	<b>0.00</b>
Age 45-54	GR	0.02	-0.02	0.00	0.00	SK	<b>-0.10</b>	<b>-0.04</b>	<b>-0.01</b>	<b>-0.01</b>
Age 55-64	GR	<b>0.04</b>	<b>-0.04</b>	<b>0.00</b>	<b>0.00</b>	SK	<b>-0.10</b>	<b>-0.03</b>	<b>-0.01</b>	<b>0.00</b>
Age 65+	GR	<b>0.07</b>	<b>-0.06</b>	<b>0.00</b>	<b>0.00</b>	SK	<b>-0.15</b>	<b>-0.05</b>	<b>-0.01</b>	<b>-0.01</b>
Age 25-34	HU	<b>0.09</b>	<b>-0.04</b>	<b>-0.02</b>	<b>-0.01</b>	UK	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>
Age 35-44	HU	<b>0.07</b>	<b>-0.03</b>	<b>-0.01</b>	<b>-0.01</b>	UK	<b>0.02</b>	<b>0.03</b>	<b>0.02</b>	<b>0.03</b>
Age 45-54	HU	<b>0.15</b>	<b>-0.07</b>	<b>-0.05</b>	<b>-0.01</b>	UK	<b>0.02</b>	<b>0.04</b>	<b>0.03</b>	<b>0.04</b>
Age 55-64	HU	<b>0.16</b>	<b>-0.07</b>	<b>-0.05</b>	<b>-0.01</b>	UK	<b>0.02</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>
Age 65+	HU	<b>0.26</b>	<b>-0.12</b>	<b>-0.08</b>	<b>-0.02</b>	UK	<b>-0.09</b>	<b>0.03</b>	<b>0.02</b>	<b>0.02</b>

Marginal effects significant at the 5 % level in bold

The marginal effects are calculated using the estimation results of the standard ordered probit model with standard errors clustered by households. The marginal effects measure the expected change in probability of being in each category due to a one-unit change in the explanatory variables

**Table 9** Marginal effects for education income and women

	None	1–3	4–6	7–12	13+		None	1–3	4–6	7–12	13+
<i>Marginal effects for Intermediate education (ISCED 3 + 4)</i>											
AT	-0.22	0.08	0.06	0.05	0.04	IE	-0.20	0.09	0.05	0.02	0.02
BE	-0.15	0.06	0.05	0.03	0.02	IT	-0.16	0.11	0.04	0.01	0.01
CY	-0.09	0.06	0.02	0.00	0.00	LT	-0.10	0.08	0.02	0.00	0.00
CZ	-0.18	0.11	0.05	0.01	0.01	LU	-0.15	0.05	0.05	0.03	0.02
DE	-0.13	0.04	0.06	0.02	0.01	LV	-0.13	0.10	0.03	0.01	0.00
DK	-0.10	0.02	0.04	0.02	0.02	NL	-0.17	0.04	0.06	0.04	0.03
EE	-0.12	0.08	0.02	0.01	0.00	PL	-0.11	0.08	0.02	0.01	0.00
ES	-0.19	0.06	0.06	0.03	0.04	PT	-0.21	0.13	0.05	0.02	0.01
FI	-0.10	0.00	0.03	0.03	0.04	SE	-0.12	0.02	0.04	0.03	0.02
FR	-0.15	0.06	0.05	0.02	0.01	SI	-0.16	0.09	0.04	0.02	0.01
GR	-0.06	0.05	0.01	0.00	0.00	SK	-0.13	0.08	0.03	0.01	0.01
HU	-0.15	0.06	0.05	0.03	0.01	UK	-0.22	0.04	0.07	0.05	0.06
<i>Marginal effects for tertiary education (ISCED 5 + 6)</i>											
AT	-0.44	0.05	0.10	0.11	0.18	IE	-0.38	0.15	0.11	0.06	0.06
BE	-0.39	0.12	0.12	0.08	0.06	IT	-0.38	0.19	0.11	0.05	0.04
CY	-0.33	0.19	0.08	0.02	0.03	LT	-0.37	0.23	0.08	0.03	0.02
CZ	-0.41	0.11	0.17	0.08	0.06	LU	-0.36	0.06	0.12	0.08	0.09
DE	-0.28	0.06	0.14	0.06	0.03	LV	-0.39	0.22	0.12	0.04	0.02
DK	-0.29	0.02	0.11	0.07	0.08	NL	-0.36	0.04	0.13	0.10	0.09
EE	-0.39	0.22	0.11	0.04	0.02	PL	-0.39	0.21	0.09	0.04	0.04
ES	-0.33	0.08	0.10	0.06	0.09	PT	-0.41	0.19	0.11	0.05	0.05
FI	-0.26	-0.02	0.07	0.08	0.13	SE	-0.31	0.00	0.11	0.10	0.10
FR	-0.37	0.08	0.14	0.09	0.06	SI	-0.39	0.12	0.12	0.06	0.08
GR	-0.20	0.16	0.03	0.01	0.01	SK	-0.31	0.13	0.10	0.04	0.03
HU	-0.40	0.07	0.13	0.12	0.08	UK	-0.34	0.03	0.10	0.08	0.13
<i>Marginal effects for household income (adjusted for the number of household members)</i>											
AT	-0.11	0.04	0.03	0.02	0.02	IE	-0.10	0.05	0.03	0.01	0.01
BE	-0.16	0.07	0.05	0.03	0.01	IT	-0.11	0.08	0.02	0.01	0.00
CY	-0.15	0.11	0.03	0.01	0.01	LT	-0.14	0.11	0.02	0.01	0.00
CZ	-0.19	0.10	0.06	0.02	0.01	LU	-0.18	0.06	0.06	0.03	0.03
DE	-0.12	0.04	0.05	0.02	0.01	LV	-0.17	0.12	0.04	0.01	0.00
DK	-0.07	0.02	0.02	0.01	0.01	NL	-0.13	0.04	0.05	0.03	0.02
EE	-0.14	0.10	0.03	0.01	0.00	PL	-0.14	0.10	0.02	0.01	0.01
ES	-0.10	0.04	0.03	0.02	0.02	PT	-0.14	0.10	0.03	0.01	0.01
FI	-0.11	0.01	0.03	0.03	0.04	SE	-0.03	0.00	0.01	0.01	0.01
FR	-0.18	0.07	0.06	0.03	0.01	SI	-0.17	0.10	0.04	0.02	0.01
GR	-0.06	0.05	0.01	0.00	0.00	SK	-0.15	0.09	0.04	0.01	0.01
HU	-0.16	0.06	0.05	0.03	0.01	UK	-0.11	0.03	0.04	0.02	0.03
<i>Marginal effects for women</i>											
AT	-0.09	0.03	0.02	0.02	0.02	IE	0.00	0.00	0.00	0.00	0.00
BE	-0.03	0.01	0.01	0.00	0.00	IT	-0.02	0.02	0.00	0.00	0.00

**Table 9** continued

	None	1–3	4–6	7–12	13+		None	1–3	4–6	7–12	13+
CY	<b>-0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	LT	<b>-0.06</b>	<b>0.05</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>
CZ	<b>-0.08</b>	<b>0.05</b>	<b>0.03</b>	<b>0.01</b>	<b>0.00</b>	LU	<b>-0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>
DE	<b>-0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	LV	<b>-0.07</b>	<b>0.05</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>
DK	<b>-0.04</b>	<b>0.01</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	NL	-0.02	0.01	0.01	0.00	0.00
EE	<b>-0.11</b>	<b>0.08</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	PL	<b>-0.04</b>	<b>0.03</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>
ES	<b>-0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	PT	-0.01	0.01	0.00	0.00	0.00
FI	<b>-0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	SE	0.00	0.00	0.00	0.00	0.00
FR	<b>-0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	SI	<b>-0.04</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>
GR	<b>-0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	SK	<b>-0.06</b>	<b>0.03</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>
HU	<b>-0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.01</b>	<b>0.00</b>	UK	0.00	0.00	0.00	0.00	0.00

Bold denote significance at the 5 % level

**Table 10** Results for the ordered probit model (pooled over countries)

	Marginal effects						
	Coef.	z	Zero	1–3	4–6	7–12	13+
Household income (adj. cat. p(20)–p(40) [ref p(20)])	0.13***	17.99	-0.05	0.03	0.01	0.01	0.00
Household income (adj. cat. p(40)–p(60))	0.26***	36.14	-0.10	0.05	0.03	0.01	0.01
Household income (adj. cat. p(60)–p(80))	0.39***	53.67	-0.15	0.07	0.04	0.02	0.01
Household income (adj. cat. >p(80))	0.66***	88.70	-0.26	0.11	0.08	0.04	0.03
Age between 25–34 (ref 16–24)	-0.10***	-10.21	0.04	-0.02	-0.01	0.00	0.00
Age between 35–44	-0.02***	-2.21	0.01	0.00	0.00	0.00	0.00
Age between 45–54	-0.06***	-5.55	0.02	-0.01	-0.01	0.00	0.00
Age between 55–64	-0.06***	-4.77	0.02	-0.01	-0.01	0.00	0.00
Age 65+	-0.23***	-17.34	0.09	-0.05	-0.02	-0.01	-0.01
Intermediate education (ref. basic)	0.41***	74.44	-0.16	0.08	0.04	0.02	0.01
Tertiary education	0.95***	142.71	-0.37	0.13	0.11	0.06	0.06
Country of birth: non-EU	-0.18***	-18.25	0.07	-0.04	-0.02	-0.01	0.00
Female	0.11***	24.88	-0.04	0.02	0.01	0.00	0.00
Single	-0.11***	-16.87	0.04	-0.02	-0.01	0.00	0.00
Part time (ref. full time)	0.05***	6.71	-0.02	0.01	0.01	0.00	0.00
Unemployed	-0.14***	-12.84	0.05	-0.03	-0.01	-0.01	0.00
School-age & university students	0.73***	69.37	-0.29	0.10	0.09	0.05	0.04
Retired persons	-0.04***	-4.09	0.01	-0.01	0.00	0.00	0.00



**Table 10** continued

	Marginal effects						
	Coef.	z	Zero	1–3	4–6	7–12	13+
Disabled	−0.33***	−22.92	0.12	−0.07	−0.03	−0.01	−0.01
Other status	−0.08***	−9.40	0.03	−0.02	−0.01	0.00	0.00
Household size 2 (ref: size 1)	−0.03***	−3.02	0.01	−0.01	0.00	0.00	0.00
Household size 3	−0.09***	−10.00	0.04	−0.02	−0.01	0.00	0.00
Household size 4	−0.02***	−2.17	0.01	0.00	0.00	0.00	0.00
Household size 5+	−0.08***	−7.40	0.03	−0.02	−0.01	0.00	0.00
AT (reference DE)	−0.11***	−8.29	0.04	−0.02	−0.01	0.00	0.00
BE	−0.27***	−20.06	0.10	−0.06	−0.02	−0.01	−0.01
CY	−0.79***	−48.58	0.25	−0.16	−0.06	−0.02	−0.01
CZ	−0.26***	−22.68	0.09	−0.05	−0.02	−0.01	−0.01
DK	0.09***	5.76	−0.04	0.02	0.01	0.00	0.00
EE	−0.57***	−46.25	0.19	−0.12	−0.05	−0.02	−0.01
ES	−0.03***	−3.03	0.01	−0.01	0.00	0.00	0.00
FI	0.33***	25.09	−0.13	0.06	0.04	0.02	0.01
FR	−0.13***	−11.94	0.05	−0.03	−0.01	−0.01	0.00
GR	−1.14***	−70.74	0.32	−0.22	−0.07	−0.02	−0.01
HU	−0.15***	−13.04	0.06	−0.03	−0.01	−0.01	0.00
IE	−0.31***	−18.93	0.11	−0.07	−0.03	−0.01	−0.01
IT	−0.56***	−61.45	0.20	−0.12	−0.05	−0.02	−0.01
LT	−0.67***	−48.19	0.22	−0.14	−0.05	−0.02	−0.01
LU	0.02***	1.68	−0.01	0.00	0.00	0.00	0.00
LV	−0.46***	−33.50	0.16	−0.10	−0.04	−0.01	−0.01
NL	0.01***	0.54	0.00	0.00	0.00	0.00	0.00
PL	−0.61***	−64.44	0.21	−0.13	−0.05	−0.02	−0.01
PT	−0.37***	−23.82	0.13	−0.08	−0.03	−0.01	−0.01
SE	0.13***	8.86	−0.05	0.03	0.01	0.01	0.00
SI	−0.28***	−19.67	0.10	−0.06	−0.03	−0.01	−0.01
SK	−0.31***	−26.00	0.11	−0.07	−0.03	−0.01	−0.01
UK	0.12***	10.41	−0.05	0.02	0.01	0.01	0.00
Threshold parameter 1	0.57						
Threshold parameter 2	1.53						
Threshold parameter 3	2.11						
Threshold parameter 4	2.56						

Standard errors are based heteroscedasticity adjusted standard errors by households

The number of observations is 351,470 and the Pseudo  $R^2$  is 0.11

\*\*\*, \*\* and \* denote statistical significance at the 1, 5, and 10 levels, respectively

**Table 11** Results for the Zero-inflated ordered probit with correlated errors (pooled over countries)

	Outcome eq: ordered probit		Probit (inflation) equation	
	Coef.	z	Coef.	z
Household inc. (adj.) cat. p(20)–p(40) [ref p(20)]	0.10***	8.86	0.17***	7.17
Household income (adj.) cat. p(40)–p(60)	0.23***	19.42	0.25***	10.95
Household income (adj.) cat. p(60)–p(80)	0.31***	26.45	0.38***	16.40
Household income (adj.) cat. >p(80)	0.53***	41.82	0.61***	24.95
Age between 25 and 34 (ref 16–24)	0.06***	5.08		
Age between 35 and 44	0.29***	20.42		
Age between 45 and 54	0.40***	24.56		
Age between 55 and 64	0.57***	30.09		
Age 65+	0.69***	28.63		
log age			–2.04***	–41.67
Intermediate education (ref. basic)	0.18***	17.49	0.54***	32.62
Tertiary education	0.67***	50.29	0.99***	42.85
Country of birth (non-EU)	–0.10***	–6.01	–0.32***	–10.17
Female	0.11***	15.35	0.11***	7.97
Single	–0.01	–1.16	–0.27***	–13.72
Part time (ref. full time)	0.11***	8.80	–0.13***	–4.26
Unemployed	–0.05***	–2.84	–0.35***	–9.23
School-age & university students	0.70***	62.40		
Retired persons	–0.02	–1.24	0.01	0.58
Disabled	–0.20***	–6.29	–0.29***	–6.46
Other status	–0.04**	–2.50	–0.12***	–4.03
Household size 2 (ref: size 1)	–0.08***	–5.39	–0.01	–0.55
Household size 3	–0.14***	–9.47	–0.05*	–1.72
Household size 4	–0.06***	–4.02	–0.06**	–2.13
Household size 5+	–0.12***	–7.27	–0.11***	–3.45
AT (reference DE)	0.25***	10.08	–1.37***	–22.41
BE	–0.15***	–7.77	–0.63***	–9.31
CY	–0.53***	–20.48	–1.23***	–16.07
CZ	0.14***	7.24	–1.37***	–23.98
DK	0.08***	3.86	0.10	1.01
EE	–0.11***	–4.93	–1.67***	–27.72
ES	0.19***	11.86	–0.92***	–16.65
FI	0.45***	23.92	–0.59***	–9.56
FR	0.01	0.50	–0.62***	–10.80
GR	–0.87***	–30.78	–1.36***	–17.35
HU	0.47***	19.78	–1.67***	–29.38
IE	–0.07**	–2.43	–1.04***	–15.71
IT	–0.14***	–7.90	–1.50***	–27.08
LT	–0.21***	–8.05	–1.67***	–26.30
LU	0.17***	7.90	–0.69***	–9.96

**Table 11** continued

	Outcome eq: ordered probit		Probit (inflation) equation	
	Coef.	z	Coef.	z
LV	0.04*	1.67	-1.62***	-26.99
NL	0.08***	3.85	-0.42***	-5.97
PL	-0.14***	-7.25	-1.71***	-30.40
PT	-0.06**	-2.26	-1.26***	-19.00
SE	0.24***	11.23	-0.46***	-6.02
SI	-0.07***	-3.15	-0.96***	-14.94
SK	0.14***	6.61	-1.54***	-26.11
UK	0.22***	13.69	-0.51***	-8.89
Constant	-0.65***	-25.80	9.27***	42.14
Threshold	1.07***	230.79		
Correlation coefficient	-0.36***	-20.08		
Number (#) of observations	351,470			

The inflation part represents the effect of a covariate on the probability of a one in the inflation stage, i.e., the probability of being able to observe a visit in the ordered probit equation

\*\*\*, \*\* and \* denote statistical significance at the 1, 5, and 10 % levels, respectively

## References

- Amemiya, T. (1981). Qualitative response models: A survey. *Journal of Economic Literature*, 19, 1483–1536.
- Ateca-Amestoy, V., & Prieto-Rodriguez, J. (2013). Forecasting accuracy of behavioural models for participation in the arts. *European Journal of Operational Research*, 229(1), 124–131.
- Bennett, T., Bustamante, M., & Frow, J. (2013). The Australian space of lifestyles in comparative perspective. *Journal of Sociology*, 49(2–3), 224–255.
- Bina, V., Chantepie, P., Deroin, V., Frank, G., Kommel, K., Kotynek, J., & Robin, P. (2012). *ESSnet-culture final report*. European Commission: Luxembourg.
- Boorsma, P. B., van Hemel, A., & van der Wielen, N. (1998). *Privatization and culture. Experiences in the arts, heritage and cultural industries in Europe*. Dordrecht: Kluwer.
- Borgonovi, F. (2004). Performing arts attendance: An economic approach. *Applied Economics*, 36(17), 1871–1885.
- Bourdieu, P. (1984). *Distinction: A social critique of the judgment of taste*. London: Routledge.
- Bourdieu, P. (1987). What makes a social class? On the theoretical and practical existence of groups. *Berkeley Journal of Sociology*, 32, 1–18.
- Christin, A. (2012). Gender and highbrow cultural participation in the United States. *Poetics*, 40(5), 423–443.
- Coulangeon, P. (2005). *Educational attainment and participation in 'highbrow culture'. A comparative approach in the european union*. Paris: Observatoire Sociologique du Changement, OSC, Sciences Po.
- Coulangeon, P. (2013). Changing policies, challenging theories and persisting inequalities: Social disparities in cultural participation in France from 1981 to 2008. *Poetics*, 41(2), 177–209.
- Davies, S. (2005). Still popular: Museums and their visitors 1994–2004. *Cultural Trends*, 14(1), 67–105.
- DiMaggio, P. (1996). Are art-museum visitors different from other people? The relationship between attendance and social and political attitudes in the United States. *Poetics*, 24(2), 161–180.
- Eurostat (2008). *Detailed guidelines of EU-SILC* (EU-SILC 065 Description of target variables: Cross-sectional and longitudinal). Luxembourg.

- Eurostat. (2010). EU-SILC 2006 module on social participation. Assessment of the implementation. Luxembourg.
- Everett, M., & Barrett, M. S. (2009). Investigating sustained visitor/museum relationships: Employing narrative research in the field of museum visitor studies. *Visitor Studies*, 12(1), 2–15.
- Feder, T., Katz-Gerro T. (2015). The cultural hierarchy in funding: Government funding of the performing arts based on ethnic and geographic distinctions. *Poetics*. forthcoming.
- Feder, T., & Katz-Gerro, T. (2012). Who benefits from public funding of the performing arts? Comparing the art provision and the hegemony—distinction approaches. *Poetics*, 40(4), 359–381.
- Frey, B. S., & Meier, S. (2006). The Economics of Museums. In V. A. Ginsburgh & D. Throsby (Eds.), *Handbook of the economics of art and culture* (pp. 1017–1047). Amsterdam: North Holland.
- Fullerton, D. (1991). On Justifications of public support of the arts. *Journal of Cultural Economics*, 15, 67–82.
- Gerhards, J. (2008). Die Kulturell Dominierende Klasse in Europa. Eine Vergleichende Analyse der 27 Mitgliedsländer der Europäischen Union im Anschluss an Pierre Bourdieu. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 60, 723–748.
- Greene, W. H., & Hensher, D. A. (2010). *Modeling ordered choices: A primer and recent developments*. Cambridge: Cambridge University Press.
- Harris, M. N., & Zhao, X. (2007). A zero-inflated ordered probit model, with an application to modelling tobacco consumption. *Journal of Econometrics*, 141, 1073–1099.
- Hillman-Chartrand, H., McCaughey, C. (1989). The arm's length principle and the arts: An international perspective—past, present and future. In: M. Cummings, J.M.D Schuster (Eds.) *Who's to Pay for the Arts? The International Search for Models of Support*. American Council for the Arts Books.
- Hooper-Greenhill, E. (1994). *Museums and their Visitors*. London and New York: Routledge.
- Katz-Gerro, T. (2002). Highbrow cultural consumption and class distinction in Italy, Israel, West Germany, Sweden, and the United States. *Social Forces*, 81(1), 207–229.
- Katz-Gerro, T. (2004). Cultural consumption research: review of methodology, theory, and consequence. *International Review of Sociology*, 14(1), 11–29.
- Katz-Gerro, T. (2011). Cross-national cultural consumption research: Inspirations and disillusion. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 51, 339–360. (in English).
- Katz-Gerro, T., & Lopez-Sintas, J. (2013). The breadth of europeans' musical tastes: Disentangling individual and country effects. *Advances in Sociology Research*, 14, 97–122.
- Kawashima, N. (1995). Comparing cultural policy: Towards the development of comparative study. *International Journal of Cultural Policy*, 1(2), 289–307.
- Kirchberg, V., & Kuchar, R. (2014). States of comparability: A meta-study of representative population surveys and studies on cultural consumption. *Poetics*. doi:10.1016/j.poetic.2014.01.005.
- Lampi, E., & Orth, M. (2009). Who visits the Museums? A comparison between stated preferences and observed effects of entrance fees. *Kyklos*, 62(1), 85–102.
- Lynch, R., Burton, C., Scott, C., Wilson, P., & Smith, P. (Eds.). (2000). *Leisure and change: Implications for museums in the 21st century*. Sydney: University of Technology and Powerhouse Museum.
- Masters, T., Russell, R., & Brooks, R. (2011). The demand for creative arts in regional Victoria, Australia. *Applied Economics*, 43(5), 619–629.
- Nichols, A., Schaffer, M. (2007). Clustered errors in stata. <http://repec.org/usug2007/crse.pdf>. Accessed March 2014.
- Pick, J., Ajala, R., & Anderton, M. H. (1988). *The arts in a state: A study of government arts policies from ancient Greece to the present*. Bristol: Bristol Classical Press.
- Schuster, M. J. (1991). *The audience for American art museums*. Washington: Seven Locks.
- Schuster, M. J. (2007). Participation studies and cross-national comparison: Proliferation, prudence, and possibility in the arts and culture. *Cultural Trends*, 16, 99–196.
- Van der Ploeg, R (2005). *The making of cultural policy: A european perspective*. CESifo working paper series No. 1524.
- Van Hek, M., & Kraaykamp, G. (2013). Cultural consumption across countries: A multi-level analysis of social inequality in highbrow culture in europe. *Poetics*, 41(4), 323–341.
- Virtanen, T. (2007). *Across and beyond the bounds of taste: On cultural consumption patterns in the european union*. Turku: Turku School of Economics.
- Vogel, H. (2004). *Entertainment industry economics*. Cambridge: Cambridge University Press.