

Digital cultural audiences. Should cultural managers worry about the digital divide?

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Abstract: Cultural engagement through the Internet is becoming a more popular way of cultural participation, as computers and mobile devices are the outlet for more cultural experiences. On the one hand, this may help to access a wider variety of cultural contents in the form of digital goods. On the other hand, the digital divide could further exacerbate the stratification of cultural consumption. Using data from the 2012 Survey of Public Participation in the Arts for the United States, we estimate models that explain digital engagement for highbrow and lowbrow cultural activities, explicitly accounting for the selection in the sample of internet users. Our results suggest the distinction of determinants of these two categories, especially for the role played by age and education. This is extremely important for cultural manager because, since cultural goods are demonstrated to be addictive both from the demand and supply side, they can enlarge both side of the market.

Keywords: cultural participation, digital engagement, ICT

JEL codes: C55, D12, Z11.

1. Introduction

The role of Information and Communication Technologies (ICTs) has received increased attention from economists over the past thirty years, with extensive literature aimed at understanding their impact on economic growth, firm productivity and firm efficiency (Castiglione and Infante, 2014). The debate has now shifted nowadays to measuring the impact of ICTs on different aspects of daily life. In fact, ICTs are classified as General Purpose Technologies (GPTs), i.e., fundamental technological innovations that are characterized by pervasiveness, technological dynamism and innovative complementarities (Brynjolfsson and McAfee, 2011). Digitization has transformed the access to activities and content, and recent years have witnessed a greater interest has emerged in analysing who is lagging behind in the digital changeover and why. After an increasingly rapid penetration of digital devices and internet connections, the opportunities for accessing content and engaging in different activities have dramatically changed in everyday life (PEW, 2014). There is evidence of a digital divide in many dimensions (regarding uses, such as education and financial services; as well as regarding group characteristics, such as digital “natives” and differences by income and educational level).

Changes in technology have also had an impact on the way in which culture is produced and consumed. According to Carey (1988), changes in culture are intricately connected to changes in technology. ICTs have dramatically changed the market for the arts, typically leading to expanded audiences with access to more diverse cultural fare (Tepper et al., 2008). Since cultural participation through mobile equipment (smartphones and handheld devices) has increased across the entire population, the digital divide may also be of interest to cultural managers. The digital consumption of music is a clear example (Peitz and Waelbroeck, 2005), but while only a few studies aim to explore the consumption of cultural goods through ICT technologies (Ateca-Amestoy and Castiglione, 2014; Katsuura, 2008), the impact of the

digital divide and its implications on cultural participation has been surprisingly neglected in favour of other cultural engagement. This paper aims to fill this lacuna, and considers how cultural managers should consider the behaviour of consumers when digitally accessing cultural goods. This is of interest when creating digital goods for end users and also when considering that digital cultural goods are often precedent complements to attendance. Social distinction and other social phenomena that appeared in the social practice of cultural activities might well replicate, mitigate or become amplified in the new digital realm.

Our analysis uses data taken from the 2012 edition of the *Survey of Public Participation in the Arts* (SPPA2012), a survey periodically run as a supplement to the *Current Population Survey* (CPS) by the United States' Bureau of the Census, which is representative of the adult population. As early as 1993, the National Endowment for the Arts adopted a tripartite definition of cultural participation: through attendance at live arts events; through the media, by watching or listening to arts programs, and through personal involvement, be it by creating or displaying art or by performing either as an amateur or as a professional. Many papers have used the SPPA survey to explore the drivers of live attendance only. Here, we concentrate on access to digital content via the internet, and we focus on a special module that contains information on the digital practices of individuals, and which considers access via the internet to alternative cultural manifestations. We study both, performing arts and visual arts. For the performing arts, we consider music (distinguishing between highbrow - jazz, classical music and opera - and lowbrow - Latin, Spanish, salsa, rock, pop, country, folk and hip-hop), theatre, dance and ballet, visual arts, and books and literature.

In our sample, some individuals report having accessed the arts via the internet, while others have not. Among this latter group, we have both internet users and non-users. Thus, we model the probability of consuming each one of those six types of cultural content, accounting for the selection of the sample of internet users. This implies that we are able to

explore the determinants of cultural engagement by means of the internet, controlling for the fact that individuals must first of all be internet users, and that it is well acknowledged that internet access still depends on age, education and income.

2. On access to cultural goods

Individuals face many choices in their leisure time, and once cultural activities have been chosen they have to decide how to access and experience them. Economics has explained engagement in terms of phenomena such as rational addiction or learning by consuming. Sociological research has explained cultural consumption in terms of cultural capital, by which high status was linked to highbrow cultural consumption (Bourdieu, 1984), an explanation overcome by the omnivorous hypothesis, whereby low status is linked to the univorous consumption of culture, whereas high status is omnivorous (Peterson and Kern, 1996), or even voracious (Katz-Gerro, 2010). Recent research on consumption patterns documents certain major shifts over the past decade, blurring the link between status and cultural engagement, with the major differences emerging from breadth and intensity (López-Sintas et al., 2014; Van Eijck and Majorana, 2013).

There is evidence of a digital divide in the access to cultural content. Norris and Inglehart (2013) identify education, income and age as relevant variables. Other authors have highlighted the existence of a gender gap on the internet (Bimber, 2000; Ono and Zavodny, 2003). Apart from the fact that there are distinct behavioural differences between digital “natives” and the rest of the population, there might be age barriers potentially linked to the decline in cognitive ability in old age (Freese et al., 2006). Last, some authors have found evidence of the emergence of a “digital distinction” (Zillien and Hargittai, 2009), so that uses of the internet are highly dependent on factors such as gender, age, education and income (Van Deursen and Van Dijk, 2014; Van Deursen et al., 2015). In any case, technology has

dramatically changed the market for the arts, especially in terms of the expansion and diffusion of culture, given that more materials are available to more people (Tepper et al., 2008), providing cultural managers with opportunities to build more extensive and intensive relations with their patrons.

ICT has also blurred the relationship between the production and consumption of cultural digital goods, with researchers coining and using terms such as prosumption or producers (Bruns, 2013; Nakajima, 2012). We cannot determine how active individuals actually are in their internet access to content and to information on cultural goods, but it is true that digital engagement is not necessarily less active than attendance, as with the creation of online content (Brake, 2014). ICTs work from both the demand and the supply side. In the first case, Swerdlow (2008) asserts that cultural goods in this digital era are consumed in a more active way. In fact, consumers are increasingly able to curate their own cultural experiences. They can explore new types of culture, and choose when and how they want to experience arts and entertainment.

We do not know much about the determinants of cultural participation through digital equipment, apart for the aforementioned example of music and of cinema. According to Nguyen et al. (2014), the digital to consumption of music has no impact on its physical consumption, while Ateca-Amestoy and Castiglione (2014) report that the consumption of visual arts content on mobile devices has a negative exposure effect over the probability of visiting museums, and that museum-going has a positive effect over both mobile and internet consumption.

According to PEW (2015), new technologies have brought about three major digital revolutions: broadband, mobile and social. In the first case, the main revolution is linked to the way people access information and share it with each other. The adoption of broadband in

the US was about 66% in 2012 (as compared with 3% for dial-up access). This implied that there were people in the US that accessed through fast connections, were able to receive and find information quickly and share it with their social group. In the second case, continuous connectivity through mobile phones, smartphones and tablets has made access to information possible at any time. Finally, people have created their own social network within this technological space, where they can share information. All three of these aspects are extremely important in the consumption of cultural goods, as they open interesting avenues for rendering participation more active and social.

Surprisingly, the report on the last data derived from the *Computer and Internet Use Supplement* to the July 2011 CPS run by the Bureau of the Census does not explicitly consider cultural digital engagement, but comments on entertainment (48% of internet users aged 25+), with personal communications being the most popular activity (77%), followed by browsing general information (66%), financial services (53%), consumer services and shopping (52%), on-the-go services (33%), job seeking and training (29%), working from home (29%), healthcare (27%), and education or schoolwork (23%). Nevertheless, the fact that around half of the population of internet users use it for entertainment makes the exploration of cultural digital engagement a relevant issue.

3. Data and hypotheses

The data used in this analysis have been taken from the 2012 *Survey of Public Participation in the Arts* (NEA, 2013). The data were collected from a sample of people aged over 18 in May 2012. This dataset compiles information on participation in the arts by US citizens attending the so-called “benchmark activities”, also covering other types of cultural practice, such as the consumption of cultural goods through the media and some types of active artistic practices. A total of 37,266 questionnaires were completed by individuals aged over 18 for a

representative sample of households in the USA. The structure of the survey is such that there are core and non-core modules, so not every respondent is asked all the questions in the survey. This limits the analysis that can be made (some variables cannot be jointly introduced in the analysis).

[TABLE 1 ABOUT HERE]

Table 1 presents the variables used in our models. We estimate six probit models for the set of cultural activities consumed via the internet: music (highbrow and lowbrow), theatre, dance and ballet, visual arts, and books and literature. We consider six different dependent variables, all of which are binary variables that take value 1 if the individual responds affirmatively and 0 otherwise. We should remember that these are filtered questions, as we only have observations for those individuals that declared using the internet. In our sample, 69.3% reported using the internet (6,339 people), of whom 6.32% used it to access the visual arts (*intvisualarts* variable, accounting for 1.10% of the whole sample). Due to the structure of the 2012 SPPA, when we combine the information from different modules, we end up with a sample of 9,312 observations for the estimation.

[TABLE 2 ABOUT HERE]

Age can influence cultural participation through the combination of two opposing effects: a life-cycle effect (such as entering the labour market, childbearing, and care or ill health, and lower mobility related to advanced age), and learning-by-consuming effect (the more performances one attends, the more enjoyable they become). The life-cycle effect usually suggests an inverted u-shaped relationship that initially decreases, then increases, and finally decreases again. For our analysis of digital engagement, we should take into account that young people are more likely to be digital “natives”, thus holding an advantage over older people in the use of ICTs.

There is no intrinsic reason to expect different participation rates between men and women, although different experiences during childhood may play a role, e.g. boys tend to participate more in sports and less in arts and music than girls (Ateca-Amestoy and Castiglione, 2014; Katsuura, 2008). For ethnic differences, we consider the possibility that ethnicity may inform different patterns (Seaman, 2005).

The importance of cultural capital and, consequently, of education is related to the fact that the enjoyment of cultural goods relies on the sensibility of the perceiver. The importance of this is that the enjoyment of cultural goods may require interpretation skills and shared cultural capital. We expect there to be education effects that operate through the selection model (the probability of being an internet user), and that the effect is exacerbated in the estimation of the probability of each cultural digital engagement.

The effect of occupational status on cultural participation is at least partially the result of the higher income and educational attainment that the individuals engaged in these jobs enjoy. However, individuals may use participation in the performing arts as a mark of social distinction, as a cue to signify and reinforce membership of the uppermiddle classes. When participation comes to signify belonging to a given social class, people who want to reaffirm their standing conform to the norm and participate.

We consider individual health status, measured by two binary variables that determine whether an individual has any form of sensory or motor disability. The inclusion of these variables allows us to isolate the effect of diminishing health capital with age, from pure age of life-cycles effects (Seaman, 2005). The effect of health status has often been often neglected in the study of the determinants of cultural participation (exceptions are Ateca-Amestoy and Castiglione, 2014; Bille, 2010; NEA, 2015), so it is not easy to predict the impact that different kinds of disabilities may have on digital participation.

A number of factors could determine the positive association between income and participation, such as being able to afford leisure activities, or the greater opportunity cost of time. Income is also related to the digital divide, as there is evidence that higher income is associated with higher digital use.

Partnership and the number of children in the household are also considered in this analysis to account for the time available for individuals and for the opportunity cost of the time dedicated to leisure. While time constraints determine substitution effects between leisure activities in physical consumption, it is difficult to predict the impact that those variables have on the consumption of cultural goods through digital equipment.

Finally, we consider whether the individual lives in a city, a town or in a metropolitan or non-metropolitan area. While these factors are important for attendance, with a clear pattern of urban consumption, little is known about their influence on digital consumption.

4. Methods and results

We begin our analysis with the modelling of the intensity of general internet access, without considering the actual activity itself by estimating an ordered probit, given that we have an ordered variable that takes values from 0 to 7. The values correspond to the following: no-access, less than every few weeks, every few weeks, once or twice a week, three to five times a week, about once a day, several times a day (the reported order of the scale in the questionnaire is reversed, with higher values implying a higher frequency of access).

For the analysis of the models that explain online activity, we explicitly consider the selection of the sample of internet users; otherwise, the results of the estimated probit model on the sample of internet users may be biased. Therefore, we consider a probit model with selection (in the Heckman selection probit model, there is a part of the model that explains

the probability of being an internet user, and another part that explains the probability of engaging in that particular art form).

[TABLE 3 ABOUT HERE].

The model that explains the intensity of internet access (Table 3, first column) reflects some of the well documented effects of age (with groups aged over 25 determining a lower probability of more frequent access in a monotone and increasing way). Being black also determines a lower frequency, although no statistically significant effect is found for other non-white ethnic groups. A college level education or higher increases the probability of more intense access, as well as being employed part time rather than full time. A negative effect is found for the unemployed and people outside the labour force. Household income has a nonmonotone effect; we consider income by quartiles and, compared to being in the second one, being in the first or in the fourth one decreases the intensity of internet usage. For people with disabilities, there is a positive effect both for sensory and motor disabilities, indicating a higher probability of more frequent access. With respect to being married, being a widow decreases the probability, while being single increases it. Last, having children only has an effect (positive) for individuals with three small children or more. In this estimation of frequency, it is very likely that there are factors that influence access (the difference from no usage at all to some usage - even if very moderate), and other factors that determine the activity itself. For instance, checking, receiving and sending mail is typically done on a daily basis (several times a day, in fact), whereas booking flights is a more sporadic activity.

The previous results inform the choice of explanatory variables for the selection part of the probit models that explain the probability that an individual digitally engages for each one of the six cultural activities considered here.

The results for the probit models that explain the probability that an individual digitally engages with each activity are presented in columns 2 to 7. We record the following results

once we have controlled for the selection made when considering the subsample of users, instead of the whole sample. The estimates for the internet usage part of the model are reported in column 8. For internet access, a part of the model that is common to all the estimated models, we find a monotone and negative effect for all age categories over 24. There is a small but positive effect of being female, and a much larger effect of holding a university degree or higher. Income has a positive monotone effect. Both types of disabilities have a negative effect over the probability of accessing the internet, with a higher coefficient for motor disabilities than for sensory ones.

When considering the various types of cultural information goods, there are clear differences that emerge.

The effects of some variables over the probability of accessing jazz, classical music and opera (column 2) go in the opposite direction to the probability of consuming Latin, Spanish, salsa, pop, rock and other styles (column 3). For age, the only relevant effect is found in the highbrow type, which is positive for those aged 35-44 (a rather younger interval than the patrons of concerts of classical music). For the lowbrow type, there is a negative and monotone effect. Being a female increases the probability of consuming classical music, with no statistical significance for the alternative. Race has a negative effect over lowbrow (with no evidence for classical music). Education has only a positive effect for highbrow. There are more similarities for labour status (a positive effect for being employed part-time for both types, negative for unemployed in the highbrow type, and negative for those outside the labour force in the lowbrow), as well as for household income (with respect to the second quartile, positive and monotone effects for the third and fourth). With respect to being married, both single and separated or divorced increase the probability of either approach to the digital consumption of music. While the habitat has a statistically significant and negative effect in the highbrow model, nothing is found for lowbrow music. It could be the case that

the digital consumption of highbrow music is much more closely linked to having been exposed to live highbrow music (more frequent in big metropolises than in any of the other types of habitat considered), whereas the digital consumption of lowbrow music might be less related to the live supply, and more to music heard on the media or in the form of recordings, such as tapes, CDs and DVDs.

For the digital consumption of theatre productions (column 4), we do not find statistically significant effects by age, nor do we find any gender effect (though there is the regularity that being a woman increases the probability of being a theatre patron, holding all other factors equal). Unlike the probability of consuming highbrow and lowbrow music, the probability of consuming theatre content is not influenced by income, neither by education. However, the time availability derived from having a part time job with respect to having a full time one also determines the higher probability of this type of consumption. The same is found for being single (a positive effect).

A different pattern arises for dance and ballet (column 5), where there are statistically significant age effects (for some categories, this is negative). There is probably a higher interest among women, as this increases the probability of digital access for dance, as well as for levels of education of college or above. The effect of part time employment is also positive, as well as having three or more children. Interestingly, the effect of the type of habitat seems to indicate that this type of cultural activity may be subject to some positive effect of exposition to live performances that are more likely to take place in big urban agglomerations.

Internet consumption of visual arts can be a substitute or a complement for museum attendance. For this case (column 6), we do not find statistically significant age effects, see some racial differences and no gender effect. The level of education has a positive effect on the probability of this type of engagement, as part time job and being divorced. The effect of

urban size makes that, with respect to urban areas, living in a different place decreases the probability of engagement.

Last, we consider the digital consumption of literature contents or information on column 7. The results do not exhibit any age effect, though being a female increase the probability. College education has also a positive effect, as well as income (for the two upper categories).

5. Conclusion

We have estimated digital consumption models for six different cultural activities using data from the 2012 *Survey of Public Participation in the Arts* in the United States. We estimate an ordered probit model to better understand the drivers of different degrees of intensity of internet general use. Those results are used to select the variables for the estimation of six probit models with Heckman selection (this is selected on the fact that we only observe digital cultural consumption for the self-selected sample of internet users). We now summarize the results of those six estimations and put them in perspective.

We can conclude that there appear to be some cultural activities that, after considering the factors that determine being an internet user, are subject to age effects. One would expect that being at higher age categories decreases the probability of digital consumption. That is the case for lowbrow music and, partially, for dance and ballet. However, for highbrow music tastes, we have found that there is a positive effect for the group aged 35-44, opening chances for cultural managers to try to attract those ones to their digital and built auditoriums.

We found concluding evidence for gender effects for dance and ballet (positive for women), for books and literary content (positive for women), and for highbrow music (negative for women).

Education determines the personal cultural capital, household income determines monetary resources and status, and job status and household composition determine time availability.

The role of university education is statistically significant, and positive as expected, for highbrow music, dance, visual arts and books. When statistically significant (highbrow and lowbrow music and books), income has a positive and monotone effect, indicating possible distinctive use of internet. For most of the practices, we find that part time employed people are more likely to get digitally engaged (the only exception is books). Being single (for any type of music and theatre) and being divorced (music and visual arts) increases the probability of digital practice. This could be related to the possibility of digital engagement to offer a less social alternative for people living alone. The effect of having small children does not follow a clear pattern.

Last, one may expect that digital consumption would be related to the type of habitat only if there are exposition effects from attendance to internet consumption (i.e. people that live in places where there is a wider cultural supply are more likely to be aware and to consume content also online). When statistically significant (highbrow music, dance, visual arts, and books and literature), this is the case.

As discussed earlier in the paper, Information and Communication Technologies have increased the consumption of cultural goods. Since culture is usually not an either-or option, this is extremely important for cultural managers seeking to promote the consumption of different kinds of cultural goods. According to Schwartz (2008), we all have limited time and financial resources, but cultural goods are not limited to the same degree as other goods. This is due to the nature of cultural goods that have proven to be addictive (Castiglione and Infante, 2015; Sisto and Zanola, 2010). Such addictive behaviour is forthcoming from the demand side and, according to Schwartz (2008), it also comes from the supply side: “doing culture may stimulate demand for more culture”. This is even more important when we consider that the consumption of cultural goods can create multiple benefits for society, providing multiple perspectives, life experiences and views of the world (Schwartz, 2008). It

is important to highlight that, compared with physical participation, involvement through ICTs can be more active. It generates more discussions between groups of peers and offers the chance to share the experience. Thus, ICTs create opportunities to expand cultural participation, carefully taking into account that access to the internet or, more generally, to digital equipment is extremely important. The digital divide may therefore reduce their potential for cultural engagement.

6. Implications for management

Managers of cultural institutions have to provide the means for patrons to access the intangible elements of their cultural assets in such a way that they can enjoy pleasant and meaningful experiences. More often, cultural managers and curators do not only have to deal with physical objects and with live performances, but mainly with their symbolic values and with the “versioning” of the immaterial substrate of those cultural goods (Navarrete, 2013a and 2013b). Once consumers have digital access to cultural content, they become the consumers of an information good, i.e., an asset that can be distributed in digital form and, thus, have a peculiar cost structure. This is further exaggerated when the information is delivered over a network. Digitization has promoted the coexistence of superstars’ markets for “winner take it all” combined with niches in the “long tail”. Internet engagement faces fewer capacity constraints, as compared to the ones faced by superstars cultural institutions, when congestion may deteriorate the quality of the in-site experience.

The consumption of cultural content via the internet access is perceived by consumers as an opportunity to extend the physical experience beforehand, enhancing the visit itself and also after it has finished (Kuflik et al., 2015). It is a well documented fact that agglomeration economies favour the existence of cultural institutions, whereby live attendance at the arts becomes a relatively urban phenomenon. Therefore, the possibility for digital engagement

would benefit those people with difficult access to those areas. Unlike visits to auditoriums, museums or theatres, the virtual and electronic media access makes it technologically possible to grant access, with no physical capacity constraints, at any time and from anywhere in the world. This digital experience is characterized by the convergence, interactivity and connectivity of cultural experiences. This raises the possibility that arts and cultural organizations can overcome the traditional constraints imposed by seasonal occupation and physical location, thereby expanding their audience's reach (Bakhshi and Throsby, 2010; NEA, 2010).

Cultural goods are often conceptualized as “experience goods”: those whose utility consumers cannot assess until after they have purchased and consumed them. This creates major information asymmetries that have traditionally been overcome by art critics and cultural preceptors. Digital content is an opportunity for cultural managers to communicate directly with consumers and benefit from branding as a way to extend the institution's values to the on-line experience. Consumers will enjoy the opportunity to sample content and launch their digital cultural experience by being prompted to engage further by becoming donors or patrons of the institution. Free digital content can be understood as sampling; a strategy that can be used to achieve some of these goals: build awareness, obtain follow-on sales and visits, create a network, attract more eyeballs, and gain competitive advantage (Shapiro & Varian, 1998).

Apparently, managers cannot expect to receive patrons at their digital venues who are overly different to the ones that pass through the physical doors. In our research, we have learnt that education is a main driver for digital engagement. However, we have seen that there are some notable exceptions, such as the fact that there are major opportunities for engaging younger audiences in cultural participation via the internet. It is now the turn of the creators of digital cultural content and cultural managers to attract them and, hopefully, to encourage them to

attend cultural events, as a highly important social dimension that is closely linked to civic engagement.

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TABLE 1

VARIABLE	QUESTION IN THE 2012 SPPA	MEAN	S D	MIN	MAX
<i>inthighmusic</i>	Use the Internet to watch, listen to or download any Jazz	0.280	0.449	0	1
	Use the Internet to watch, listen to or download any Classical music				
<i>intlowmusic</i>	Use the Internet to watch, listen to or download any Opera	0.022	0.147	0	1
	Use the Internet to watch, listen to or download any Latin, Spanish, or salsa music				
<i>inttheatre</i>	Use the Internet to watch, listen to or download any Other music, such as rock, pop, country, folk, rap or hip-hop	0.006	0.074	0	1
<i>intdance</i>	Use the Internet to watch, listen to or download any Theater productions, such as a musical or stage play	0.007	0.086	0	1
<i>intvisualarts</i>	Use the Internet to watch, listen to or download any Programs or information about the visual arts, such as painting, sculpture, graphic design, or photography	0.011	0.103	0	1
<i>intbook</i>	Use the Internet to watch, listen to or download any Programs or information about books or writers	0.021	0.143	0	1
	Use the Internet to watch, listen to or download any Books, short stories, or poetry read aloud				

TABLE 2

VARIABLE	DEFINITION		MEAN	S D	MIN	MAX
<i>De – Vector of demographic variables</i>						
Age		B				
	age1 (18-24)		0.084	0.278	0	1
	age2 (25-34)		0.165	0.371	0	1
	age3 (35-44)		0.170	0.375	0	1
	age4 (45-54)		0.188	0.391	0	1
	age5 (55-64)		0.182	0.385	0	1
Sex	Female, Male	B				
	female		0.529	0.499	0	1
Race	Ethnic: White, Black, Indian	C				
	white		0.839	0.368	0	1
	black		0.088	0.283	0	1
	otherrace		0.073	0.261	0	1
<i>S - Vector of cultural variables</i>						
edu	Highest level of education	B				
	edu: college or above		0.403	0.491	0	1
<i>E – Vector of employment status</i>						
	employ (employed)		0.609	0.488	0	1
	unemp (unemployed)		0.047	0.212	0	1
	notforce (not in the labor force)		0.343	0.475	0	1
	emplpt		0.115	0.319	0	1
<i>Dis - Vector of Health status</i>						
Disabilities		A				
	disasense		0.076	0.265	0	1
	disamotor		0.090	0.286	0	1
<i>H - Vector of household resource variables</i>						
Hinc	Household income	B				
	hinc1 (less than 25,000 USD)		0.222	0.416	0	1
	hinc2 (25,000 to 49,000 USD)		0.260	0.439	0	1
	hinc3 (50,000 to 99,999 USD)		0.317	0.465	0	1
	hinc4 (more than 100,000 USD)		0.201	0.401	0	1
Marital	Marital Status	C				
	married		0.578	0.494	0	1
	widowed		0.066	0.248	0	1
	divorced		0.219	0.414	0	1
	single		0.137	0.344	0	1
Child	Number of children	C				
	no children <18 at home		0.716	0.451	0	1
	child1 (1 child >18 at home)		0.117	0.322	0	1
	child2 (2 children <18)		0.108	0.310	0	1
	child3plus (more than 3 children <18)		0.059	0.236	0	1
<i>O - Vector of Geographical Variables</i>						
Size of habitat		C				
	central		0.224	0.417	0	1
	balance		0.372	0.483	0	1
	non_metro		0.216	0.411	0	1
	other		0.188	0.391	0	1

Data from the 2012 Survey of Public Participation in the Arts (NEA, 2013).

B: explanatory variable for both parts of the model; A: explanatory variable for access to internet; C: explanatory variable for cultural use of the internet.

TABLE 3. INTENSITY AND CULTURAL DIGITAL ENGAGEMENT

	Internet intensity of access (1)	Internet highbrow (2)	Internet lowbrow (3)	Internet theater (4)	Internet dance and ballet (5)	Internet visual arts (6)	Internet book and literature (7)	Selection (8)
age2: 25-34	-0,212***	0,128	-0,207**	0,126	-0,128	0,163	-0,014	-0,228***
age3: 35-44	-0,418***	0,257**	-0,496***	0,029	-0,384**	0,042	-0,022	-0,422***
age4: 45-54	-0,694***	0,065	-0,582***	0,240	-0,209	0,029	-0,072	-0,649***
age5: 55-65	-0,795***	0,119	-0,739***	0,219	-0,339*	0,023	-0,022	-0,743***
age6: 65+	-1,163***	0,184	-1,175***	-0,069	-0,719**	-0,277	-0,111	-1,251***
(baseline: age1: 18-24)								
female	0,051	-0,110**	-0,066	0,073	0,317***	-0,014	0,267***	0,071*
(baseline: male)								
black	-0,326***	-0,003	-0,215***	-0,206	0,009	-0,273**	-0,204**	
otherrace	-0,029	-0,076	-0,174**	-0,309**	0,157	-0,111	-0,056	
(baseline: white)								
edu: college or above	0,619***	0,316***	0,109	0,128	0,193*	0,395***	0,390***	0,604***
(baseline: less than college)								
unemp	-0,117**	-0,298***	-0,056	-0,014	0,053	-0,220	0,013	
notforce	-0,298***	0,005	-0,098*	0,140	0,068	-0,027	0,036	
emplpt	0,175**	0,151**	0,147**	0,258**	0,196**	0,164*	0,031	
(baseline: employedft)								
hinc1: less than 25000USD	-0,139***	0,098	-0,025	-0,085	0,108	-0,041	-0,032	-0,251***
hinc3: 50000 to 99999USD	-0,050	0,159**	0,155**	0,041	0,090	0,083	0,182**	0,288***
hinc4: more than 100000USD	-0,183***	0,301***	0,303***	0,022	0,141	0,099	0,371***	0,514***
(baseline: hinc2: 25000 to 49999USD)								
disasense	0,277***							-0,163**
disamotor	0,485***							-0,384***
(baseline: no impeding disability)								
widowed	-0,182***	0,038	0,163	0,144	-0,041	0,051	-0,078	
single	0,007	0,153**	0,212***	0,223**	-0,073	0,046	0,103	
divorced	0,099**	0,178**	0,123**	-0,030	-0,128	0,156*	0,076	
(baseline: married)								
child1	-0,035	-0,017	0,078	-0,158	-0,053	-0,137	-0,044	
child2	-0,080	-0,348***	0,166**	-0,105	-0,008	-0,299***	-0,158*	
child3plus	-0,121*	0,152	0,165*	0,006	0,303**	0,097	0,003	
(baseline: no children)								
balance	0,002	-0,157**	-0,064	-0,007	-0,178**	-0,240***	-0,168***	
non metropolitan	-0,021	-0,229***	-0,075	-0,005	-0,274**	-0,310***	-0,106	
not identified	-0,018	-0,239***	-0,033	-0,038	-0,186*	-0,141	-0,083	
(baseline: central)								
_cons		-1,436***	-0,091	-2,062***	-1,889***	-1,761***	-1,676***	0,877***
Obs: 9312								

Note: *** p<0.01, ** p<0.05, * p<0.1