

Playing a Play: Online and Live Performing Arts Consumers Profiles and the Role of Supply Constraints

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Abstract

In this paper, the relation between live and online highbrow performing arts consumption is examined. Specifically, we analyse whether restrictions on live cultural participation can be overcome by online consumption and the differences in the profiles of live and online consumers. To this end, using the Survey of Cultural Habits and Practices in Spain 2014–2015, two Bivariate Probit models using information about online and live consumption of highbrow performing arts in Spain are estimated. We separately analyse theatre and musical performing arts (ballet, opera, Spanish operetta and classical music concerts). Our results show that the profiles of live and online cultural consumers differ. However, we also find a complementarity effect between live and online consumption. Therefore, the online channel could be a valuable tool for spreading access to culture that might overcome some restrictions on live cultural participation, such as high prices and time constraints. Alternatively, if this is true only for people already consuming culture but not attracting new consumers, the online channel would help just to reproduce old patrons of inequality in cultural access but not to democratize highbrow culture.

Keywords: *musical performing arts, theatre, biprobit, online consumption, cultural participation*

JEL codes: Z1, L3, L86, O33

1. INTRODUCTION

Cultural participation is defined as “any activity that, for individuals, represents a way of increasing their own cultural and informational capacity and capital, which helps to define their identity, and/or allows for personal expression” (UNESCO, 2012, p.51). Given the spread of the Internet access during the last two decades, and its growing opportunities, novel forms of cultural consumption have appeared recently. In this regard, online access to cultural contents has noticeably changed the way people consume culture, allowing the broadcast of cultural products which, otherwise, would be less accessible for the wide public. Online availability of cultural contents, thus, enables certain consumers to overcome some of the barriers that in-person attendance imposes, such as transport costs, mobility problems or time restrictions. Moreover, the online channel could allow cultural managers to reach new cohorts of audience beyond the traditional cultural consumer. Therefore, online availability of cultural goods could be a way to democratize highbrow culture. However, as already pointed out by Mihelj et al. (2019), it could also be possible that online culture was an option only attractive to those that already consume culture, facilitating its access in an easier and cheaper way but just to the aficionado group and not attracting new consumers and, hence, reproducing old patrons of cultural access inequality.

So far, the determinants of *live* (in-person) cultural participation, including performing arts, have been widely examined (e.g. Seaman, 2005 and 2006; Dewenter and Westermann, 2005; Ateca-Amestoy, 2008; Sisto and Zanola, 2010; Ateca-Amestoy and Prieto-Rodríguez, 2013; Falk and Katz-Gerro, 2016). However, online performing arts consumption has been more scarcely studied. Nowadays, it is a major concern for policy makers and cultural managers how online and in-person cultural consumption are interconnected, and whether the former complements or substitutes the latter. The existing studies on this issue find a complementarity pattern between live and online and other alternative channels for performing arts demand (Montoro-Pons and Cuadrado-García, 2011; Nguyen et al., 2014; Bakshi and Throsby, 2014; Chen, 2015). However, not many empirical studies have gone further, analysing how live cultural participation constraints, such as (high) prices, supply and time restrictions or lack of interest affect the engagement in online culture. Therefore, it is worth studying whether restrictions to live cultural consumption can be overcome by an easier and highly diverse access to online cultural contents.

To explore these ideas, we analyse live and online demands of *theatre* and *musical performing arts* (classical musical concerts, opera, Spanish operetta and ballet,

hereinafter MPA) using Bivariate Probit models. Notice that we compare live consumption with the online watching of performing arts, that is, we consider all the visual elements involved. Therefore, we compare cultural goods defined as similar as possible in these two alternative windows. We do not consider other uses of the Internet related to performing arts, such as looking for information on theatres websites about tickets or schedules of performances. These models are estimated using data from the Survey of Cultural Habits and Practices (SCHP) conducted in Spain during 2014–2015.

Our paper extends the existing literature of cultural consumption in two ways. On the one hand, it studies the relation between restrictions to live cultural participation and digital engagement in cultural products. This could help to explore social inequality in the access to culture (O'Hagan, 1996; Van Hek and Kraaykamp, 2013). On the other hand, it jointly addresses the determinants of *live* and *online* consumption of highbrow performing arts in a similar way that other papers have simultaneously analysed online and onsite visits to museums (Mihelj et al., 2019, or Evrard and Krebs, 2018) or live and recorded popular music demands (Montoro-Pons and Cuadrado-García, 2011).

The remainder of the paper is structured as follows. After this introductory section we review the related literature in Section 2. Then, Section 3 describes the database and the methodology employed whereas Section 4 presents the results of our estimations. Lastly, Section 5 concludes.

2. LITERATURE REVIEW

2.1 Live cultural participation

There is a huge stream of the literature that has analysed cultural participation from the perspective of economic behaviour (Becker, 1996). Some studies have estimated demand functions for culture (Prieto-Rodriguez et al., 2005; Grisolia and Willis, 2012) whereas others have modelled the probability of attending to cultural activities (Gray, 2003).

One stylized finding is that income positively affects the demand for culture (Katsuura, 2008; Seaman, 2006). However, since performing arts are time-intensive, there is a trade-off between money and time. As a result, income increases are partially offset by a higher opportunity cost of time (Ekelund and Ritenour, 1999). In this sense, household

type and labour status affect people's free time availability and their opportunities for live attendance.

Other of the most relevant factors affecting cultural consumption is the ability to appreciate it. The taste for cultural products is assumed to be cultivated through consumption, in line with the "learning-by-consuming" model developed by Lévy-Garboua and Montmarquette (1996). The more culture the people consumes, the more they enjoy it (McCain, 1979). According to the "rational addiction model" (Stigler and Becker, 1977), past consumption of cultural goods exerts a positive effect on current consumption. Apart from past experience, cultural goods usually require some prior skills, mainly in the form of educational background (Borgonovi, 2004). In this sense, education emerges as another important determinant of cultural participation (Seaman, 2006; Ateca-Amestoy, 2008; D'Angelo et al., 2010; Ateca-Amestoy and Prieto-Rodríguez, 2013; Willekens and Lievens, 2016; Castiglione, 2017; Hallmann et al., 2017; Suarez-Fernandez et al., 2019).

As for sociodemographic characteristics, the effect of age varies depending on the kind of cultural activities. On the one hand, painting, drawing, sculpture, photography and playing musical instruments normally decline with age (Clift and Camic, 2015). Moreover, young people are more prone to attend to popular events or going to the cinema (Katsuura, 2008). On the other hand, going to the theatre predominates among elderly people (Castiglione, 2011), while visiting museums or going to classical music concerts or ballet exhibit an inverted u-shape pattern (Falk and Katz-Gerro, 2016). Overall, highbrow culture is mainly consumed by the older generations (Eijck and Knulst, 2005). Regarding gender, men and women typically enjoy different amount of time for leisure (Mattingly and Bianchi, 2003) and display different preferences for culture. Females prefer highbrow cultural activities while males engage more in popular ones (Bihagen and Katz-Gerro, 2000). Concerning household composition, family responsibilities reduce time availability and, thus, cultural participation (Scherger, 2009).

2.2 Online participation

Online consumption has been explored from different perspectives. However, up to now, it is neither clear how it should be defined nor what kind of activities it should include. In this sense, the distinction between real consumption and merely information search is quite fuzzy (Hoffman, 2012). Moreover, online consumption depends on the specific

social, political and cultural environment where it is analysed (Calenda and Meijer, 2009; George, 2005).

Internet access is not universal. This leads to the so-called *digital divide*, which has been widely studied in the literature (Selwyn, 2004; Hargittai and Ginnant, 2008). There are two types of digital divide: *i*) first-order, which refers to the pure ICT (*Information and Communication Technology*) access, and *ii*) second-order, which pays attention to the inequality in the ability to use new technologies (Van Dijk, 2006). Nevertheless, first-order digital divide has almost disappeared over time. For example, in Spain about 86 percent of households have access to the Internet (INE, 2018). As for the second-order digital divide, scholars agree to note that this type of inequality is mainly related to human capital and sociodemographic characteristics (Van Deursen and Van Dijk, 2014; Van Deursen et al., 2015). Those who are better educated, urban residents and young people are more likely to master ICT use (Park et al., 2013). In line with this, web experience positively affects online participation (Gibson et al., 2005; Best and Krueger, 2005).

The role that the Internet plays in encouraging people to participate online in activities which they do not engage offline has been researched in different fields, especially in politics (Tolbert and McNeal, 2003; Boulianne, 2009). Compared to in-person participants, those who take part online tend to be more partisan and trust less in traditional media (Kaufhold et al., 2010). In general, previous findings suggest that online is a different kind of participation (Oser et al., 2013).

2.3 Online cultural participation

The mobilization thesis (Norris, 2001; Norris and Inglehart, 2009) argues that new technologies create more opportunities for social inclusion, which may favour equalization (Gibson et al., 2005). In the case of cultural goods, the Internet has opened up new venues for cultural participation, which may overcome the restrictions of in-person attendance to cultural events. In this sense, the Internet can be used as a tool for attracting new audiences by the performing arts enterprises. Ateca-Amestoy and Castiglione (2016) study the effect of the digital-divide on the online consumption of cultural activities in the UE. They find some significant differences in the effect that sociodemographic characteristics have on online consumption as compared to the corresponding ones on live participation, which opens a new opportunity for cultural managers to reach new cohorts of audience.

Nowadays, cultural firms and organization use their websites and social networks to promote their activities, trying to expand their cohorts of audience beyond the traditional consumer profile (O'Sullivan, 2007, Pinho and Macedo, 2008; Sashi, 2012). Turrini et al. (2012) examine the differences between theatre attendees that use the theatre's webpage and the general audience in Italy. They conclude that attendants who frequently use the website are more satisfied than those who do not because the online channel provides better access to information.

Cultural firms are starting to spread and market their products online. As a result, some cultural goods from distant locations are now accessible by the Internet. Live performances of opera, ballet, spoken theatre and orchestral concerts are becoming increasingly demanded online (Handke et al., 2017)¹.

A major concern for cultural firms is whether online cultural consumption would decrease in-person participation (Thomson et al., 2013). In this sense, the literature has paid attention to whether the online consumption of cultural contents would draw people away from face-to-face interaction. Bakhshi and Throsby (2014) analyse whether watching a theatre play on the cinema can substitute or complement in-person demand, finding a complementary pattern between online and live consumption. Nguyen et al. (2014) study the relation among consuming music in streaming, CD sales and concerts attendance for international, classical and local music in France. Their results show that listening to music online (streaming) does not affect CD sales but increases international-music concerts attendance.

As for the specific relationship between online and live participation in the arts, the literature is scarce. Chen (2015) investigates whether mobile cultural participation helps cultural organizations to reach broader audience cohorts more than in-person cultural participation. Her study concludes that mobile cultural participation helps members of disadvantaged groups having a more accessible venue for participating in the arts. Additionally, her results show that mobile and in-person cultural participation are positively related, and that mobile cultural consumption decreases with age but increases with education. Ateca-Amestoy and Castiglione (2016) found a positive effect for education regarding online highbrow musical performing arts consumption but not for lowbrow music or theatre. They also found a positive income effect for online consumption of low and highbrow music, but not for other performing arts.

¹ The Metropolitan Opera has been offering live performances in cinemas since 2006, increasing their popularity. Nonetheless, it took several years before it broke even (Bakhshi and Throsby, 2010).

3. DATA AND METHODOLOGY

3.1 Database

We use as database the Survey of Cultural Habits and Practices (SCHP) in Spain, conducted by the Spanish Ministry of Culture and Sports. This survey covers the most significant parts of cultural consumption, such as performing arts, cinema, music, theatre or museums. Our data sample gathers information from 2014 to 2015. In each quarter of the two years, a random sample was interviewed, which resulted in a cross-section structure with a total of 15,154 respondents. The final sample is representative of the Spanish population in terms of education level, employment status, family responsibilities and region of residence. This database is the most suitable for our purposes as it includes information regarding both live attendance and online participation in the highbrow performing arts.

During the scrutiny, respondents were surveyed about their *live* and *online* participation in the highbrow performing arts. Specifically, they were asked the following question: “*Have you attended any live arts’ performance within the last three months?*”. The performances considered are the theatre, ballet, opera, Spanish operetta (zarzuela) and classical musical concerts. We decided not to include popular music concerts since we are interested in the participation in highbrow performing arts. Another reason for this decision is that the profile of the consumer is quite different for popular music concerts compared to the highbrow performing arts. Regarding online consumption, individuals answered to the following question: “*Have you watched an arts’ performance through the Internet in the last year?*”, which is our measure for online cultural consumption. As already pointed, given this question, we can compare live consumption with the online watching of performing arts, that is, we compare similar cultural consumptions in two alternative channels. Whether the online content was for free or people had to pay for it was not addressed in the survey.

It is important to note that, for our main analysis, we divided live and online performing arts consumption in two different categories: *theatre* and *musical performing arts*, gathering the latter the consumption of *ballet, opera, Spanish operetta* and *classical music concerts*. There is an essential reason that justifies this decision: the online consumption of these two groups of performing arts is different by definition. Ballet, opera, Spanish operetta and classic music concerts are types of musical performances that can be split in different pieces; thus, they can be enjoyed separately. Distinguishing theatre from musical performing arts (hereafter MPA) allows us to consider the fact that

when individuals desire to enjoy a theatre play online, as its meaning is complete, they would usually watch it fully, as it would happen with films. On the contrary, when enjoying MPA, individuals might watch online just one piece of it (i.e. enjoying just one aria of a full opera). This implies that the time availability needed for the consumption of these two categories of the performing arts is completely different. For instance, while watching a full theatre play might request about two hours, watching one part of your favourite ballet can be done in less than ten minutes.

According to their way of consuming culture, we can classify individuals in four groups. First, individuals who consume both live and online culture, call it *omnivores*. Second, those who attend live performing arts, but do not join online, call it *traditionalists*. Third, a group of people who only watch performing arts through the Internet, call it *techys*. Lastly, there is a group of individuals who do not consume live neither online art performances, which we label as *non-participants*. A summary of the number of survey respondents conveyed on each category is provided in Table 1.

Table 1. Live and online consumption

		Theatre			Musical performing arts				
		Online			Online				
		0	1	Total					
Live	0	13,423	255	13,678	Live	0	13,702	434	14,136
	1	1,391	85	1,476		1	492	526	1,018
	Total	14,814	340	15,154		Total	14,194	960	15,154

Examining the data provided in Table 1, we can see that the 88.6 and 90.5 per cent of the population are *non-participants*, namely, people who do not consume theatre or MPA, respectively². As expected, as we request the viewing of the concert or play for online consumption, live attendance to the performing arts is higher than online participation in both cases, so the most frequent consumer of culture is the *traditionalist*. Nonetheless, this highlights the large difference in live and online theatre consumption, being the former (9.8 per cent) almost five times the latter (2.2 per cent). In contrast, the proportion of *traditionalists* and *techys* engaged in MPA is quite similar (6.7 and 6.3 per cent, respectively). With regard to the simultaneous consumption of both groups of

² We are aware of the potential zero-inflation problem of our database. In order to contrast the robustness of our empirical estimations, the further analysis has been conducted for both the full sample and for an alternative database in which those individuals who are broadly categorized as no-consumers of cultural products have been removed. Results for the reduced sample were consistent with the ones in the complete model. Further information about the alternative sampling results is disposable under request.

performing arts, just a 2.3 per cent attend both live theatre and live musical performing arts, whereas less than 0.5 per cent consumes both online.

3.2 Methodology

For estimating both online and live performing arts consumption, we propose a Bivariate Probit model. Since the explanatory variables in both equations are not the same (see below), we specifically estimate a Seemingly Unrelated Bivariate Probit Regression Model (hereafter SUR-Biprobit). This model allows us to estimate both decisions simultaneously allowing the error terms to be correlated (Greene, 2012). The model is specified as follows:

$$\begin{aligned} Y_1^* &= X_i' \beta + \varepsilon_1 & Y_1 &= 1 \text{ if } Y_1^* > 0, Y_1 = 0 \text{ otherwise} \\ Y_2^* &= Z_i' \gamma + \varepsilon_2 & Y_2 &= 1 \text{ if } Y_2^* > 0, Y_2 = 0 \text{ otherwise} \end{aligned} \quad (1)$$

Where Y_1^* and Y_2^* are two latent variables for online and offline cultural participation, respectively, and ε_1 and ε_2 follow a bivariate normal distribution so that:

$$(\varepsilon_1, \varepsilon_2) \sim N(0, \Sigma) \quad \text{where } \Sigma = \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix} \quad (2)$$

The parameters can be easily estimated by Maximum Likelihood. The log likelihood function to be maximized is given by:

$$\begin{aligned} \text{Log } L &= \sum_{i=1}^n \ln \Phi(q_1 X_i' \beta, q_2 X_i' \gamma, \rho), \\ \text{being } \Phi(q_1 X_i' \beta, q_2 X_i' \gamma, \rho) &= \int_{-\infty}^{X_i' \beta} \int_{-\infty}^{X_i' \gamma} \phi(z_1, z_2, \rho) dz_1, dz_2, \end{aligned} \quad (3)$$

with $q_j = 1$ if $y_j = 1$ and $q_j = 0$ otherwise, for $j=1,2$.

This model collapses to two separate Probit models for Y_1 and Y_2 if $\rho=0$ (Cameron and Trivedi, 2012). The reader is referred to Greene (2012) for further details about the estimation procedure.

3.3 Empirical model

As noted in the related literature, individuals' socioeconomic characteristics generally determine cultural participation (Falk and Katz-Gerro, 2016; Willekens and Lievens,

2016) and specifically, theatre attendance (Lévy Garboua and Montmarquette, 1996; Ateca-Amestoy, 2008; Zieba, 2009; Werck and Heyndels, 2017) and performing arts attendance (Ateca-Amestoy and Prieto-Rodríguez, 2013). Consequently, people's sociodemographic factors are introduced as explanatory variables. Furthermore, previous research suggests that the consumption of live culture is mostly an urban experience due to the higher supply available in large cities (Cuadrado and Frassetto, 1999; Gray, 2003). Therefore, we need to control for the degree of urbanization and the regional area where the individual lives. Individuals' general interest in culture also play an important role in cultural participation, as noted by Borgonovi (2004) and Castiglione (2017). Additionally, it is worth to examine if cultural consumption differs depending on the type of internet user (Chen, 2015; Ateca-Amestoy and Castiglione, 2016).

Formally, we estimate the following equation to analyse live cultural consumption:

$$\Pr(\text{Live consumption}_{ij} = 1) = f(Csoc_{ij}, Cgeo_{ij}, Cult_{ij}, Int_{ij})$$

Where the dependent variable, *Live consumption*_{ij}, is a dummy variable that takes value one when the individual *i* declares a positive attendance to the activity *j* within the last three months and value zero otherwise. The consumption of theatre and other performing arts is assumed to depend on the following independent variables.

First, we include a set of sociodemographic characteristics (*Csoc*_{ij}). It comprises gender, age (both linearly and in a squared form allowing for further flexibility), a dummy variable for having children at home (*Children on charge*), the overall number of people living at home (*Household members*) and a dummy for those married (*Married*) with respect to other possibilities (singles, widowed...). We also introduce dummy variables for labour status: employed, unemployed, retired and student, being disabled or inactive the reference category. As for the education level, we include a set of dummy variables that take value one when the individual has completed secondary or tertiary education, being primary education or lower the reference category.

Second, we consider population size³ and a set of regional dummies (one for each county of Spain) as controls for geographical features (*Cgeo*_{ij}).

³ Specifically, we include three dummy variables for three population sizes (less than 10.000 habitants, between 10.001 and 50.000 and between 50.001 and 100.000), being the one for more than 100.001 habitants the reference category.

Third, we incorporate overall people's interest in culture ($Cult_{ij}$). It comprises:

- i. *Cultural interest*, which measures individuals' interest in cultural goods. This variable is constructed as an indicator of self-declared interest in the following cultural activities: reading, going to the cinema, visiting monuments, museums and listening to music. Interest in each activity is measured in a scale from zero (not interested at all) to ten (highly interested). Since we aggregated interest in the five activities, *Cultural interest* is a count variable that ranks from 0 to 50.
- ii. *Physical cultural capital*, which is the result of a Principal Component Analysis (PCA) of several variables including the number of books, number of e-books, DVD/CD/Blu Ray's player for listening to music, number of musical instruments, digital DVD/CD/Blu Ray audiovisual player, digital video player, and other devices.
- iii. *Informatic equipment*, is another PCA of variables related to the availability of the Internet and informatic equipment, including number of computers, CD/DVD/Blue Ray player, CD/DVD/Blue Ray recorder, external hard multimedia disc, videogame software, educative software, other software, tablet, broadband Internet access, Internet access on the mobile phone, PDA, videogame console and smartphone. Further information about both PCA variables is disposable under request. Physical cultural capital at home and informatic equipment can be considered as proxies of individuals' wealth, since they are both highly correlated with households' income (see Fernandez-Blanco et al., 2017).⁴

Lastly, differences among Internet users (Int_{ij}) could also affect the type of cultural consumption. To examine this issue, we include *Social networks* as a dummy variable which takes value one when the individual declares using chats or social networks when he/she is connected to the internet, and zero otherwise. Additionally, we consider *Professional user*, which is a dummy for those who use the Internet for professional purposes. To control for the first-order digital divide we include *Internet* which is a variable that takes value one when the individual uses internet every day.

The corresponding equation for explaining online cultural consumption is given by:

$$\Pr(\text{Online consumption}_{ij}) = f(Csoc_{ij}, Cgeo_{ij}, Cult_{ij}, Int_{ij}, Res_{ij})$$

⁴ Both PCA analysis are available upon request.

Where the dependent variable $Online\ consumption_{ij}$ measures cultural consumption through the Internet for each individual i to the activity j , during the last year. It is a dummy variable that takes value one when the individual i declares a positive online consumption of the cultural activity j and value zero otherwise.

Online consumption is explained by the same variables presented above without *Internet*, in order to avoid potential endogeneity problems. Additionally, restrictions to live attendance are considered.

Within the survey, individuals answered the following question: *which is the main reason why you had not attended more frequently to the theatre / MPA?* Individuals could choose different options from a choice set⁵. In the regression, we grouped the options in *high price*, *supply constraints* (difficulty to get tickets, scarcity of supply and not enough information) and *lack of interest* (preference for television, video or the internet, it is difficult to understand, lack of time, lack of interest). In the case of theatre attendance, all of them are defined as dummy variables, being the remaining possible choices the omitted category. For other MPA, we aggregated the responses for each activity (ballet, opera, Spanish operetta and classical music concerts), so this variable ranks from 0 to 4. We argue that self-declared constraints to *live* attendance to the performing arts could explain *online* cultural consumption. For instance, not attending more often the theatre because of supply constraints regarding the place of residence can prompt to watching a play online.

Descriptive statistics of the variables are outlined in Table 2. Column (1) shows statistics for the full sample, whereas columns (2), (3), (4) and (5) provide statistics for each sub-population (those who consume theatre or MPA, either live or online). It can be drawn from Table 2 that while the *traditional* profile of cultural consumer (live attendant, columns (2) and (4)) is a highly educated woman in her fifties (Bihagen and Katz-Gerro, 2000), the online consumer (columns (3) and (5)) is a man five years younger and slightly less educated. This type of individual fits more in the typical profile of an Internet user. However, this profile is not equal for theatre and MPA, giving support to the decision to analyse them separately. Also, singles and those who use the internet daily consume more culture online.

⁵ The choice set was the following: (1) high price, (2) it is difficult to get tickets, (3) scarcity of supply, (4) not enough information, (5) preference for television, (6) video or the Internet, (7) it is difficult to understand, (8) lack of time, (9) lack of interest, (10) lack of company.

Table 2. Descriptive statistics

Variable	Description	Full	Theatre		MPA	
		sample (1)	Live (2)	Online (3)	Live (4)	Online (5)
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Woman	Takes value one if respondent is a female	0.513 (0.500)	0.580 (0.494)	0.468 (0.500)	0.585 (0.493)	0.524 (0.500)
Man	Takes value one if respondent is a male	0.487 (0.500)	0.420 (0.494)	0.532 (0.500)	0.415 (0.493)	0.476 (0.500)
Age	Age of the respondent	49.14 (18.83)	44.48 (16.35)	40.53 (16.28)	49.10 (17.38)	45.19 (16.79)
House members	Number of members living at home	3.056 (1.354)	3.059 (1.183)	3.200 (1.203)	3.077 (1.360)	3.127 (1.284)
Children on charge	Takes value one when children living at home	0.223 (0.417)	0.249 (0.432)	0.209 (0.407)	0.243 (0.429)	0.255 (0.436)
Married	Takes value one if individual is married	0.602 (0.490)	0.597 (0.491)	0.506 (0.501)	0.626 (0.484)	0.576 (0.494)
Single	Takes value one if individual is single	0.364 (0.481)	0.384 (0.487)	0.462 (0.499)	0.350 (0.477)	0.401 (0.490)
Other marital status	Takes value one if widowed, separated or divorced	0.035 (0.183)	0.019 (0.136)	0.032 (0.177)	0.025 (0.155)	0.023 (0.150)
Primary	Takes value one if highest education level of the individual is primary education or lower	0.184 (0.388)	0.070 (0.255)	0.053 (0.224)	0.087 (0.283)	0.078 (0.269)
Secondary	Takes value one if highest education level of the individual is secondary education	0.473 (0.499)	0.353 (0.478)	0.459 (0.499)	0.387 (0.487)	0.394 (0.489)
Vocational	Takes value one if highest education level of the individual is vocational education	0.149 (0.356)	0.177 (0.382)	0.159 (0.366)	0.134 (0.340)	0.147 (0.354)
University	Takes value one if highest education level of the individual is tertiary education	0.194 (0.395)	0.400 (0.490)	0.329 (0.471)	0.392 (0.488)	0.381 (0.486)
Employed	Takes value one if individual is either self-employed or employees	0.448 (0.497)	0.545 (0.498)	0.497 (0.501)	0.491 (0.500)	0.506 (0.500)
Unemployed	Takes value one if individual is unemployed	0.143 (0.350)	0.114 (0.319)	0.159 (0.366)	0.102 (0.303)	0.121 (0.326)
Retired	Takes value one if individual is retired	0.209 (0.406)	0.129 (0.335)	0.085 (0.280)	0.209 (0.407)	0.157 (0.364)
Student	Takes value one if individual is a student	0.092 (0.290)	0.146 (0.353)	0.206 (0.405)	0.111 (0.314)	0.147 (0.354)
Disabled	Takes value one if individual is disabled	0.009 (0.093)	0.005 (0.069)	0.009 (0.094)	0.004 (0.063)	0.010 (0.102)
Other status	Takes value one if individual is housewife, househusband, inactive...	0.008 (0.091)	0.006 (0.078)	0.006 (0.077)	0.006 (0.077)	0.006 (0.079)
Cultural interest	Sum of declared interest in reading, cinema, visiting monuments, museums and listening to music	30.173 (11.008)	37.211 (7.761)	36.832 (7.358)	37.166 (8.232)	37.394 (7.910)
Practices	Dummy for individuals doing 4 or more of the following cultural practices: writing, painting, pottery, photos, video, web editing, audiovisual design	0.042 (0.201)	0.089 (0.284)	0.176 (0.382)	0.099 (0.299)	0.125 (0.331)
Social networks	Dummy for individuals using social networks (such as Facebook, Twitter...)	0.353 (0.478)	0.478 (0.500)	0.488 (0.501)	0.403 (0.491)	0.440 (0.497)
Professional user	Dummy for individuals using the Internet for professional purposes	0.292 (0.455)	0.492 (0.500)	0.494 (0.501)	0.466 (0.499)	0.490 (0.500)
Internet	Dummy if individual uses the Internet every day	0.520 (0.500)	0.747 (0.435)	0.812 (0.391)	0.678 (0.468)	0.768 (0.423)
MPA Price	Main declared non-attendance reason: high price	1.053 (1.544)	1.415 (1.640)	1.479 (1.648)	1.544 (1.651)	1.531 (1.651)
MPA Supply	Main declared non-attendance reason: it is difficult to get tickets, scarcity of supply, little information	0.898 (1.424)	1.121 (1.509)	1.153 (1.427)	1.307 (1.539)	1.181 (1.497)
MPA Interest	Main declared non-attendance reason: preference for television, video or the Internet, it is difficult to understand, lack of time, lack of interest	0.634 (1.253)	0.470 (1.047)	0.374 (0.861)	0.331 (0.808)	0.354 (0.820)
Theatre Price	Main declared non-attendance reason: high price	0.366 (0.482)	0.503 (0.500)	0.526 (0.500)	0.470 (0.499)	0.453 (0.498)
Theatre Supply	Main declared non-attendance reason: it is difficult to get tickets, scarcity of supply, little information	0.255 (0.436)	0.323 (0.468)	0.274 (0.446)	0.324 (0.468)	0.305 (0.461)
Theatre Interest	Main declared non-attendance reason: preference for television, video or the Internet, it is difficult to understand, lack of time, lack of interest	0.090 (0.286)	0.020 (0.139)	0.021 (0.142)	0.031 (0.175)	0.036 (0.188)
Observations		15,154	1,476	340	1,018	960

4. RESULTS

Table 3 presents the estimates of the SUR-Biprobit model for theatre and MPA participation, both live and online⁶. The ρ parameter, which accounts for the tetrachoric correlation between the error terms of the two equations, is positive and statistically different from zero. This justifies our decision to jointly explain both decisions, as they are interdependent. This positive correlation indicates that there is a complementarity effect between live and online culture consumption, in line with Nguyen et al. (2014), Bakhshi and Throsby (2014) and Chen (2015).

This strong complementarity pattern could not necessarily be positive but a factor enabling the persistence of the current inequalities in highbrow cultural consumption between socioeconomic groups. On the one hand, online access could help to democratize cultural participation. On the other hand, this complementarity might reinforce the existing consumption patterns if it is mainly due to transfers of those that would have just been traditional consumers to omnivorous in the Internet era.

Starting with the sociodemographic features, men display lower probability of attending theatre plays and MPA than women, which is consistent with previous research. There are significant gender differences in cultural participation, especially in highbrow (Bihagen and Katz-Gerro, 2000; Ateca-Amestoy, 2008; Castiglione, 2017). However, we find no gender differences in online consumption of MPA, contrary to Ateca-Amestoy and Castiglione (2016). On the other hand, the probability of in-person attendance and online consumption of MPA increase with age, but in a decreasing rate according to the negative sign of the squared term. This result is in line with Castiglione (2017). As for theatre consumption, age is not statistically significant to explain neither in-person nor online participation. The number of household members only exerts a negative effect on the probability of attending the theatre, being non-significant for the rest of cases. Having children at home or the civil status are not significant in neither of the four equations.

⁶ Since opera and Spanish operetta are theatrical expressions with a story line, it could be arguable whether it would be better to group opera and Spanish operetta with theatre, and ballet and MPA alone. To examine whether our results change depending on the grouping of the different performing arts, we estimate the same model with this alternative classification. Given that results are pretty similar, we keep the prior grouping in the paper. The parameter estimates of the alternative grouping can be found in the Appendix.

Table 3. Results of the Bivariate Probit Estimation

	Theatre		Musical performing arts	
	Online	Live	Online	Live
Man	0.090*	-0.154***	0.033	-0.115***
	(0.051)	(0.032)	(0.037)	(0.036)
Age	-0.012	0.011*	0.017**	0.022***
	(0.011)	(0.006)	(0.008)	(0.007)
Age sq.	0.000	-0.000	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
House members	-0.041*	-0.076***	-0.030*	-0.002
	(0.024)	(0.015)	(0.017)	(0.015)
Children on charge	-0.096	-0.022	0.040	0.006
	(0.072)	(0.043)	(0.049)	(0.047)
Married	-0.016	0.067	-0.086*	-0.009
	(0.073)	(0.041)	(0.047)	(0.043)
Secondary	0.136	-0.060	-0.051	0.027
	(0.106)	(0.057)	(0.066)	(0.062)
Vocational	0.079	0.123*	-0.072	0.014
	(0.121)	(0.066)	(0.077)	(0.075)
University	0.123	0.231***	0.092	0.233***
	(0.118)	(0.065)	(0.075)	(0.071)
Employed	-0.014	0.007	-0.125*	-0.089
	(0.117)	(0.064)	(0.076)	(0.070)
Unemployed	0.135	-0.030	-0.085	-0.103
	(0.124)	(0.073)	(0.083)	(0.081)
Retired	-0.038	0.106	0.201**	0.193**
	(0.136)	(0.077)	(0.084)	(0.076)
Student	0.127	0.406***	0.189*	0.289***
	(0.146)	(0.092)	(0.107)	(0.107)
Cultural interest	0.016***	0.027***	0.024***	0.027***
	(0.003)	(0.002)	(0.002)	(0.002)
Practices	0.486***	0.138**	0.368***	0.312***
	(0.080)	(0.063)	(0.064)	(0.066)
Social networks	-0.057	0.009	-0.069*	-0.029
	(0.055)	(0.035)	(0.040)	(0.039)
Professional user	0.088	0.102***	0.139***	0.174***
	(0.058)	(0.038)	(0.043)	(0.041)
Internet		0.092**		-0.026
		(0.041)		(0.039)
Physical cultural capital	0.162***	0.164***	0.187***	0.220***
	(0.049)	(0.031)	(0.037)	(0.029)
Physical cultural capital sq.	-0.019**	-0.013**	-0.013**	-0.015***
	(0.008)	(0.005)	(0.006)	(0.004)
Informatic equipment	0.242***	0.202***	0.263***	0.126***
	(0.047)	(0.028)	(0.031)	(0.030)
Informatic equipment sq.	-0.029	0.002	-0.017	-0.011
	(0.039)	(0.022)	(0.024)	(0.023)
High price	0.143**		0.036***	
	(0.066)		(0.012)	
Supply problems	0.146*		0.034***	
	(0.075)		(0.013)	
Lack of interest	-0.274*		-0.019	
	(0.153)		(0.016)	
Constant	-2.281***	-2.307***	-3.053***	-3.386***
	(0.332)	(0.210)	(0.265)	(0.247)
ρ		0.119***		0.779***
		(0.038)		(0.013)
<i>Log likelihood</i>		-5518.601		-5645.162
<i>AIC</i>		11215.200		11468.330
<i>BIC</i>		11893.920		12147.040
<i>Observations</i>		15,154		15,154

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

With reference to the education level, in comparison with those with primary studies (omitted category), highly educated ones (University) show higher probability of live participation in both theatre and MPA in line with Suarez-Fernandez et al. (2019), who find high education especially relevant in explaining participation in the highbrow cultural activities. This follows also the findings of Borgonovi (2004), D'Angelo et al. (2010) and Castiglione (2017). Likewise, when labour status is regarded, retired people display a higher preference for MPA in comparison with housewives (baseline category), whereas students appear to be highly interested in theatre attendance. A possible explanation may rely on differences in time availabilities. What is more, it is important to note that education level and labour status may also control for income disparities across consumers.

Concerning the effect of using the Internet, in line with Chen (2015), results show that those who daily surf the Internet exhibit higher likelihood of attending theatre plays but not musical performing arts. However, the professional use of the Internet is positively associated to in-person attendance to both theatre and performing arts. Moreover, this variable also exerts a positive impact on the probability of online MPA consumption, but we do not observe a significant impact on online theatre demand. These individuals might be white collars, so this variable may account for individuals' social class. On the contrary, the use of *Social networks* is not statistically significant.

The positive and significant effect of *physical cultural capital* at home and *informatic equipment* in the four equations is in line with previous findings (Fernández-Blanco et al., 2017). The positive effect of wealth on cultural participation is especially relevant considering that online consumption requires physical support, such as a computer, a tablet or a smartphone. Similarly, *cultural interest* has a significant and positive influence in all categories: more interest in culture leads to higher probability of consumption, as in Levy-Garboua and Montmarquette (1996), Borgonovi (2004) and Castiglione (2017), who find interest in other cultural activities positively associated with theatre and MPA consumption. The same explanation holds for the positive effect of cultural active *Practices*. Individuals highly involved in cultural activities are more prone to consume theatre and MPA than their peers, which is consistent with Borgonovi (2004).

Finally, we analyse the effects of the restrictions to in-person attendance in the online participation equation. High price has a positive and statistically significant effect in both theatre and MPA online engagement, suggesting that those who perceive live MPA to be too expensive substitute in-person attendance by online consumption. Consumers of live theatre and MPA have been shown to be price-elastic (Levy-Garboua and Montmarquette 1996; Grisolia and Willis 2012), so the online channel might be a cheaper way of consumption. The same pattern holds for the supply constraints, which positively affect online consumption. Those who declare that the scarcity of supply is their main reason for not attending more often to the theatre or to MPA display a higher probability of online cultural consumption. As for lack of interest, this variable is not statistically significant for the MPA and displays a negative effect for the theatre, which implies that those not interested in attending the theatre in-person do not consume it online either. Hence, those that would consume more under other more favourable circumstances of price or supply are using the Internet to consume what they would consume otherwise. Thus, online consumption is being used to softer constraints on live consumption. However, this may imply that some of the worries about the complementarity effect can be confirmed.⁷

To further explore the impacts of some independent variables on the online and live cultural participation, we compute their marginal effects on the four possible outcomes. We use the labels introduced in Section 3 (*non-participants*, *traditionalists*, *techys* and *omnivores*). Table 4 shows margins for theatre and MPA⁸.

Starting with the sociodemographic characteristics, in both activities the marginal effect of being a man is positive for *techys* and *non-participants* and negative for *traditionalists*. This implies that women tend to consume the performing arts in-person whereas men prefer online consumption. In contrast, the marginal effect for the *omnivores* is not statistically different from zero. Therefore, gender does determine their likelihood of consuming culture through both channels simultaneously.

As for *Age*, young people are more likely to be *non-participants* in MPA, whereas the likelihood of being a *traditionalist* or an *omnivore* increases with age. Almost two thirds

⁷ Population size of the city and the region where each individual lives (NUTS 2) are also controlled for to account for further observable heterogeneity. Results are not discussed for the sake of brevity, but they are available upon request.

⁸ Since we estimate a SUR-Bivariate Probit in which the explanatory variables in the two equations are not the same, the computed marginal effects for the live attendance restrictions that only appear in the online Participation equation are the conditional ones, namely, the marginal probability of being an online consumer conditional on being/not being a live cultural consumer.

of this rise are related to the increase of traditional consumers and the remaining third to omnivores. However, we would expect a negative marginal effect of age on omnivores if young people, who use the Internet more often, would have found highbrow culture while surfing and would have continued to consume it. But we found the opposite, the older you are the higher the probability of being an omnivore. Hence, online access seems to be reinforcing existing consumption patterns, not attracting new consumers and, therefore, not helping to reduce cultural access inequality. Maybe because live theatre is much more popular than MPA and attracts people of different ages (probably to different kinds of plays), the type of theatre consumer is not related to age.

As regards *Professional user*, its marginal effect is similar for both activities. The use of the Internet to work, which may be related with being a white-collar, is positively associated with the likelihood of being a *traditionalist* or an *omnivore*, although it has no effect for *techys*. Again, as for *House members* marginal effect, traditional consumers and omnivores change in the same direction, supporting the idea that online access to highbrow culture is more probable among more privileged people that are already consuming live culture.

To summarize, whilst the sociodemographic consumer profile of the *traditional* attendant is mainly a woman in her fifties, the *techys* and *omnivores* segments clearly differ. This result is the keystone that puts on risk the notion of the Internet as a democratization tool for cultural participation.

Finally, the marginal effect of declaring high price as the main limitation for further in-person attendance on the probability of online consumption is higher for those who already attend than for those who do not. The effect is also stronger for MPA than theatre. Exactly the same pattern holds for the *supply constraints* variable, although it is significant at 10 percent level for theatre. Therefore, again, online culture seems to be an attractive option, mainly for those who already consume live highbrow culture, to access it in an easier and cheaper way. Probably, many former *traditional* consumers are moving to the *omnivore* group as to take advantage of the new online opportunities to consume highbrow culture.

As for *lack of interest*, this variable exerts a strong negative effect on online theatre and MPA consumption, no matter whether the individual is currently attending them live or not (also at 10 percent significance level). Put it in another way, a rise in cultural interest will increase online demand, especially among live consumers.

It is worthwhile to pay attention to the similarities and differences between different consumers of the performing arts. Consequently, we now examine the correlation between the predicted probabilities of being each type of consumer for both equations. Results are depicted in Table 5.

First of all, there is a clear and significant link between the same type of consumer in both activities (see the main diagonal of the table). There is a high correlation between *omnivores* in theatre and in the MPA. We interpret it as a similarity among consumers, regardless the type of culture they consume. Also, *traditional* consumers of MPA display the lowest correlation with *techys* and *omnivores* in theatre (0.258 and 0.384, respectively). This suggests that the format of each type of culture affects its consumption. In the case of theatre, a play is created to be watched as a whole. Therefore, it seems plausible that online consumption is easier for MPA, which can be divided into arias, than for theatre plays. Accordingly, people who are *traditional* MPA consumers, but do not watch it online, might be “purist” consumers who only resemble traditionalists from theatre. The correlation among *techys* and *omnivores* of MPA with theatre consumers is also higher than for the *traditionalist*, which supports our idea of the “purist” consumer.

Regarding theatre consumers, some relevant differences with MPA emerge. First, *traditionalists* are highly correlated with all type of MPA consumer, especially with *omnivores* (0.877). *Techys* in theatre show a positive correlation with MPA *omnivores* of 0.598, which is in the middle between correlation with *traditionalists* (0.258) and with *techys* (0.807). As expected, individuals who watch theatre online would watch MPA online easily, probably because of their different formats. Since they are not interested in attending the theatre in-person, they may not be interested in attending the MPA either. Besides, it is worthy to note that the relationship between *traditionalists* and *omnivores* is higher than the relation between *traditionalists* and *techys*. This last result reinforces the hint about the effect of complementarity. *Traditionalists* are more similar to *omnivores* than to *techys*, presumably because *omnivores* could be the “new” *traditionalists* in the internet era.

Table 4. Marginal effects (in percentage).

	Theatre				Musical performing arts			
	Non-participants	Traditionalists	Techys	Omnivores	Non-participants	Traditionalists	Techys	Omnivores
Man	1.859***	-2.289***	0.429**	-0.007	0.696***	-1.046***	0.620**	0.270
Age	-0.013	0.033	-0.016	-0.002	-0.092***	0.060***	-0.007	0.039***
House members	1.230***	-1.040***	-0.098	-0.092***	0.230	0.090	-0.208	-0.112
Professional user	-1.763***	1.350***	0.254	0.158**	-2.406***	0.919***	0.412	1.073***
	P(online live=0)		P(online live=1)		P(online live=0)		P(online live=1)	
High price	0.630**		0.933**		0.287***		1.836***	
Supply constraints	0.640*		0.949*		0.273***		1.746***	
Lack of interest	-1.203*		-1.782*		-0.154		-0.988	

Table 5. Correlation between predicted probabilities.

	Theatre			
	Non-participants	Traditionalists	Techys	Omnivores
Musical performing arts				
Non-participants	0.901	-0.887	-0.628	-0.735
Traditionalists	-0.672	0.735	0.258	0.384
Techys	-0.833	0.757	0.807	0.746
Omnivores	-0.869	0.848	0.598	0.772

5. CONCLUSIONS

In this paper, we examine the inter-relationships between live and online consumption of highbrow performing arts in the current context of rapidly changing information and communications technologies. We also analyse whether online cultural consumption could be a way of limiting the effects of the constraints on live cultural participation. In doing so, we simultaneously analyse the determinants of live and online consumption of theatre and musical performing arts (MPA). The empirical model involves the estimation of two SUR-Bivariate Probits using the Survey on Cultural Habits and Practices (SCHP) collected by the Spanish Ministry of Culture and Sports for the period 2014-2015.

One of the principal takeaways from this research is that those who declare that their main restriction to live cultural attendance is either high prices or supply constraints display a higher probability of online consumption. Additionally, the marginal effects of high price and supply constraints are much larger when individuals are in-person consumers. Moreover, these constraints appear to be quite more important in the case of the MPA than in the theatre. This may suggest that high prices and supply constraints limit in-person cultural consumers' demand, leading them to complement it with online consumption, especially for the MPA case. Consequently, it seems that unsatisfied demand for live consumption, mainly by people that is already consuming highbrow culture, can be partially offset by the online channel. This result may be seen as a positive outcome of the online availability of cultural contents. However, if this effect is concentrated on current consumers of live highbrow performing arts, it may be the case that these online resources may not help to spread these culture expressions to new audiences. Then, omnivores would be former traditional consumers but not so techys.

Another relevant result, probably related with the social dimension of live performing arts attendance, is that sociodemographic features are much more important for explaining the likelihood of being a live assistant than for online consumers. Whereas age, gender, educational achievements and labour status are really helpful in explaining who the live attendees are, these variables are less relevant for characterizing online consumers. This implies that the well-known traditional average live participant profile (highly educated woman in her fifties) does not represent at all the online consumer archetype of performing arts. This finding is in line with those who, studying other fields (Tolbert and McNeal, 2003; Gibson et al., 2005; Boulianne, 2009), state that the Internet can be seen as a democratization tool, facilitating the access to information, including cultural contents to the wide public.

We find that online and live cultural participation are mainly complements, with a different magnitude of this effect for each group of performing arts that we have considered. Whilst MPA consumers are more prone to combine the two channels, theatre ones appear to be more reluctant to watch a play online.⁹ This issue can be explained by the fact that MPA can be more easily partitioned and enjoyed in smaller bits (for instance, an aria or a musical), whereas theatre plays have a complete meaning, as it happens with films, which make more difficult their partial consumption. We must be aware that this complementary effect could be a factor that will keep or increase existing inequalities in attendance between socioeconomic groups. Hence, online access, instead of democratizing cultural participation, could reinforce existing consumption patterns if this complementary effect is mainly capturing transfers of traditional consumers to omnivorous without helping to increase cultural participation among more deprived groups.

Our results have several policy implications for performing cultural managers. Probably the most important one is that they could benefit from online advertising campaigns of their live cultural products. First, they can try to communicate to the online consumers that supply and price constraints, which are the main restrictions of live consumption that online consumers try to overcome, are less important than they might think (e.g. promoting last minute policies, new productions...). This could be even more important for MPA since it displays a higher marginal effect for these two types of live consumption constraints. Similar mechanisms could be used to attract new public to the theatres, especially from younger cohorts, since there are many online consumers that do not fit into the average profile of live attendants. Adverts could emphasize aspirational elements of the live cultural consumption, but also the improvements in the experienced quality of live attendance.

Additionally, policy makers must be aware that online culture could be an option attractive to those that already consume culture, facilitating its access in an easier and cheaper way, but not attracting new consumers and, therefore, reproducing the old patterns of inequality in cultural access. A necessary condition to deny this possibility is to take the digital divide down to zero. The first-order digital divide has almost disappeared over time in the Western countries but could still be relevant in other

⁹ This could be a piece of evidence in favor our classification of the performing arts in two different groups: theatre and musical performing arts.

countries. Some additional efforts should be done by authorities in order to reduce the second-order digital divide related to cultural consumption. As it happens with live highbrow culture participation, education has to be a key element of any cultural policy to overcome the second-order digital cultural divide. Once the digital divide would be reduced, high-brow culture democratization could be a realistic aim of the public culture policy. In that case, linking public subsidies to fund live productions to the condition of making it available on the Internet under certain conditions could be a good idea.

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APPENDIX

Table 6. Alternative grouping of the highbrow performing arts results
Bivariate Probit Model

	Theatre, opera and Spanish operetta		Ballet and classical concerts	
	Online	Live	Online	Live
Man	0.143*** (0.046)	-0.171*** (0.032)	0.018 (0.038)	-0.113*** (0.037)
Age	-0.009 (0.010)	0.010 (0.006)	0.020** (0.008)	0.026*** (0.007)
Age sq.	0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000*** (0.000)
House members	-0.032 (0.021)	-0.063*** (0.015)	-0.030* (0.018)	-0.013 (0.016)
Children on charge	-0.066 (0.063)	-0.034 (0.043)	0.047 (0.051)	0.044 (0.049)
Married	-0.071 (0.062)	0.056 (0.040)	-0.099** (0.049)	-0.042 (0.044)
Secondary	0.128 (0.093)	-0.020 (0.056)	-0.053 (0.068)	0.004 (0.064)
Vocational	0.046 (0.106)	0.153** (0.066)	-0.093 (0.080)	-0.025 (0.078)
University	0.184* (0.103)	0.278*** (0.064)	0.052 (0.077)	0.193*** (0.074)
Employed	-0.110 (0.099)	-0.009 (0.063)	-0.063 (0.080)	-0.122* (0.071)
Unemployed	0.010 (0.106)	-0.053 (0.072)	-0.061 (0.088)	-0.126 (0.083)
Retired	-0.067 (0.109)	0.133* (0.074)	0.241*** (0.089)	0.170** (0.078)
Student	0.041 (0.128)	0.376*** (0.090)	0.239** (0.112)	0.284*** (0.109)
Cultural interest	0.023*** (0.003)	0.027*** (0.002)	0.022*** (0.002)	0.028*** (0.002)
Practices	0.462*** (0.073)	0.142** (0.062)	0.380*** (0.066)	0.326*** (0.067)
Social networks	-0.066 (0.049)	0.011 (0.035)	-0.062 (0.041)	-0.013 (0.040)
Professional user	0.108** (0.053)	0.128*** (0.037)	0.135*** (0.045)	0.150*** (0.042)
Internet		0.105*** (0.040)		-0.025 (0.039)
Physical cultural capital	0.093** (0.041)	0.178*** (0.032)	0.264*** (0.037)	0.226*** (0.037)
Physical cultural capital sq.	-0.004 (0.006)	-0.015*** (0.005)	-0.032*** (0.006)	-0.019*** (0.007)
Informatic equipment	0.324*** (0.041)	0.193*** (0.028)	0.239*** (0.032)	0.120*** (0.031)
Informatic equipment sq.	-0.036 (0.034)	-0.001 (0.021)	-0.015 (0.025)	-0.011 (0.023)
High price	0.089*** (0.021)		0.090*** (0.024)	
Supply problems	0.097*** (0.023)		0.080*** (0.026)	
Lack of interest	-0.057* (0.033)		-0.099*** (0.038)	
Constant	-2.775*** (0.305)	-2.363*** (0.208)	-3.039*** (0.275)	-3.399*** (0.256)
ρ		0.0711** (0.034)		0.814*** (0.012)
<i>Log likelihood</i>		-6162.06		-5141.97
<i>AIC</i>		12502.12		10461.94
<i>BIC</i>		13180.84		11140.66
<i>Observations</i>		15,154		15,154

*** p<0.01, ** p<0.05, * p<0.1 Robust standard errors in parentheses