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The Cultural Value and Variety of Playing Video Games

Karol J. Borowiecki and Juan Prieto-Rodriguez

Abstract This chapter compares different profiles of video game players and studies how these groups differ in their cultural consumptions patterns. By using a unique dataset on cultural participation in Denmark, we address the problem of over-aggregation and differentiate between several profiles of video gamers based on the genre they play. We find that video gamers are far from being unresponsive to other forms of cultural consumption. In fact, they rather exhibit, on average, better cultural habits than non-players. In particular, they have higher frequencies of reading, museum and performing arts attendance, and are more likely to be involved in active music participation. The exception exists for the category of reflex game players; this could be driven by age effects, since reflex games are the most popular among (males) under 40.

Keywords Cultural participation • Video games

1 Introduction

One of the issues often neglected within the field of cultural economics is that many of the studies on cultural participation are affected by over-aggregation. Whether the data used relates to museums, performing arts or other more typically studied cultural attractions, research often underlies the strong assumption of homogeneity in products. This does not differ from the majority of research on demand. However, while the assumption of homogeneity in products can be seen as a weak assumption in most markets, cultural markets are characterized, perhaps even defined, as being extremely heterogeneous. In fact, this is one of their main characteristics and as such, implies that cultural goods can incorporate completely different values and features even within the same category. This heterogeneity also

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leads to different kinds of consumers within each cultural sector and the existence of niche consumers. For instance, mainstream theatre contrasts radically from alternative or classical theatre and this also implies significant differences in the types of audience. Similarly, museums can differ depending on the nature of the exhibit, ownership or size. Depending on its exact attributes, a museum may be visited by a certain type of audience. This consideration applies naturally also to books, cinema and other audio-visual products, including video games.

This problem of over-aggregation in cultural economics could well be related to the lack of data good enough to consider the diversity of cultural goods.[1] Of relevance also, are the classic findings outlined by Baumol and Bowen (1966, p. 84) that "audiences from art form to art form are very similar". If different art forms have the same type of audiences, can differences exist within the same type of cultural good? We believe that yes, and argue, first, that different factors affect diversity in cultural consumption (across goods and within industries) and, second, that low consumer diversity between different types of cultural goods can coexist with a relative large diversity within cultural industries. We outline and support our arguments by referring to the fast growing video games industry.

Here, by using a unique dataset on cultural participation in Denmark, we are able to disentangle the types of video games into a range of sub-categories and study the emerging differences in the consumption patterns and consumer backgrounds and behaviours. We also compare other cultural consumptions patterns depending on whether one plays or does not play video games. As such, this paper is a response to the suggestions by Borowiecki and Prieto-Rodriguez (2015), who propose that video games research should examine more closely how the playing patterns and socio-economic background of the video gamer changes for different types of game.

2 The Cultural Value of Video Games

As we have already pointed out in Borowiecki and Prieto-Rodriguez (2015), within the humanities, the arts and cultural value of the new genre of video games is recognized and has been studied already a long time ago. In fact, various disciplines other than economics have identified a number of interesting parallels drawn between video games and other traditional art forms from the 90s. For instance, Laurel (1991) highlights how digital media enable their users to enhance their roles to drama performers and to act not just as audience members. The game player is able to alter the story by way of, as Laurel's calls it, a performative authorship that

[1] See Sect. 1 of this book where some methodological issues regarding audience studies are discussed including those linked with the quality of the available surveys in Europe. Also, chapters on EU cinema audiences and on music listening in Spain analyse different profiles of cultural consumers trying to emphasise the importance of movie and music genres.

shapes the behaviour of the game character and influences the events that unfold in the plot. Furthermore, Murray (1997) studies the connections between traditional narratives and new digital environments and how the new digital mediums can be used to magnify the potential of expression available for story-telling.

The artistic properties of video games can go beyond the narrative or theatrical expressions, where iconographic landscapes (Jenkins 2006) resemble the features of contemporary art. The Museum of Modern Art in New York took this parallelism into account and has included, since March 2013, an exhibition of the best in video game design and aesthetics as part of its permanent collection. According to the curator, video games are art due to the visual quality and aesthetic experience of, but "they are also design, and a design approach is what we chose for this new foray into this universe" (Antonelli 2012). The visual aspects of video games are of great importance not only because they affect the experience of playing a game, but also because they allow customers to view the product before the actual game play. It is therefore not a coincidence that game artists are equally well sought after as game programmers (Bethke 2003). However, despite the increasing demand for game artists, the contribution of an individual remains usually unobserved and the relevant labour market is not characterized by the superstar phenomenon present in other cultural industries. This is so as games are rarely bought nowadays due to the fact that a famous programmer or game artist developed the product.[2]

While some recognize cultural value in even the earliest games from the 1970s (e.g. Murray 1997), the relatively recent technological advancements created enormous potential for artistic expression and creation of cultural content. Jenkins (2006) explains how creativity is stimulated when the constant shift in the basic tools and resources of game designers redirects their attention from mastering a tool to exploring properties and potentials of the medium. Similarly, in the past, technological advances have affected production of traditional cultural formats: print technology stimulated the development of novels and, more recently, film technology advanced the production of movies (Murray 1997).

Within the game industry, the advancement of the available technology allows for increasingly sophisticated game design, but also demands larger sizes of development teams, increased development times and rising budgets. Interestingly, technological improvements have a different effect on other cultural industries. For example, music or film industry technologies enable cheaper production and stimulate the emergence of independent musicians or film producers. This leads to increasing differences in the organizational structures across those industries. While in the music industry the musician, especially a famous one, is more

[2]This was different when games were not so complex and were often developed by single artists and designers. Consider for example the action-adventure game *Another World*, developed by Eric Chahi, which was highly innovative in the use of cinematic effects in the graphics. The game sold around a million copies during the 1990s and was selected as one of the first 14 titles to be exhibited in the video game art exposition at the Museum of Modern Art in New York.

important than the publisher, in the game industry, publishers are more important than developers.[3]

Alongside the technological advancements, came the emergence of multiplayer online games. In those games, the power of the player can go beyond the possibility of impacting the character and plot of the game—affecting other real people as well. With this in mind Espen Aarseth, editor of the *International Journal of Computer Game Research*, highlights the cultural superiority of video games, which by combining aesthetic elements with social ones, allow direct communication and interaction between participants. Video games thus incorporate greater cultural value than the more traditional mass media, such as theatre, movies, TV shows and novels (Aarseth 2001). Interestingly, multiplayer video games have arguably the potential to improve our understanding of human behaviour and economic activity. Often, these virtual worlds offer a unique context for natural experiments, a high number of participants as well as tightly controlled experimental conditions (Castronova 2001).

3 Data from Denmark

The dataset used in the analysis comes from the 2012 Danish Cultural Habits and Preferences Survey (*Kulturvaneundersøgelsen*), issued by the Ministry of Culture. It is the seventh study since 1964 and contains information on participation in different cultural activities and the use of media. Furthermore, the dataset contains information on some personal characteristics: gender, age, region and civil status. Unfortunately, there is no information on educational attainments, which is usually one of the key variables to explain cultural consumption although it is probably more relevant for participation in the 'high' arts.

A total number of 3644 observations are available with 3576 valid responses regarding the intensity of video games playing. The variable of main interest records the frequency of playing video games with the following eight categories: more than 3 h per day, more than 1 h per day, every day or almost every day, 3–4 days per week, 1–2 days per week, 1–3 days per month, less often and never.

This dataset also provides information on the type of video game played by the respondent. The survey distinguishes between 15 video game genres from platform to virtual reality games. However, seven categories represent very specific game types with a small number of players (below 5% of the sample). Taking into account the labels used by the survey and the correlation between categories, we have defined the following four groups: (a) Classics: classics games and puzzles; (b) Reflex: action, fight, platform, shooter, car, RPG, simulators and sports games; (c) Strategic: strategic and graphic adventures and (d) Social: party and virtual reality games.

[3]See Egenfeldt-Nielsen et al. (2008) for an overview of the economic organization of the video game industry.

Table 1 Frequency of playing video games by genre

Variable	Mean	Std. Dev.
Classic	0.242	0.428
Puzzle	0.135	0.341
Classic and puzzle	0.283	0.451
Action	0.075	0.264
Driving	0.046	0.209
Fight	0.026	0.159
Platforms	0.056	0.231
R.P.G.	0.044	0.204
Shoot	0.065	0.247
Simulator	0.019	0.137
Sports	0.063	0.243
Reflex	0.162	0.368
Graphic adventures	0.046	0.209
Strategy	0.066	0.248
Strategy and adventures	0.091	0.288
Party	0.035	0.184
Virtual reality	0.032	0.177
Party and virtual reality	0.059	0.235
Video gamers	0.407	0.491

Table 1 displays the playing frequencies associated with each genre and also for the four categories that we will subsequently be used in this chapter. Although they are the two most popular groups, we aggregate classic and puzzle games because they present a very high correlation and a very significant Pearson's Chi-squared coefficient ($\chi^2(1) = 626.29$), which implies that the null hypothesis of independence between these two variables can be rejected.

4 Types of Games and Gender

We now describe the main characteristics of video gamers and the types of games they play. First, we explore the differences in playing video games and the corresponding intensity between gender and across age.

According to Fig. 1, and in line with the findings of Borowiecki and Prieto-Rodriguez (2015) for Spain, females are significant video games consumers. The probability of playing video games changes with age more intensively for men than women although this decreases over an individual's lifetime for both groups. Younger males play more than females but middle age and older females have a higher probability of playing than males, crossing as people turn 40. Therefore, whereas among adolescents, the likelihood of playing is almost 100% for men, it is

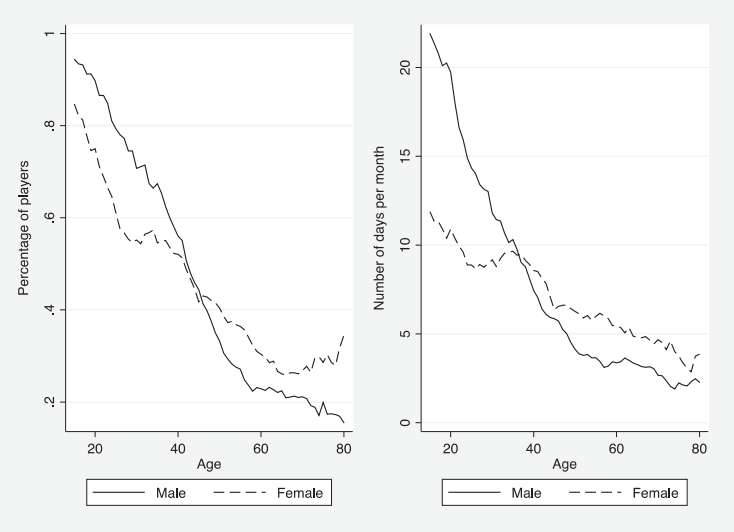

Fig. 1 Probability and frequency of playing video games by gender and age

<85% for women. However, among senior cohorts, females have a probability of playing almost double to that of males.

The intensity of playing also has a different pattern for men and women by age. Video games playing decreases over an individual's lifetime, however at an unequal rate. Young people especially males often play around 20 days per month, but this decreases sharply to below 5 days per month on reaching their 50s. For women the decrease is less dramatic and drops from about 12 to around 5 days per month. The frequency functions for both gender cross at the age of 36 years. We conclude that there exists a marked gender difference in terms of probability and intensity of playing in favour of young men compared to women of the same cohort, but this difference disappears at middle-age and reverses for older generations.

Figure 2 displays the proportion of players for each type of game by gender and age. It is noteworthy how classic video games become increasingly relevant with age, exhibiting a markedly upward trend; however, for any age-cohort these types of games are more popular amongst females than males, with an almost constant 20% gap. Strategic games popularity increases up to an individual's late 20s when it peaks and then decreases for both males and females. These games are not very popular with middle age and older players and are fairly independent of gender, being played by about 10% of players. However, we observe an important difference among the youngest cohorts: Strategic games are the second most popular type of games amongst young males (reaching up to 30%) but are significantly less popular with young females (always below 18%).

Finally, the most marked differences by gender can be observed for reflex games (action, fight, platform, shooter, car, RPG, simulators and sports games). On the one hand, as a game they are the most likely to be played in the case of youngest and

Fig. 2 Type of video games played by gender and age

middle age males and are the second most popular amongst older men. Despite a gradual decrease with age for almost all male cohorts this type of video game is chosen by at least 20% of players and has a peak at 50% for teenagers. On the other hand, the decrease with age is less marked for females, being played by roughly 20% of female players between the ages of 15–40 years and <10% for older women.

It is clear that there are genre differences both in the type of games played and the amount of time devoted to play. It is also important to point out that playing video games is in terms of activity neither exclusive to teenagers nor a domain of male players only.

5 Cultural Participation by Type of Game

Video games are often perceived as creative goods that have a low cultural value, if any as well as being envisaged as problematic, because they are substitutes for 'genuine' cultural goods. Video gamers, especially, young cohorts use their leisure time to play instead of dedicating time to reading or attending theatrical plays or music concerts. Using econometrics tools, Borowiecki and Prieto-Rodriguez (2015) show that this claim is inaccurate. In fact, the probability of playing a video game is positively correlated with the consumption of other cultural goods (e.g., listening to music) or active involvement in artistic activities (such as writing or visual arts production). Moreover, they find no negative impact on reading habits or practicing performing arts or musical activities.

In this section, we try to undertake a more in-depth analysis by examining whether the differences in cultural habits are linked to the kind of video games that people play. Specifically, we look at reading frequency, attendance of theatrical performances and visits to museums.

Reading can be considered as one of the main intellectual and cultural activities and the basis for many others.[4] Therefore, potentially, bad reading habits by video gamers may be an indicator of poorer cultural lives. We investigate this hypothesis by exploring whether video game players and non-players exhibit different reading habits.

Figure 3 displays average reading frequencies for different video gamers distinguishing three types of readings: fiction, sciences and comics. The picture indicates a rather high reading frequency for video game players. As for fiction, all but reflex games fans have a higher reading frequency than non-players, although notably only classic games players reveal a significantly higher rate. For scientific and technical books, non-players have a lower frequency than players and the difference is significant for all groups except for reflex games. Finally, comics are read more frequently by video gamers, especially by reflex and social game players. It is worthwhile noting that, according to Borowiecki and Prieto-Rodriguez (2015), reading is not significantly correlated with the probability of playing when other factors are controlled for. However, it is also true that these controls included another literacy activity, namely writing, that was in fact positively and significantly correlated with video game frequency. Another difference is that, in this chapter, we disaggregate types of video games and we do not use multiple correlation analysis. In any case, the evidence presented here indicates that video gamers are not as was perceived, individuals with a complete disinterest in reading; on the contrary, on average, they exhibit better reading habits than the average non-player.

Figure 4 presents the number of times per year different types of video gamers attend performing arts distinguishing in this context theatre, opera and lyric theatre (labelled Opera), musicals and cabaret. Within each group, independently of the type of video games played or whether the respondent plays at all, we observe the same ranking in popularity among the four types of performing arts, with theatre proving the most popular and opera the most exclusive. We also observe that non-players attend opera significantly more often than players.[5] Although these differences are statistically significant, opera attendance rates for non-players are twice the attendance of reflex game players but this difference is below one fifth for classic games. This result could be due to an underlying age effect since, as we have

[4]Fernández-Blanco et al. (2017) have found a positive correlation between reading as a leisure activity and visits to museums, expositions and monuments, active cultural participation (e.g., playing music or practicing traditional visual arts) and video watching, listening to music or attending cinema. This positive link was also significant with self-declared interest in cultural activities. Additionally, they have also found a positive correlation between video gaming and the number of books read.

[5]We run several tests of hypotheses comparing means to assess whether the observed mean differences are statistically significant or not.

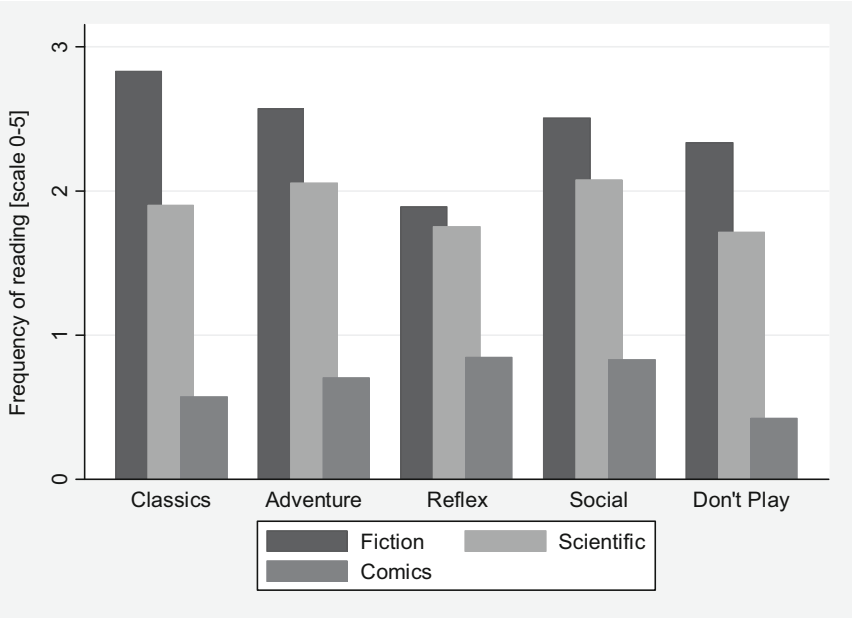

Fig. 3 Reading frequency by type of game played

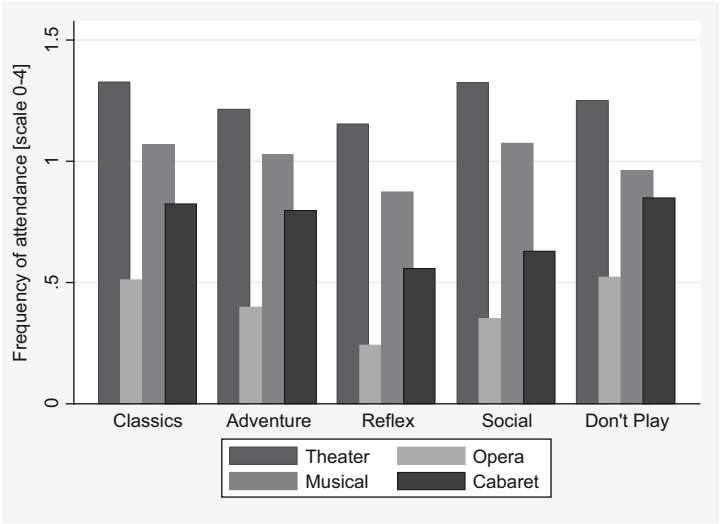

Fig. 4 Attendance at various theatrical attractions by type of video game played

seen previously, reflex games are especially popular among the youngest players while classic games are increasingly popular with age. In turn opera and lyrical theatre, although always very exclusive are more popular among middle-aged and

older people. Regarding cabaret, differences are again smaller when comparing classic and social game players with non-players and larger with regard to reflex game players.

People that play classic and puzzle video games, on the one hand, and social games, on the other, have on average a higher demand for theatre and musicals than non-players. The differences are insignificant for adventure and strategic games players and the only group of gamers that underperform non-players are those playing reflex games.

Regarding museums (Fig. 5), non-players present higher attendance rates than reflex games players for history museums, monuments and art museums and galleries. However, non-players do not have significantly higher rates of attendance to history or art museums compared to players of other games. In fact, adventure and strategy players have a significantly higher average frequency of attendance than non-player for both types of museums.

Classic and puzzle game players are the most common museums and art gallery visitors; this can possibly be attributed to the age effect. Finally, all video players visit a natural history museum more often than non-players, although for classic games, the significance level of this difference is 10% only. Again, this could be related to the age differences, since natural history museums may be more popular among young people. In any case, it seems that being a video game player does not necessary imply a lower demand for museums, although there are some clear differences across the game genres.

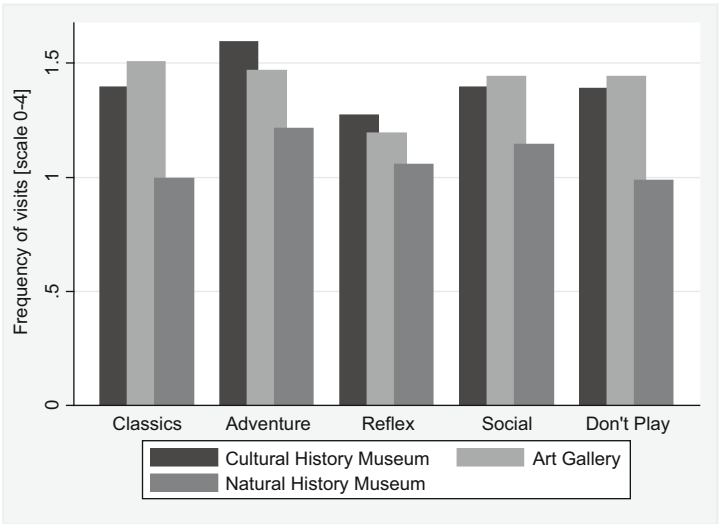

Fig. 5 Attendance of various types of museums by type of game played

6 Music Video Games and Participation in Music

Finally, we explore how playing video games is correlated with music listening or concert attendance. For this reason, we avail ourselves of the music video games category, which is most closely related to music in general. An implicit advantage of the survey design is that questions on music activities were asked in the music module that comes before the video games module without any cross reference to video games. Therefore, we can almost be sure that the figures presented in this section for music activities are not biased because of a misinterpretation of the question. For instance, if a respondent reported to have been singing, it is unlikely that this was when she played the singing video game *Singstar* or similar.[6] As seen in Fig. 6 those who play music video games also listen to music more frequently. The gap is larger for males than for females but significant in both cases. Therefore, not surprisingly, those who play music games have a higher probability of listening to other music in addition to the music in video games. Moreover, those playing games exhibit a higher participation in music activities: They are more likely to sing, play musical instruments or compose. The probability of playing an instrument or composing music is twice as large for those who play music video games.

Finally, using data on the type of concerts attended, we describe, in Fig. 7, what music genre is preferred by those who play music video games. We can observe some interesting results regarding the correlation between attendance to music concerts and playing music video games. First, genres that are typically associated

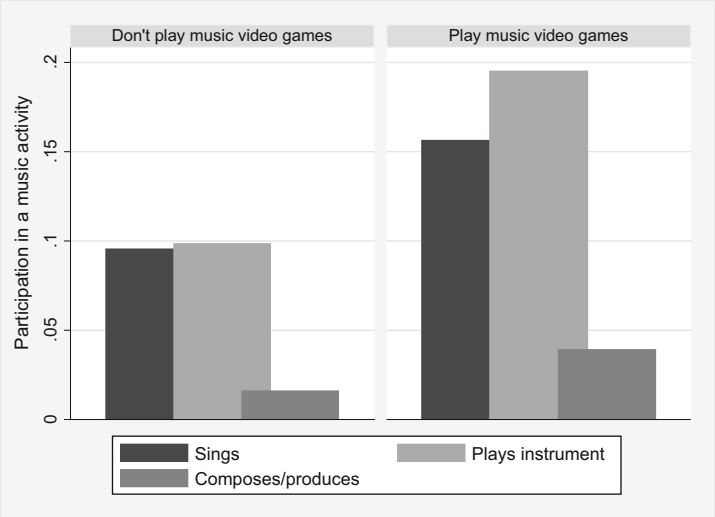

Fig. 6 Probability of participation in music activities

[6]Music games are called "party games" in the survey. The given examples are *Singstar* or *Dance Dance Revolution*.

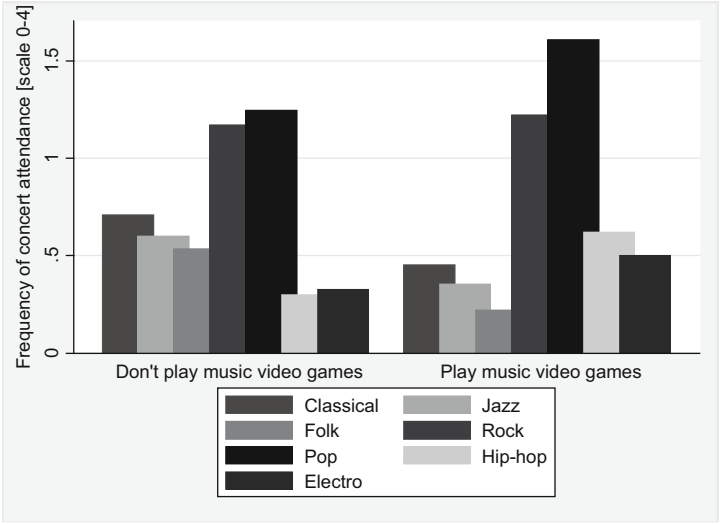

Fig. 7 Frequency of concert attendance by those who play music games

with middle age and older people (classical music, jazz and folk)[7] show a higher rate of concert attendance for non-players. Second, there is a very large relative difference for electronic and hip-hop attendants in favour of those who play music games. People playing music games also attend pop music and rock concerts more frequently, but here the difference is not significant. These results may again be attributable to age effects.

7 Conclusion

Video games are not always thought of as creative products, even in comparisons with the three main cultural industries: music, movies and publishing. There is also evidence of prejudice towards individuals who play video games, either on a console, a personal computer, a tablet or a smart phone. As in the films *Bowling for Columbine* (2002) and *Elephant* (2003), winners of the Oscar for the best documentary and the Palme d'Or at Cannes Film Festival respectively, video gamers are sometimes viewed as young nihilists who dedicate their time to killing virtual people without really worrying about other forms of cultural consumption. These perceptions find no support in our data.

It can be argued that many products of the video game industry do not aspire to such high standards of creativity and are oriented to a mass consumption market without artistic aspirations. But, equally so, could we not use these same arguments

[7] See Fernández-Blanco et al. in this volume.

to describe the situation in the audiovisual industry, film and fiction? How many products of the cultural industries are put on the market with a questionable cultural value? Therefore, it seems unfair to judge video games with standards that we do not strictly apply to other cultural sectors.

Recent years have seen numerous changes in the video games industry resulting in an expansion of both demand and supply which accompanied by technological advancements, have served to bring it closer to other cultural industries. For instance, older generations of gamers have grown up, but still play; maybe not the same type of games but they are still characterized by positive playing probabilities and frequencies. Additionally, gaming platforms are more diverse than ever before and attract new players and developers. Games have become increasingly complex and the industry focuses more on game development and promotion. Related to all this, video games players cannot be viewed as a niche consumer anymore. They are mainstream consumers and their consumption exhibits a very high degree of heterogeneity, which includes, as observed in this study, a heterogeneous genre demand. Our analyses illuminate some of the biases associated with over-aggregation, which is common in cultural economics. The disaggregation conducted does not solve the problem entirely, since even within a single video game category, heterogeneity exists. An action game can vary, for example, based on its degree of violence, or where, or when it is set. In some way, each single video game, similar to any cultural product, is unique.

In this study, we also find that video gamers are far from being unresponsive to other forms of cultural consumption. They tend on average to exhibit better cultural habits than non-players with, in general, higher frequencies of reading, museum and performing arts attendance, and active music participation. The main exception is the case of reflex game players. This group exhibits the lowest demand for other cultural activities with differences that are in many cases significant. These patterns could be strongly driven by age, since reflex games are more popular among (males) under 40. Therefore, it is possible that these consumers do not attend opera or read as often as other groups because they are younger on average and not because they play sport, shooting or simulator games. Their age determines their high demand for this type of games and the low participation in other cultural activities but without a causal link between both variables.

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