Chapter 6

Music access patterns: A social interpretation based on consumption volume and linkage needs*

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Abstract

The substitution of purchased music by downloaded music has been much researched using individualistic psychological or economic frameworks. However, such research designs rarely take into account the social dimension of music taste and access to music, with social science research only recently addressing the way individuals access information and cultural expressions. Our research develops and tests a theoretical model of access to music that is based on the life stage and social position of individuals (as reflected by their age and education) and explains why and how music access patterns, motivations and listening behaviours are structured by both these factors.

Keywords

Music access pattern, motivation, music consumption, theory of music access, latent class analysis.

1. Introduction

Music tastes have been extensively researched and, according to Bennett, Emmisson and Frow (1999: page 171), have acquired the status of "sensitive barometers of more general cultural dispositions". In his famous work *Distinction,* Bourdieu states that "nothing more clearly affirms one's class, nothing more infallibly classifies, than tastes in music" (1984: page 18). However, individuals have to access music before they can enjoy and develop any particular tastes. Access is therefore a broader concept than market exchange (Belk, 2013). By access to music we refer to how individuals nowadays get music, which may be through traditional physical exchanges or digital exchanges, either of which can be market or social exchanges. Even though the way people access culture has changed radically in recent years, this issue has been much less investigated than tastes in music.

Most of the existing research addressing how individuals access music has adopted either an economic or psychological framework. The economic framework explores the impact of Internet file sharing (digital social exchanges among unknown peers) on falling music purchases (market exchanges), whereas the psychological framework attempts to explain individual factors (motivations, benefits, perceptions, ethics, personal attachment to artists, etc) that correlate with Internet file sharing and music purchases. Findings regarding the economic impact of Internet file sharing on music industry sales have been rather mixed (Liebowitz, 2005; Liebowitz & Watt, 2006; Michel, 2004). Research based on the psychological framework, which has not been any more fructiferous, has only rarely tended to focus on social indicators for the sampled individuals (Sandulli, 2007; Wang, Chen, Yang & Farn, 2009).

Social researchers have recently started to describe the way individuals access information and cultural expressions using the Internet (a medium for the digital social exchange of culture). Kayahara and Wellman (2007), for instance, studied a sample of Canadians searching for information about culture; Nieckarz Jr. (2005) researched the role of the Internet in facilitating

and maintaining a community that collects and trades live-music performances (a digital social exchange); Tepper, Hargittai and Touve (2007) and Tepper and Hargittai (2009) studied the music exploration pathways used by university students (traditional and digital exchanges of information); and Williams (2006) studied the roles played by live music and the Internet (traditional and digital exchanges) in self-identifying members of the straightedge youth subculture. Results point to the important role played by peers in terms of selecting kinds of culture expressions and by the Internet in terms of accessing further information.

Rather than focus on substitution between ways of accessing music or on the relationship between information sources and ways of accessing culture, our research explores social patterns of how and why people access music. More specifically, we endeavour to provide evidence and a social interpretation that could go some way to explaining associations between age and music access and between music access and social position. If music taste is a social classifier — as argued by Bourdieu (1984), by Bennett et al. (1999) and by Williams (2006) — then we may ask ourselves: are music access patterns not also socially structured?

To answer this question, we used a nationally representative Spanish microdata sample and a relational methodology that combined latent class modelling and correspondence analysis in order to, first, identify music access patterns and, second, determine the relationship between these patterns and several sets of indicators. We identified four broad consumer groups: *non-accessers*, who never bought, copied or downloaded any music whatsoever; *buyers,* who generally preferred to purchase music; and two intermediate groups, namely, *downloaders*, who predominantly downloaded music from peer-to-peer (P2P) networks, and *copiers-buyers*, who typically copied from friends/family but also purchased music. Each music access pattern was socially structured by age and by social position, as were the volumes listened to and individual motivations.

2. Theoretical Music Access Framework

2.1. Findings for an Individualistic Framework

Our understanding of who (social interpretation of behaviour) accesses music, and how (behaviour patterns) and why (motivations) they do so, is rather limited. Researchers have, nonetheless, studied the impact of background and motivations on the ways consumers access music, paying special attention to: (1) patterns of accessing music; (2) the impact of downloading music from P2P networks (digital social exchanges) on purchases (market exchanges); (3) the moderating effect of the felt personal relationship between consumers and interpreters on market exchanges; and (4) the fashion impact of music as a social identity indicator, irrespective of the way music is accessed.

2.1.1. Patterns of Accessing Music

Findings overall seem to be conditioned by different research designs, data and analyses. In spite of different motivations underpinning behaviour patterns, researchers have consistently found a pattern of heavy downloaders, occasional downloaders and purchasers. For a sample of 204 individuals, Molteni and Ordanini (2003) evaluated access to music through P2P networks, MP3 files and CDs based on six motivations. These authors identified five music consumer clusters: occasional downloaders (via MP3 sites), mass listeners (via P2P and MP3 sites), explorers/pioneers (mostly interested in searching for and exploring music), curious individuals (P2P site users, purely interested in entertainment) and duplicators (surfers of MP3 and P2P sites mainly for recording purposes). Walsh, Mitchell and Wiedmann (2003) studied 4,016 German music consumers mainly aged 20-39 years (70% of the sample), finding that 37% were regular downloaders of music from the Internet. These authors clustered — according to four latent motivations — music downloaders in three groups: demanding downloaders (motivated mainly by trend consciousness and topicality); general download approvers

(motivated mainly by assortment and time advantage); and procurement autonomous downloaders (motivated mainly by independence).

2.1.2. The Impact of Digital Social Exchanges on Market Exchanges

This issue has been analysed indirectly through studies of the influences of downloading itself and of downloaded music volume as a proportion of all music. Al-Rafee and Cronan (2006) found, for a sample of 285 students, that subjective norms and happiness had a positive effect on downloading, while importance had a negative effect. For a sample of 4,460 Spaniards, Sandulli (2007) regressed a set of five factors (flexibility, discovery, community, assortment, and convenience) plus an index of the relative cost of CDs and P2P music on the proportion of P2P music accessed as compared to CDs owned (the lower the index, the higher the proportion of P2P music), then factored into the equation age, sex, willingness to pay, an indicator of having previously bought music online and the number of years using P2P. Sandulli (2007) found, in relation to P2P-owned music, that higher access proportions were associated with price, assortment and discovery, while lower proportions were associated with flexibility, age and willingness to pay. Their sample, it should be noted, was biased towards a younger age group of 18-24 year olds (74% of the sample). Like Al-Rafee and Cronan (2006), Chu and Lu (2007) studied the factors influencing online music purchase intentions for a data sample composed of 302 Taiwanese early adopters. They found that the perceived value of online music was a significant factor in predicting consumer online music purchase intentions, with this perception positively affected by usefulness and playfulness, and negatively affected by price and ease of use. Moreover, value perceptions differed, with actual purchasers affected positively by usefulness and negatively by price, and potential purchasers affected positively by playfulness and negatively by price (even more so than the purchasers).

2.1.3. The Moderating Effect of Felt Personal Relationships

Wang et al. (2009) and Ouellet (2007) analysed the impact of the consumer-interpreter relationship on music purchasing intentions. Wang et al. (2009) quantified this effect, labelled idolatry, for a sample of 350 teenagers in northern Taiwan, finding that downloading music had no significant bearing on the intention to buy music. The idolatry effect, even though it positively influenced purchase intentions, was lower for consumers with high download intentions. Ouellet (2007) found that preferences for particular music explained the need to acquire the music so as to be able to re-experience it (Lacher, 1989; Lacher & Mizerski, 1994), while attachment to performers — as with idolatry in the case of Wang et al. (2009) — explained the decision to purchase rather than download.

2.1.4. The Fashion Impact of Music as an Indicator of Social Identity

Chen, Shang and Lin (2008) used a representative stratified sample of 834 Taiwanese from Kuro (the biggest P2P community in Taiwan) to explore the background to music download intentions. Using three indicators of download intentions (fashion involvement, perceived value and perceived value difference) and a morality scale, they found that music was accessed through file sharing to maximize the consumption value. Interestingly, fashion involvement (an indicator of the social link between individuals in a group) affected both the intention to download and the perceived value of downloading. The authors conceptualized fashion involvement as an indicator of the degree to which individuals attempt to socially identify with members of a concrete social group by behaving like them (Miller, McIntyre & Mantrala, 1993; Reynolds, 1968; Sproles, 1979).

2.2. A Social Framework to Explain Music Access Patterns

Most research to date has explored individuals' motivations and their impact on the way they access music (particularly for downloading and purchases), whereas less attention has been paid to the social patterning of

personal motivations and ways of accessing culture (see, e.g., Al-Rafee & Cronan, 2006; Chen et al., 2008; Chu & Lu, 2007; Molteni & Ordanini, 2003; Ouellet, 2007; Walsh et al., 2003). If social indicators were introduced in the analyses at all, they were used merely as control variables (Sandulli, 2007; Wang et al., 2009). However, these studies did report a significant correlation between social indicators and music acquisition practices. Wang et al. (2009), for instance, showed that age and being female were negatively correlated with the intention to buy; Sandulli (2007) — even though his sample was biased towards younger individuals — found that age was negatively associated with proportions of P2P music versus purchased CD music, with younger people possessing more downloaded music.

All this suggests that an individual's position in the social space is related to motivations and means regarding access to music. According to the theory of taste (Bourdieu, 1984), an individual's position in the social space is characterized by three properties, concretely: (1) their volume of capital; (2) the composition of the capital; and (3) the individual's trajectory in social space over time. Bourdieu suggests that the volume of capital and its composition are two principles of social differentiation, whereas an individual's social trajectory reveals how individuals transform their economic capital into cultural capital, and, in turn, their cultural capital into social capital — and, in so doing, change their position in social space over time. Bourdieu's theory of taste not only aims to explain taste in a particular temporal and spatial setting, but also how it varies with an individual's social position, emphasizing that individuals are, in fact, temporal occupants of social positions. His theory, then, suggests: (1) that social categories ought to be studied from a spatial and relational perspective that helps researchers uncover social structures for individual tastes and behaviours; and (2) that the interest in individuals resides in their trajectories in the social space. In this research we focused on Bourdieu's first proposition, as we were interested in how particular social categories are associated with access to music.

The structural view of the theory of taste suggests that positions in the social space are related to individual behaviours through the concept of

habitus, which refers to a framework of interpretation and action that guides individuals when they make decisions about what to consume, how to access goods, how to consume them and how to interpret what others consume (Bourdieu, 1983, 1984, 1989). Bourdieu's relational view of social position has favoured the use of interdependence methods of analysis, particularly correspondence analysis. Interdependence methods propose that associations between social position indicators are due to unknown factors. It is these factors — Bourdieu's *habitus* — which relate the social space to the space of behaviours, motivations, preferences, and so on.

The *habitus*, which relates the social space to the space of interpretation and action, is a theoretical construct that goes beyond the concept of social class. For Bourdieu, social class is an empty construct — nothing more than the set of individuals that share a position in the social space as well as the *habitus* associated with those positions. Thus, its content changes as individuals occupying those positions change. A position in the social space, and its expected *habitus*, therefore, is not only defined through indicators of volume and variety of capital, but also through other social properties, such as gender, geographical location, ethnicity and age (Munk, 2003).

Most empirical work on the sociology of culture has researched whether individuals holding privileged positions have different musical genre tastes (Bourdieu, 1984; Peterson & Simkus, 1992; Peterson & Kern, 1996) and different patterns of attendance at cultural expressions (López-Sintas & García-Álvarez, 2004) and whether they even dine out differently (Warde, Martens & Olsen, 1999). According to Bourdieu's theory, preferences and actions are likely to be stratified, so differences in taste are interpreted as evidence in favour of Bourdieu's homology thesis (van Rees, Vermunt & Verboord, 1999). However, recent research findings suggest that individuals in privileged social positions show an omnivorous pattern of cultural consumption, favouring not only highbrow but also lowbrow or popular culture (Peterson & Simkus, 1992; Peterson & Kern, 1996; López-Sintas & García-Álvarez, 2004). This cultural omnivore thesis, however, has its critics (Bennett et al., 2005, 2008; Bennett, Savage, Silva, Warde, Gayo-Cal &

Wright 2009; Warde, Wright and Gayo-Cal, 2007), it being suggested that a boundary-effacement effect might be blurring the differentiation effect. However, if we approach differentiation, omnivorousness and boundary effacement not as competing, but as simultaneous, effects, we can measure their impact on individual behaviours and understand the social processes that simultaneously structure individual actions and interpretations (Holbrook, Weiss & Habich, 2002; López-Sintas & García-Álvarez, 2005).

Although how individual tastes are structured according to their capital has been widely researched (see Peterson, 2005), less attention has been paid to showing how other social categories influence taste or how individuals access and enjoy cultural expressions. Before the advent of the Internet, people typically purchased music and borrowed it from peers or from the local library. Internet has increased the possibilities for accessing cultural expressions (Nieckarz Jr., 2005; Verbood, 2010; Wikström, 2010); indeed, its influence on access to culture is so important that some researchers have suggested that the proposition "you are what you own" ought to be changed to "you are what you can access" (Belk, 2013). Research has largely focused on whether the Internet reduces or widens social differences, both in accessing culture and in other social categories that may play a role in structuring access to culture.

In the first case, researcher interest has centred on understanding the social categories associated with what is called the first digital divide, namely, access to the Internet (Riggins & Dewan, 2005; van Dijk, 2005). However, researchers soon noted that, irrespective of the issue of actual access to the Internet, online music access patterns depended on an individual's position in the social space (Kayahara & Wellman, 2007; Tepper & Hargittai, 2009; Tepper, HargittaI & Touve, 2007). This phenomenon came to be called the second digital divide (Attewell, 2001; Peter & Valkenburg, 2006; Rice & Katz, 2003) — a divide marked not so much by economic capital as by age, gender and cultural capital. Van Dijk (2006), generalizing the proposition of Douglas and Isherwood (1979), proposed that information in an information society becomes paramount in being able to function in and control society (2006:

page 231). However, cultural capital — a resource that is unequally distributed in society — is necessary to be able to select and process information.

Age, as an indicator of cultural tastes, has also revealed itself to be a structuring factor. Van Eijck (2001) researched the omnivore proposition for the Dutch population, finding that age structured music tastes. Older people tended to have highbrow tastes, whereas younger people — called the "new omnivores" by van Eijck (2001) — preferred pop/rock music. López-Sintas & García-Álvarez (2002a,2002b) and Coulangeon (2003) also found that age structured cultural tastes in the Spanish and French social spaces, respectively.

More recently, Tampubolon (2008a) used the US General Social Survey of 1993 to re-examine the relationship between social and cultural spaces, analysing musical genre data on likes and dislikes using methods for imputing missing values and a latent class model with multiple indicators and multiple independent causes. He found univorous and omnivorous patterns of music tastes (one and two in number, respectively), but his most striking finding was that the patterns were structured according to age and education and that age stratified tastes orthogonally to education. Purhonen, Gronow and Rahkonen (2009), in studying the music and literature likes and dislikes of the Finns, found that age, as well as gender, proved to be a structuring axis that was at least as important as education in explaining musical and literary tastes. Savage (2006) reported similar findings for research into musical genre likes and dislikes for a sample of British individuals. Therefore, if we take age as a social indicator of a life stage during which individuals develop music preferences — as suggested by Holbrook and Schindler (1994) and Bonneville-Roussy, Rentfrow, Xu and Potter (2013) — when we study access to music we should pay attention not only to Bourdieu's two principles of differentiation, but also to how an individual's life stage influences both their music preferences and the way they access culture.

To sum up, theory and evidence to date suggest that age and the economic and cultural capital of individuals are the two main factors structuring music tastes. We can thus expect that capital will influence how music is accessed, whereas age will influence music preferences and volume. Yet, to the best of our knowledge, no research has been performed that links music acquisition patterns to social position and life stage, or that explains these links. Here we provide a theoretical account and evidence regarding the social structuring of music access patterns. In particular, we examine the music access patterns for a sample of individuals and analyse associations between these patterns and (1) an individual's social position; (2) music buying and listening behaviour; and (3) reasons for downloading music.

3. Methodology

3.1. The Spanish Music Market

The Spanish music market has developed in a similar way to other national markets. From 2001, the sales value of music in traditional formats began to fall, dropping from 685 million euros to 257 million euros in 2007. This reduction occurred in parallel to a phenomenal rise in concert revenues for artists, which grew from 144 million euros in 2005 to 285 million euros in 2007 and 309 million euros in 2008. Record companies have thus started to impose what are called 360-degree contracts on artists that allow them to draw on all possible sources of income. Another watershed year in Spain was 2001, as Spanish artists were in a majority for the first time in the list of 50 best-selling albums, with the gap growing in the ensuing years (Promusicae, 2005: page 65). Contrasting with the fall in traditional sales, revenues from sales through mobile and online channels grew sixfold between 2004 and 2008, coming to represent 11% of total revenues in 2008. Although this rate of growth was faster than the world average, sales through these channels in Spain are still far from the 27% of industry revenues worldwide and the 40% for the US market (Fedea, 2010).

Access to the Internet in Spain (essential for online access to music) was 41% in 2008 (Fundación BBVA, 2008), a relatively low rate compared to other Western Europe countries, especially the Netherlands (87.8%). CDs are more expensive in Spain than in the USA or the rest of Europe (around double the price in the UK in absolute terms, for instance). Considering that average household income in the UK is almost double that of Spain, a CD in Spain is effectively around four times as expensive as in the UK.[1]

3.2. Data and Variables

The data for our study came from a Spanish survey on habits and cultural practices for 2006-2007 (for technical details, see Ministry of Culture, 2007). Surveyed were 14,822 Spanish and non-Spanish individuals of both sexes, aged 15 years and older, resident in Spain at the time of interview. The survey was conducted in four waves (one per quarter) between March 2006 and February 2007; each quarterly survey was based on a representative random sample of about 25% of the sampled individuals (all four quarterly surveys were used for our analysis), stratified by size according to autonomous community and municipality. This stratification by autonomous community was necessary to produce a representative sample with a 95% confidence level, not only at an aggregate level (age and gender) but also at the autonomous community level (Ministry of Culture, 2007).

In the interest of brevity, background data referring to the research described below are provided in supplementary form in Tables A1-A6.

3.2.1. Music Access Indicators

The volume of music accessed differed according to exchange type and format: for market exchanges, number of purchased albums/individual tracks; and for social exchanges, number of downloaded/copied albums/individual tracks. We thus established four music access indicators:

1 See "Comprar música en España me cuesta el doble!" (Buying music in Spain costs double!), published in http://www.burbuja.info and "El precio de la cultura en España" (The price of culture in Spain), published in http://www.animaadversa.es.

purchased albums, purchased tracks, downloaded/copied albums and downloaded/copied tracks. The way music was bought or downloaded/copied was recorded through behaviour indicators (discussed below). As the four indicators did not follow a normal distribution, we split the original continuous variables into categorical variables: without activity, normal activity (1 to 10 units), and exceptional activity (more than 10 units). For convenience sake, the statistics for these variables are reported in the last column in Table 2 (discussed further below).

3.2.2. Social Space Indicators

According to Bourdieu's theoretical framework, the properties of individuals are indicators of their social position, such that variations in individual properties — level and structure of capital, age, gender, etc — are variations in the individual's social position that are, moreover, visible in a social map.

The Ministry of Culture survey on which we based our research elicited information on education as an indicator of cultural capital and on occupational status as an indicator of economic capital; however, it provided no occupational breakdown and nor did it collect information on incomes. As a proxy for economic capital in our study, therefore, we used occupational status,[2] namely, the following five categories: employed persons; entrepreneurs and self-employed workers (freelancers); unemployed persons; people receiving old-age or disability pensions and individuals performing unpaid domestic tasks (homemakers); and students. Educational attainment was recorded in three categories, as follows: third-level post-graduate education; third-level graduate education; and upper secondary education or below. Age, interpreted here as an indicator of an individual's life stage, was recorded in five categories. In order to complete the description of the social space, four additional variables were included, as follows: personal situation (five categories); number of individuals aged 15 and over in the household (three

2 The survey did not admit the possibility of allocation to social classes using, for instance, the Erikson–Goldthorpe–Portocarero class scheme (Erikson & Goldthorpe, 1992; Evans, 1992).

categories); habitat where the household was located (five categories); and sex (Table A1).

3.2.3. Music Consumption Motivations

Survey questions that analysed the social patterning of motivations behind music access decisions were as follows: reasons for buying copies of albums from fairs/street markets; reasons for downloading music free from the Internet; reasons for preferring free copies of albums; and reasons for not buying original albums (Table A2).

3.2.4. Behaviour Indicators

Given that music access patterns could possibly be interpreted in terms of an association with how frequently an individual listened to music, listening frequency was recorded for radio (daily, weekly, monthly, quarterly) and for any other device (daily, weekly, monthly, quarterly, yearly, rarely, never). Time dedicated to listening (hours) was recorded in terms of four categories: 0, 1-3 hours, 4-6 hours, and 7 or more hours weekly. (See the last column in Table A3 for the main statistics for the variables used in the analysis). To analyse purchase and download frequency, two nominal variables were used: date of last purchase (in the physical market or through the Internet), and date of last recording (copied from a CD, radio, TV or computer, or downloaded from the Internet for free). Respondents who bought or recorded music in the last quarter were asked to indicate where or how they acquired their last purchased album (original bought from a store, or original/copy bought from a fair/street market) or recorded album (copied from friends/family, or downloaded for free). Similar information was collected for individual tracks, for just two options: copied from friends/family, or downloaded for free (Table A3).

3.3. Analytical Procedure

We used an exploratory latent class model (Lazarsfeld & Henry, 1968), given that this consumer behaviour model uncovers consumption patterns for hedonic product categories (Boter & Wedel, 1999; Jedidi, Krider & Weinberg, 1998). To account for unobserved heterogeneity, the latent class model splits an original sample into T clusters or classes, so that the association between indicators is explained by probabilistic class membership. On the assumption that the association between music purchase and music downloading/copying indicators is due to unobserved heterogeneity in the population (in our case, classes of consumers of music), we investigated the proposition that access to music occurs in patterns.

To define our latent class model, we denoted as Y_1, Y_2, Y_3, and Y_4 the four indicators of music accessed through the market (purchased albums, purchased tracks, downloaded/copied albums, and downloaded/copied tracks). The entire set of indicators was denoted as **Y.** All the indicators were treated as ordered factors with three levels. The model estimated a set of parameters (cluster size and indicator probabilities conditioned to cluster membership) for the analysed population as follows:

$$P(\mathbf{Y}=\mathbf{y}) = \sum_{t=1}^{T} P(t) \prod_{i=1}^{4} P(Y_i = y_i | t).$$

Once the parameters were obtained, subsequent membership probabilities were calculated and each individual was exclusively assigned to a single cluster (Magidson & Vermunt, 2001). Note that the model did not include any social indicator as a predictor of class membership, as we wanted to subsequently check whether access patterns were socially structured (Le Roux & Rouanet, 2004). To estimate the cluster model we used LatentGold, version 4.0 (see Vermunt and Magidson, 2005).

Once individuals were clustered, we used social position indicators (age, occupational status, education and other social variables) and the other sets of explanatory indicators to describe the clusters, although note that these indicators did not participate in actually forming the behaviour

clusters. The use of correspondence analysis to describe the set of clusters was a generalization of the usual ternary plots for when the number of clusters is greater than three (Magidson & Vermunt, 2001, 2004). To interpret the social space constructed in this way, we used the inertias (total variance) of the principal axes and the indicator contributions to the axes. Note that we used simple correspondence analysis as implemented by Nenadic and Greenacre (2007) in the R programming and data analysis environment (version 2.13, R Development Core Team, 2009) and, to test social music access patterns, we used the multinomial logit model implemented in SPSS 20.0.

4. Findings

4.1. Model Selection

Table 1 reports the statistics used to select the number of latent classes. The primary method for determining the number of latent classes is to statistically assess how latent class models fit the data using the likelihood ratio (L^2) statistic. Nevertheless, due to the sparseness of our data (more than 90% of individuals reported no activity for the indicators used), L^2 did not have an asymptotic chi-squared distribution and so could not be trusted for model selection using a statistical test. We therefore based our decision on heuristic methods, namely, two information criteria — the Bayesian information criterion (BIC) and the consistent Akaike information criterion (CAIC) (Fraley & Raftery, 1998; Raftery, 1986) — and the estimated proportion of classifications errors (see Vermunt & Magidson, 2005). Bearing in mind that lower values indicate a better model, Table 1 shows that the addition of the first two latent classes reduced L^2 by 81%; adding further latent classes (models with three to six classes) reduced the value of L^2 even further (by 9%, 3%, 1% and 1%, respectively). Both the BIC and CAIC indicated the best model to have four latent classes. The classification error hardly increased for the four-class model compared to the three-class model (both were within the limit proposed by van Rees et al. (1999), namely, 10%

of misclassifications); however, it did increase for the three-class and five-class models compared with the two-class and four-class models, respectively.[3]

Table 1. Goodness-of-fit statistics for the latent class models

Model	LL	Npar	L^2	BIC (L^2)	CAIC (L^2)	df	p-value	Class. err.
1-cluster	-22444.54	8	2600.8	1909.3	1837.2	72	1.8e-496	0.0000
2-cluster	-21387.62	13	486.9	-156.5	-223.5	67	5.1e-65	0.0681
3-cluster	-21270.23	18	252.1	-343.3	-405.3	62	9.1e-25	0.1043
4-cluster	-21227.28	23	166.2	-381.2	-438.2	57	1.3e-12	0.1088
5-cluster	-21210.05	28	131.8	-367.6	-419.6	52	7.3e-9	0.1793
6-cluster	-21196.91	33	105.5	-345.9	-392.9	47	2.2e-6	0.1749

4.2. Model Parameters

Table 2 shows the parameter estimates for the four-cluster model. The first row shows the proportion of individuals classified in each cluster, that is, $P(t)$, the relative size of the cluster. The next rows indicate behaviour probabilities given classification in a particular cluster, $P(Y = y_i|t)$. Thus, a respondent assigned to cluster one had an 87% probability of never buying an album, a 13% probability of buying fewer than ten albums a year and 0% probability of buying more than ten albums a year. The equivalent probabilities for a respondent assigned to cluster four were 3%, 86% and 11%, respectively.

3 We estimated alternative models allowing some local dependencies between indicators with residuals higher than one, but they led to the same solution, although with more classification errors.

Table 2. Buying, copying and downloading probabilities (%)

	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Sample**
Cluster size, P(t) (Std Err)	73.5% (0.02)	13% (0.01)	9% (0.01)	4.5% (0.02)	100%
Indicators, $P(y_i\|t)$					
CDs: Volume purchased in the physical market and via the Internet (last 3 months)					
0	**87% (0.02)**	**100% (0.02)**	10% (0.04)	3% (0.02)	78.1%
1-10	13% (0.02)	0% (0.02)	**86% (0.04)**	**86% (0.03)**	21.1%
>10	0% (0.01)	0% (0.01)	4% (0.01)	**11% (0.04)**	0.8%
CDs: Volume downloaded/recorded/copied (last 3 months)					
0	**98% (0.01)**	**38% (0.02)**	**42% (0.03)**	**100%** (0.01)	85.8%
1-10	2% (0,01)	**49% (.0.01)**	**47% (0.02)**	0% (0.01)	11.6%
>10	0% (0.01)	13% (0.02)	11% (0.01)	0% (0,01)	2.7%
Tracks: Volume purchased via the Internet (last 3 months)					
0	**100%** (0.01)	**100%** (0.01)	**95%** (0.01)	**89% (0.03)**	99.0%
1-10	0% (0.01)	0% (0.01)	3% (0.01)	**5% (0.01)**	0.5%
>10	0% (0.01)	0% (0.01)	2% (0.01)	**6% (0.02)**	0.5%
Tracks: Volume downloaded/recorded/copied (last 3 months)					
0	**99% (0.01)**	**49% (0.03)**	**60% (0.02)**	**97% (0.03)**	89.2%
1-10	1% (0.01)	**16% (0.01)**	**15% (0.01)**	3% (0.02)	4.1%
>10	0% (0.01)	**35% (0.02)**	**25% (0.02)**	1% (0.01)	6.7%

The model suggested four clusters: one very large cluster (73.5% of the sample) of *non-accessers,* i.e., individuals who did not buy, download, or copy music, although they did listen to music (see below); a second cluster (13%) of *downloaders,* who downloaded most of their music free from P2P networks on the Internet; a third cluster (9%) of *copiers-buyers,* who had similar probabilities of buying albums and of copying albums/tracks from friends/family; and finally, a fourth cluster (4.5%) of *buyers*, with a very high probability of buying music, whether as an original or as a copy (from physical or online stores or from fairs/street markets). In the interest of brevity, the three clusters composed of downloaders, copiers-buyers and buyers will collectively be referred to below as "active" clusters. Note also that although the proportion of *non-accessers* may appear high, it is consistent with existing evidence regarding cultural participation (for a comprehensive review, see Peterson, 2005).

In interpreting the data regarding the four music access indicators (purchased albums, purchased tracks, downloaded/copied albums and downloaded/copied tracks), non-accessers were overrepresented in cluster one. *Downloaders* (cluster two) were overrepresented for downloading albums and tracks, but especially (more than fivefold) for the greatest activity level, i.e., downloading more than ten units. *Copiers-buyers* (cluster three) were overrepresented for all the higher activity levels for all four indicators (four- to sixfold and three- to fourfold when it came to buying and downloading/copying albums/tracks, respectively). Finally, *buyers* (cluster four) were only overrepresented for the higher activity levels for the purchasing indicators (almost 14 times and four- to eightfold for the highest and intermediate activity levels, respectively).

4.3. Social Position and Life Stage Indicators

The association between social space indictors and individuals classified in the four clusters is depicted in the symmetric correspondence analysis biplot shown in Figure 1, where the absolute contributions of points to axis variation are indicated by different colour intensities and where mass is indicated by

size (see Nenadic & Greenacre, 2007). The first axis, which explained 93% of sample variation, orders clusters according to age, from younger (cluster two) to older (cluster one); the second axis, which explained 7% of sample variation, orders clusters two to four according to social position (from students and single individuals to individuals with the highest educational and occupational levels).

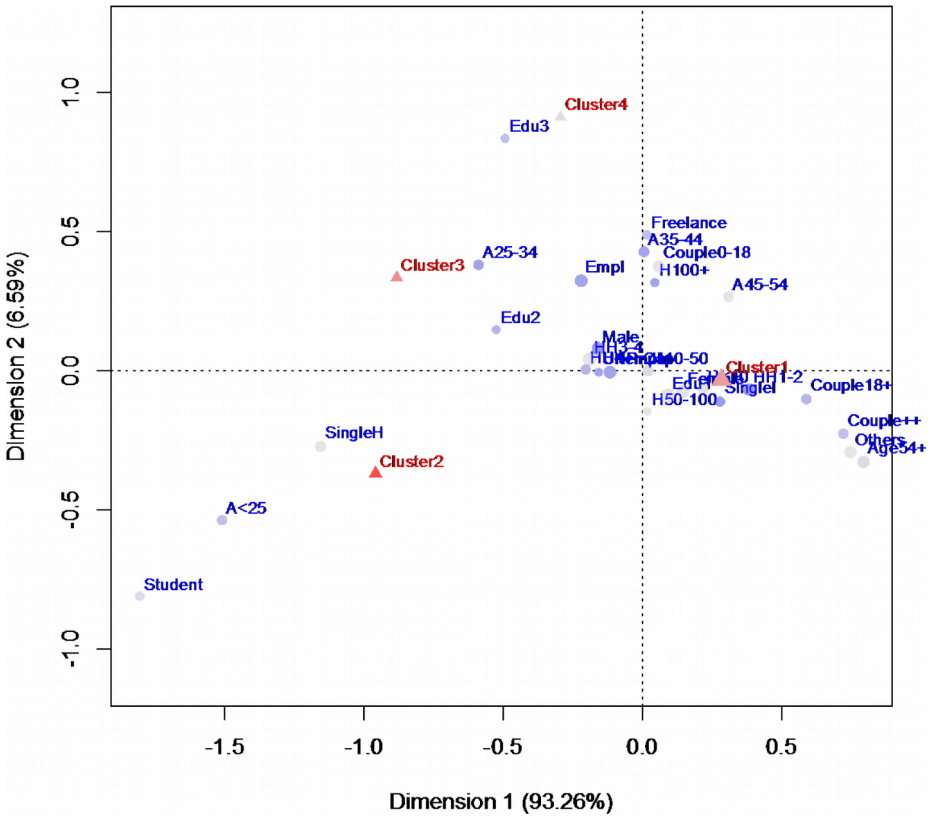

Figure 1. Clusters in the social space

Examining, in Figure 1, each of the profiles suggested by the four clusters in turn, *non-accessers* (cluster one) are typically women, aged 45 and older and with a basic education. They are overrepresented among homemakers and individuals receiving pensions, single independent individuals and couples with adult children, they are distributed among all habitat types except

provincial capitals and they belong to households with two or fewer members. *Downloaders* (cluster two) are typically fairly well educated men, aged 25 or younger, single and living with their parents. They are either students or employed, live in provincial capitals or in cities of 50,000-100,000 inhabitants and tend to belong to larger households. *Copiers-buyers* (cluster three) are generally well positioned in the social hierarchy, being typically well educated men, aged under 34, generally self-employed or employed and either single and living with their parents or living in couples with young children. They tend to live in larger households in provincial capitals or in cities of above 100,000 inhabitants. Finally, *buyers* (cluster four) are also well positioned socially. They are mainly well educated, self-employed or employed men, aged under 54. They typically belong to larger households, live in couples with young children or are singles living with their parents and are resident in provincial capitals or cities above 100,000 inhabitants (Tables A1 and A4).

The motivations for acquiring music are depicted in Figure 2 (negative answers have been excluded to simplify the plot). The first axis, which explained 93% of sample variation, captures the gradient reflecting access to music through social exchanges, whether downloading or copying from friends/family. The second axis, which explained the remaining 7% of sample variation, orders clusters two to four according to motivations to access music from fairs/street markets (mainly *buyers* and, to a lesser extent, *copiers-buyers*).

Non-accessers and *buyers* showed little motivation to download music. In fact, simple correspondence analysis located these clusters near each other and far from the other two clusters. Regarding these latter two clusters, certain reasons for copying (less expensive and faster) or downloading (more convenient, less expensive, and more immediate) were more important for *downloaders* than for *copiers-buyers*. Moreover, *downloaders* acquired tracks as well as albums and the possibility of downloading from the Internet was, in fact, a reason for not buying more original albums (Tables A2 and A5).

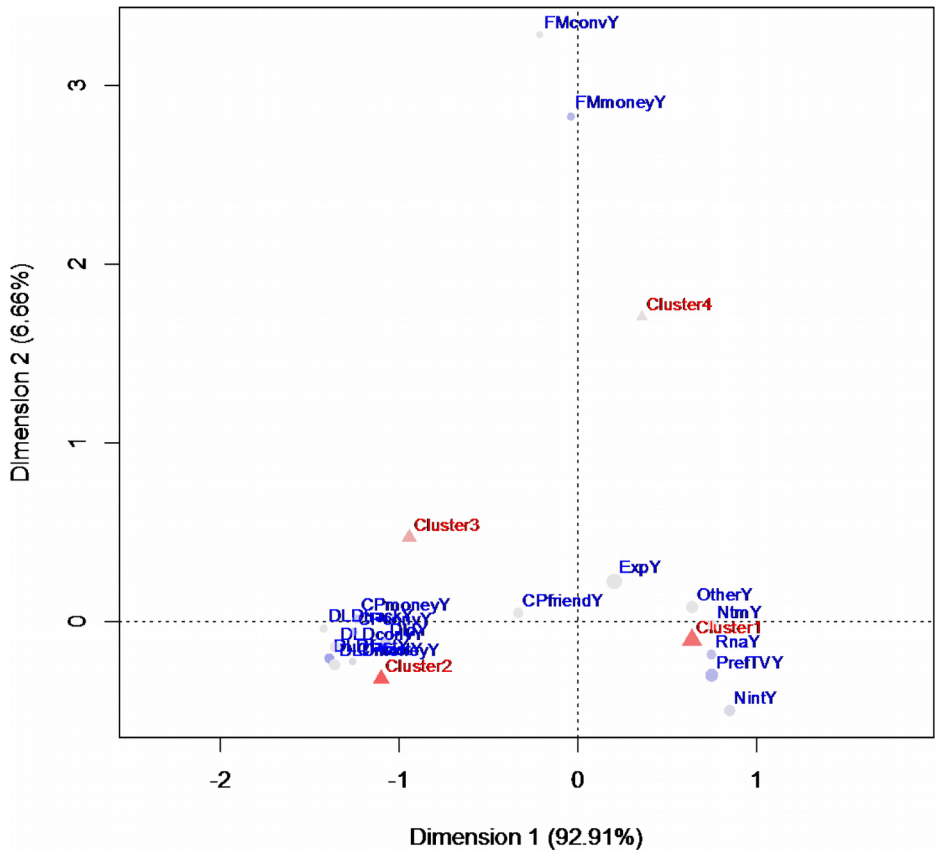

Figure 2. Clusters in the motivation space

The actual temporal pattern of accessing and listening music is depicted in Figure 3 (as with Figure 2, negative answers have been excluded to simplify the plot). According to the contributions of points to axes and axes to points (see absolute and relative contributions, respectively, in Table A6), the first axis, which explained 70% of sample variation, captures the gradient referring to access to music. To the left — where the cluster of *non-accessers* is located — are responses reflecting low music listening frequency; to the right are responses reflecting high music listening frequency. The second axis, which explained the other 30% of sample variation, orders individuals from the three active clusters according to how they accessed music, whether as *downloaders*

(cluster two) or as *buyers* (mainly cluster four and, to a lesser extent, cluster three).

Non-accessers (cluster one) were overrepresented for all indicators reflecting low listening, recording and purchasing frequencies. They were overrepresented for radio listening frequency (at least once quarterly, followed by at least once monthly and once weekly) and, likewise, for listening via music players (never, at least once a year or less often than once a year). As for recording, *non-accessers* either never recorded music or, if they did so, it was a long time ago (more than one to two years ago). Finally, they never bought music (albums or tracks) through any distribution channel or, if they had, their last purchase was typically last year or more than a year previously (Table A3).

Downloaders (cluster two) were more frequent radio music listeners, with individuals who listened frequently to music players (every day or every week) especially overrepresented. Like the *non-accessers*, they were not interested in buying music, as indicated by the fact that their last purchase was a year or more ago; however, they did record music frequently (they typically did so in the last three months), showing a preference for free albums or tracks (the Internet and, to a lesser degree, copies from friends/family).

As for clusters three and four, *buyers* dedicated quite a lot of time to listening to music, doing so daily irrespective of the device. They infrequently recorded music, as indicated by the fact that their most recent recording (if any) dated from the previous year or further back in time. They generally purchased music, being overrepresented in terms of purchases in the last quarter, mainly from stores and fairs/street markets (both originals and copies from the latter). As would be expected, *copiers-buyers* occupied the space between *downloaders* and *buyers*, with similar behaviour regarding music listening frequency (any device) and the time allotted to music weekly. The main difference between *copiers-buyers* and the other active clusters was in the consumption of free music (very similar to *downloaders*) and purchased music (very similar to *buyers*).

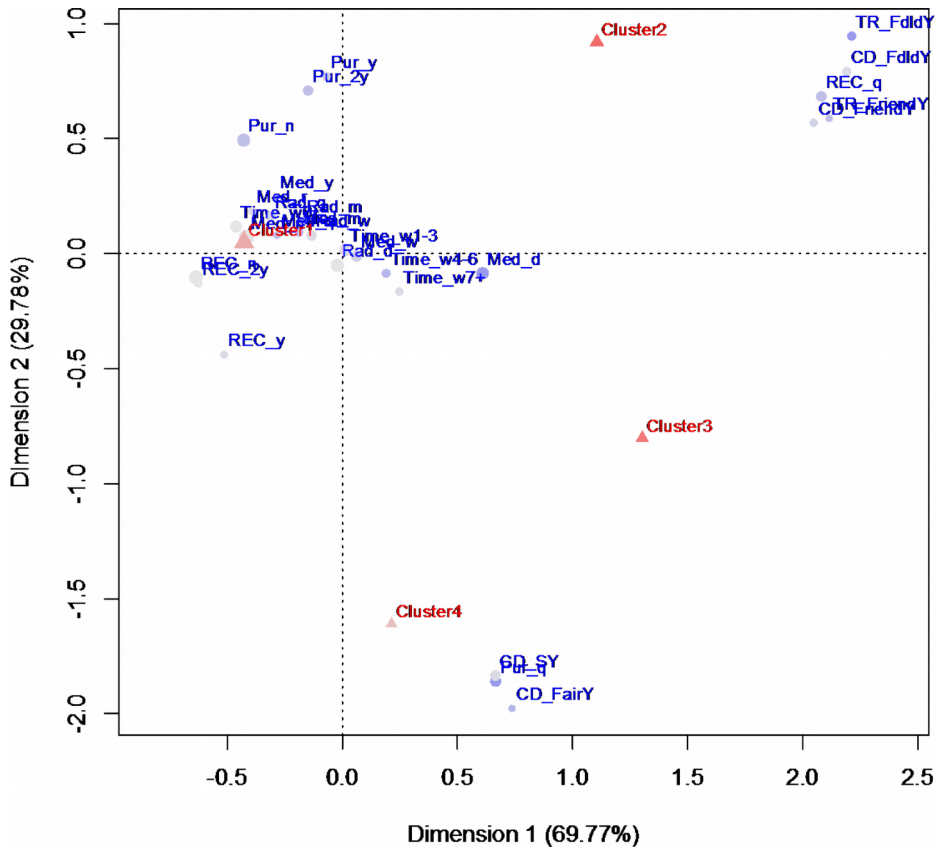

Figure 3. Clusters in the behaviour space

5. Discussion

The theoretical framework developed above suggests that music access patterns and the volume of music accessed are both socially structured. Our findings indicate that this is actually the case. We identified four music consumer profiles: individuals who did not buy, download or copy music (cluster one, 73.5%); individuals who almost exclusively downloaded music for free from P2P networks (cluster two, 13%); individuals who were equally likely to purchase music or copy it from friends/family (cluster three, 9%); and individuals who mainly bought music (cluster four, 4.5%). This pattern, as well as corroborating the evidence provided by Molteni

and Ordanini (2003) and Walsh et al. (2003), also introduces a social dimension to the interpretation of how and why people access music.

Our findings, reflecting those reported by Tampubolon (2008a), suggest that music access is structured by life stage and by position in the social space in terms of both economic and cultural capital. Age and education, in particular, have been demonstrated to be independent of each other in how they affect the way people access music. The first axis in our Figure 1, associated with age, orders music access patterns from *downloaders* (younger individuals) to *non-accessers* (older individuals); the second axis, associated with education, orders access patterns from *downloaders* (less well educated) to *buyers* (better educated). These findings reflect those reported by López-Sintas, García-Álvarez and Filimon (2008) and Tampubolon (2008a).

The same patterns are reproduced, to a statistically significant degree, in a multinomial logit model, suggesting that both this model and the correspondence analysis produce equivalent results. Correspondence analysis, however, is better equipped to deal with the interdependence between indicators of social position, which, by definition, must be correlated, whereas generalized linear models perform better than interdependence models when independent indicators are not correlated. This argument explains Bourdieu's preference for interdependence models, and particularly for correspondence analysis (Bourdieu, Chamboredon & Passeron 1991). Nonetheless, the findings provided by both models furnish evidence in the same direction, with both suggesting that the age gradient is orthogonal to the education gradient in regard to ways of accessing music. Even though our data do not allow us to explore whether individuals first turn to their social networks to obtain information and later access the corresponding cultural expressions on the Internet (as reported in Kayahara & Wellman, 2007; Tepper & Hargittai, 2009), our findings agree with those of Tepper and Hargittai (2009), who reported that individuals with different education levels have different patterns of music access.

Coulangeon (2003), López-Sintas and García-Álvarez (2002a, 2002b), Savage (2006), Tampubolon (2006, 2008a) and van Eijck (2001) already noted this pattern concerning music tastes but did not provide any theoretical explanation. According to our framework, the reason age — as an indicator of life stage — structures music access is because young individuals need to access large volumes of music, irrespective of their social position (see Bonneville-Roussy et al., 2013). Position in the social space, meanwhile, as reflected by education, structures the means used by individuals to access music (López-Sintas et al., 2008; Tampubolon, 2008a). Bonneville-Roussy et al. (2013) suggest that the importance attributed to music declines with age, with young people listening to music significantly more often than middle-aged adults; they also reported that while people, as they age, listen less to music, if they do listen, it is mainly to the music of their youth (see Holbrook & Schindler, 1994). These propositions are entirely coherent with our findings in the research described above.

Our findings enable us to interpret evidence provided by Sandulli (2007) in regard to the fact that the ratio of downloaded to purchased music fell as age increased; thus, older and wealthier individuals possessed more albums but probably also had stopped acquiring music. In fact, how individuals access music seems to follow the clockwise trajectory depicted in Figure 4: they start out as *downloaders*, then become *copiers-buyers*, then become *buyers* and close the circle as *non-accessers*. Although this proposition cannot be tested with our data, it can be inferred from the findings of Bonneville-Roussy et al. (2013). Additionally, according to Ouellet (2007) and Wang et al. (2009), acquiring from any source does not affect music buying behaviour, but attachment to performers has a positive impact on the intention to buy music. For *downloaders*, therefore, the Internet is simply a rapid and more convenient means of accessing music that hardly affects their intention to buy.

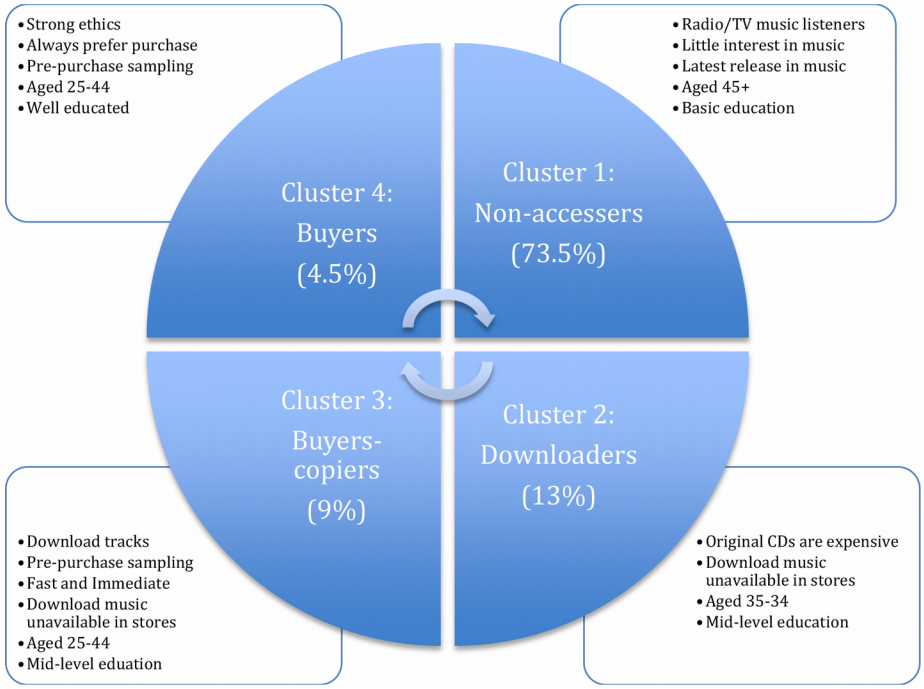

Figure 4. Clockwise model of access to music

There thus seem to be two forces that structure music access: a positive one between age and purchase (an inverted U), and a negative one between age and volume (of either downloaded/copied or purchased music). This pattern is coherent with the explanation of musical taste formation — as proposed by Holbrook and Schindler (1994) — in the 16-26 age bracket, when people acquire and consume most music. Note, however, that this finding regarding age is somewhat conditioned by both sex and socioeconomic status. Consistent with those earlier conclusions regarding age, our findings can be interpreted as confirming that younger consumers download music (or buy it when they can afford it), whereas individuals aged 54 and older acquire little, if any, music (by any means) because — following Holbrook and Schindler (1994) — they simply prefer to re-experience the music of their youth. North and Oishi (2006) reported similar findings.

Regarding limitations to our findings, our analysis relied on a cross-sectional sample, not panel data, so it was not possible to disentangle age, cohort and period effects — as was done, for instance, by Peterson and Kern (1996) for their study of highbrow taste. Although it is indeed true that people's familiarity with digital technological devices is affected by both a strong age gradient and generational bias, our aim was to describe how younger individuals access more music than their elders —independently of social position and cohort differences — and explain why and how music access is socially structured. Our findings broadly suggest that as people age, they gradually access less music and also change the way they access music. We were unable to study generational differences in volume of music accessed nor could we compare — as Peterson and Kern (1996) did — whether cohorts of the same age in different generations (20 years apart) accessed greater or lesser volumes of music.

6. Conclusions

We furnish a structural social interpretation of music access patterns, based on an individual's position in the social space as reflected by indicators of their capital and life stage. A position in the social space, and its expected *habitus*, is not only defined by indicators of volume and variety of capital, but also by other social categories. According to our evidence, and as suggested by our proposed theory, music access and listening patterns are both structured by an individual's social position (indicated by education) and life stage (indicated by age). Our findings reveal that the social framework we have constructed: (1) explains why music access is socially structured by (at least) two independent gradients, namely, life stage and social position; and (2) potentially interprets unexpected findings reported by research framed in an individualistic framework.

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Annex

Table A1. Sociodemographic characteristics (row profiles in %)

Clusters	1	2	3	4	Sample
Overall	73.5%	13%	9%	4.5%	100%
Occupational status					
Self-employed *(Freelance)*	73%	10%	**10%**	**7%**	9%
Employed *(Empl)*	69%	**14%**	**11%**	**6%**	41%
Unemployed *(Unempl)*	71%	**15%**	9%	**5%**	6%
Homemaker, retired, with disability *(Others)*	**91%**	5%	2%	2%	35%
Student *(Student)*	38%	**38%**	**20%**	4%	9%
Personal situation					
Single, living w/parents *(SingleH)*	51%	**28%**	**17%**	**5%**	22%
Single/divorced/widowed/separated, no dependent children *(SingleI)*	**80%**	10%	6%	4%	13%
Couple w/children <18 at home *(Couple0-18)*	**75%**	10%	9%	**6%**	34%
Couple w/children ≥18 at home *(Couple18+)*	**87%**	6%	4%	3%	16%
Couple w/children ≥18 not at home and other *(Couple++)*	**90%**	5%	2%	3%	15%
Habitat (thousands)					
Provincial capital *(HPrCap)*	72%	**14%**	9%	**5%**	43%
>100 *(H100+)*	**74%**	10%	**10%**	**5%**	8%
50-100 *(H50-100)*	**75%**	**14%**	7%	4%	7%
10-50 *(H10-50)*	**75%**	12%	**9%**	4%	23%
<10 *(H<10)*	**79%**	10%	7%	4%	19%

Clusters	1	2	3	4	Sample
Household size (persons >15 years)					
2 or fewer *(HH1-2)*	**82%**	8%	6%	4%	33%
3-4 *(HH3-4)*	70%	**15%**	**10%**	**5%**	53%
> 4 *(HH4+)*	70%	**15%**	**10%**	**5%**	14%
Age (years)					
< 25 *(A<25)*	44%	**33%**	**19%**	4%	14%
25-34 *(A25-34)*	61%	**18%**	**15%**	**7%**	17%
35-44 *(A35-44)*	73%	11%	**10%**	**6%**	19%
45-54 *(A45-54)*	**80%**	8%	7%	**5%**	16%
>54 *(A54+)*	**92%**	4%	2%	2%	34%
Sex					
Female *(Female)*	77%	11%	7%	4%	52%
Male *(Male)*	71%	**14%**	**10%**	**5%**	48%
Education					
Upper secondary or below *(Edu1)*	**76%**	12%	8%	4%	85%
Third-level graduate *(Edu2)*	63%	**18%**	**13%**	**6%**	7%
Third-level post-graduate *(Edu3)*	62%	**15%**	**14%**	**9%**	8%

Overrepresented indicators in bold.

Variables (labels for graphed variables in italics).

Note: The first row of this table shows the proportion of individuals classified in each cluster, that is, $P(t)$, the relative size of the cluster. The next rows describe the profile of each cluster according to the users' descriptors. That is, given that an individual is self-employed, $P(T=t|y_i)$, its probability of being classified in cluster one is 73%, in cluster one, 10%, and so on. The following tables describe clusters according to individuals' motivations and behaviours.

Table A2. Music consumption motivations (row profiles in %)

Clusters	**1**	**2**	**3**	**4**	**Sample**
Overall	73.5%	13%	9%	4.5%	100%
Reasons for buying copied albums from fairs/street markets (FM)					
Convenient Yes *(FMconvY)*	32%	0%	**45%**	**23%**	1%
Money savings Yes *(FMmoneyY)*	41%	0%	**38%**	**21%**	2%
Reasons for downloading for free (DLD)					
Convenient Yes *(DLDconvY)*	9%	**57%**	**33%**	1%	8%
Fast and immediate Yes *(DLDfastY)*	8%	**60%**	**32%**	1%	5%
Money savings Yes *(DLDmoneyY)*	9%	**59%**	**31%**	1%	10%
Only one track wanted Yes *(DLDtrackY)*	6%	**58%**	**35%**	1%	2%
Reasons for preferring free copies (CP)					
Convenient Yes *(CPconvY)*	13%	**52%**	**34%**	1%	2%
Fast and immediate Yes *(CPfastY)*	13%	**56%**	**31%**	0%	1%
Money savings Yes *(CPmoneyY)*	13%	**51%**	**35%**	1%	3%

Clusters	1	2	3	4	Sample
Reasons for NOT buying originals					
Copy from friends/family Yes *(CPfriendY)*	46%	**30%**	**20%**	3%	7%
Download Yes *(DldY)*	19%	**52%**	**27%**	2%	9%
Expensive Yes *(ExpY)*	65%	**17%**	**12%**	**6%**	50%
Latest release not available Yes *(RnaY)*	**88%**	5%	4%	3%	5%
Little interest in music Yes *(NintY)*	**94%**	4%	1%	1%	11%
No time Yes *(NtmY)*	**87%**	4%	4%	5%	6%
Prefer radio/TV Yes *(PrefTVY)*	**89%**	5%	3%	3%	23%
Other reasons Yes *(OtherY)*	**82%**	6%	6%	**5%**	16%

Overrepresented indicators in bold.

Variables (labels for graphed variables in italics).

Table A3. Behaviour patterns (row profiles in %)

Clusters	**1**	**2**	**3**	**4**	**Sample**
Overall	73.5%	13%	9%	4.5%	100%
Frequency of listening to radio-broadcast music					
Every day *(Rad_d)*	71%	13%	**10%**	**6%**	55%
Every week *(Rad_w)*	**75%**	13%	8%	4%	16%
Every month *(Rad_m)*	**76%**	13%	7%	3%	7%
Once quarterly *(Rad_q)*	**81%**	11%	5%	3%	22%
Frequency of listening to music on other devices					
Every day *(Med_d)*	51%	**23%**	**19%**	**7%**	51%
Every week *(Med_w)*	68%	**15%**	**11%**	**6%**	68%
Every month *(Med_m)*	**77%**	12%	7%	4%	77%
Once quarterly *(Med_q)*	**79%**	11%	6%	4%	79%
Once yearly *(Med_y)*	**81%**	12%	5%	2%	81%
Less than once yearly or rarely *(Med_r)*	84%	10%	4%	2%	84%
Never *(Med_n)*	84%	8%	5%	3%	84%
Time spent listening to music (hours)					
0h *(Time_w0)*	**85%**	8%	4%	3%	33.5%
1-3h *(Time_w1-3)*	70%	**15%**	**10%**	**5%**	51.5%
4-6h *(Time_w4-6)*	65%	**16%**	**14%**	**6%**	9%
7+h *(Time_w7+)*	63%	**16%**	**15%**	**6%**	6%
Date of last purchase					
3 months ago *(Pur_q)*	44%	0%	**36%**	**20%**	22%
Last year *(Pur_y)*	74%	**24%**	2%	0%	8%
More than a year ago *(Pur_2y)*	**77%**	**22%**	1%	0%	15%
Never *(Pur_n)*	**86%**	13%	1%	0%	55%

Clusters	1	2	3	4	Sample
Date of last recording					
3 months ago *(REC_q)*	11%	**54%**	**34%**	1%	19%
Last year *(REC_y)*	**83%**	2%	4%	**10%**	4%
More than a year ago *(REC_2y)*	**89%**	3%	3%	**5%**	6%
Never *(REC_n)*	**89%**	3%	3%	**5%**	71%
Album acquisition channel (3 months ago)					
Store Yes *(CD_SY)*	45%	0%	**36%**	**19%**	19%
Fair/street market copy Yes *(CD_FairY)*	41%	0%	**37%**	**22%**	2%
Free download Yes *(CD_FdldY)*	8%	**57%**	**35%**	0%	10%
Copy from friends/family Yes *(CD_FriendY)*	13%	**51%**	**37%**	0%	4%
Track acquisition channel (3 months ago)					
Free download Yes *(TR_FdldY)*	6%	**61%**	**31%**	1%	9%
Copy from friends/family Yes *(TR_FriendY)*	9%	**54%**	**35%**	2%	2%

Overrepresented indicators in bold.

Variables (labels for graphed variables in italics).

Correspondence analysis statistics: absolute contribution of variables to inertia and relative contribution of axes to variables.

Table A4. Sociodemographic characteristics: correspondence analysis (per thousand units)

	mass	**qlt**	**inr**	**k=1**	**cor**	**ctr**	**k=2**	**cor**	**ctr**
Occupational status									
Self-employed *(Freelance)*	12	1000	3	8	4	0	125	996	45
Employed *(Empl)*	59	998	17	-109	634	12	83	364	94
Unemployed *(Unempl)*	9	875	1	-78	874	1	-1	0	0
Homemaker, retired, with disability *(Hrd)*	50	1000	110	371	961	113	-75	39	65
Students *(Student)*	13	999	167	-897	948	170	-208	51	129
Personal situation									
Single, living with parents *(SingleH)*	32	999	163	-574	985	172	-70	15	36
Single/divorced/widowed/separated, no dependent children *(SingleI)*	19	994	6	139	953	6	-29	40	4
Couple w/children <18 at home *(Couple0-18)*	48	999	7	29	86	1	96	913	103
Couple w/children ≥18 at home *(Couple18+)*	22	1000	30	293	992	31	-26	8	4
Couple w/children ≥18 not at home and other *(Couple++)*	21	1000	43	359	974	45	-58	26	17
Habitat (thousands)									
Provincial capital *(HPrCap)*	62	975	3	-58	974	3	-1	1	0
>100 *(H100+)*	12	924	1	22	65	0	81	860	18
50-100 *(H50-100)*	10	589	0	9	30	0	-38	559	3
10-50 *(H10-50)*	33	409	0	10	409	0	0	0	0
<10 *(H<10)*	27	995	5	109	971	5	-17	25	2

	mass	qlt	inr	k=1	cor	ctr	k=2	cor	ctr
Household size (persons >15 years)									
2 or fewer *(Hh1-2)*	48	1000	27	190	992	28	-17	8	3
3-4 *(Hh3-4)*	75	1000	10	-94	988	11	11	12	2
> 4 *(Hh4+)*	20	998	3	-101	998	3	1	0	0
Age									
< 25 *(A<25)*	21	1000	184	-751	967	191	-138	33	91
25-34 *(A25-34)*	24	994	36	-293	895	34	98	99	54
35-44 *(A35-44)*	27	985	5	3	1	0	110	985	74
45-54 *(A45-54)*	23	991	10	154	829	9	68	162	25
>54 *(A54+)*	48	1000	120	395	957	123	-84	43	79
Sex									
Female *(Female)*	75	989	6	72	926	6	-19	63	6
Male *(Male)*	68	989	7	-79	928	7	20	61	7
Education									
Upper secondary or below *(Edu1)*	121	998	5	46	793	4	-23	206	15
Third-level graduate *(Edu2)*	10	1000	11	-261	979	12	38	21	3
Third-level post-graduate *(Edu3)*	11	994	19	-245	564	11	214	430	122
Cluster 1	742	1000	227	141	997	242	-8	3	12
Cluster 2	126	1000	454	-476	961	468	-95	38	262
Cluster 3	87	997	266	-438	960	273	86	37	148
Cluster 4	46	990	54	-146	278	16	234	712	578

Ctr: absolute contributions of variables to inertia

Cor: relative contribution of axes to variables

Table A5. Music consumption motivations: correspondence analysis statistics (per thousand units)

	mass	**qlt**	**inr**	**k=1**	**cor**	**ctr**	**k=2**	**cor**	**ctr**
Reasons for buying copied albums from fairs /street markets (FM)									
Convenient, Yes *(FMconvY)*	4	982	16	-173	15	0	1370	966	288
Money savings, Yes *(FMmoneyY)*	10	989	30	-32	1	0	1179	989	451
Reasons for downloading free (DLD)									
Convenient Yes *(DLDconvY)*	50	999	133	-1095	996	143	-60	3	6
Fast and immediate Yes *(DLDfastY)*	31	1000	86	-1123	994	92	-86	6	8
Money savings, Yes *(DLDmoneyY)*	63	1000	170	-1099	991	181	-101	8	22
Only one track wanted Yes *(DLDtracY)*	12	998	35	-1148	998	37	-17	0	0
Reasons for preferring free copies (CP)									
Convenient Yes *(CPconvY)*	14	990	32	-1013	989	34	-25	1	0
Fast and immediate Yes *(CPfastY)*	6	1000	14	-1017	992	15	-93	8	2
Money savings Yes *(CPmoneyY)*	21	983	47	-998	983	50	6	0	0

	mass	qlt	inr	k=1	cor	ctr	k=2	cor	ctr
Reasons for NOT buying originals									
Copy from friends/family Yes *(CPfriendY)*	41	983	7	-270	978	7	20	5	1
Download Yes *(DldY)*	57	997	95	-868	994	102	-49	3	4
Expensive Yes *(ExpY)*	312	957	25	164	724	20	93	234	89
Latest release not available Yes *(RnaY)*	31	999	25	602	983	26	-77	16	6
Little interest in music Yes *(NintY)*	67	994	76	685	910	74	-208	84	96
No time Yes *(NtmY)*	39	1000	32	608	1000	34	-8	0	0
Prefer radio/TV Yes *(PrefTVY)*	141	997	118	603	956	121	-126	41	73
Other reasons Yes *(OtherY)*	101	999	59	515	995	64	34	4	4
Cluster 1	588	1000	344	515	993	368	-44	7	37
Cluster 2	228	998	404	-888	976	424	-134	22	135
Cluster 3	146	990	200	-762	928	200	196	62	185
Cluster 4	39	974	51	289	138	8	711	836	643

Table A6. Behaviour patterns: correspondence analysis statistics (per thousand units)

	mass	qlt	inr	k=1	cor	ctr	k=2	cor	ctr
Frequency of listening to radio-broadcast music									
Every day *(R_d)*	84	819	0	-15	183	0	-29	636	1
Every week *(R_w)*	26	996	1	-93	810	1	45	186	1
Every month *(R_m)*	11	997	1	-120	693	1	80	304	1
Once quarterly *(R_q)*	34	991	6	-216	843	7	91	148	3
Frequency of listening to music on other media									
Every day *(M_d)*	68	983	38	422	970	52	-48	13	2
Every week *(M_w)*	43	528	0	43	519	0	-6	10	0
Every month *(M_m)*	10	999	1	-131	866	1	51	133	0
Once quarterly *(M_q)*	4	997	0	-198	949	1	45	49	0
Once yearly *(M_y)*	1	985	0	-200	670	0	138	315	0
Less than once yearly *(M_r)*	10	973	3	-272	849	3	104	124	1
Never *(M_n)*	173	992	45	-288	973	62	40	19	3
Time spent listening to music (hours)									
0h *(T_w0)*	52	984	17	-320	943	23	66	40	2
1-3h *(T_w1-3)*	79	165	0	10	86	0	10	79	0
4-6h *(T_w4-6)*	14	999	1	132	882	1	-48	117	0
7+h *(T_w7+)*	9	1000	1	171	775	1	-92	225	1
Date of last purchase									
3 months ago *(P_q)*	34	1000	134	461	164	31	-1042	836	376
Last year *(P_y)*	13	962	8	-49	12	0	431	950	25
More than a year ago *(P_2y)*	24	977	12	-103	62	1	397	915	38
Never *(P_n)*	84	997	42	-297	535	32	276	462	65

	mass	qlt	inr	k=1	cor	ctr	k=2	cor	ctr
Date of last recording									
3 months ago *(REC_q)*	29	999	198	1442	933	265	383	66	44
Last year *(REC_y)*	6	887	4	-357	601	4	-246	286	4
More than a year ago *(REC_2y)*	9	999	5	-435	972	7	-73	27	0
Never *(REC_n)*	110	1000	66	-441	983	93	-58	17	4
Album acquisition channel (3 months ago)									
Store Yes *(CD_SY)*	29	999	113	461	167	27	-1027	832	314
Fair/market: copied CD Yes *(CD_cFY)*	3	999	13	511	175	3	-1107	824	36
Free download Yes *(CD_FdY)*	16	999	118	1519	920	155	444	79	31
Copy from friends/family Yes *(CD_FrY)*	7	989	43	1420	941	58	319	47	7
Track acquisition channel (3 months ago)									
Free download Yes *(TR_Y)*	14	997	110	1534	891	140	530	106	39
Copy from friends/family Yes *(TR_F)*	3	1000	22	1466	952	29	330	48	3
Cluster 1	706	1000	189	-296	991	269	28	95	706
Cluster 2	139	998	360	766	687	355	515	311	376
Cluster 3	105	996	325	903	798	372	-450	198	216
Cluster 4	49	981	125	148	26	5	-901	955	402