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AIMS AND SCOPE

The International Journal of Music Business Research (IJMBR) as a double-blind reviewed academic journal provides a new platform to present articles of merit and to shed light on the current state of the art of music business research. Music business research is a scientific approach at the intersection of economic, artistic, especially musical, cultural, social, legal, technological developments that aims at a better understanding of the creation/production, dissemination/distribution and reception/consumption of the cultural good music. Thus, the IJMBR targets all academics, from students to professors, from around the world and from all disciplines with an interest in research on the music economy.

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Editorial

Dennis Collopy¹ and Peter Tschmuck²

The first issue of the second volume again reflects the broad range of music business research topics covered by the International Journal of Music Business Research (IJMBR). Whereas two papers share a focus on music consumption behaviour, the third one sheds light on the Chinese digital music industry.

In the first article, Michael Huber presents the results of a representative survey for the Austrian population on its music listening behaviour. The highlights of the article include data on live concerts with little more than a third of the Austrians going to concerts several times a year but a quarter never attending a live musical performance. More than half of the respondents own at least 50 original sound recordings on a physical carrier and one fifth possess the equivalent number of digital music files. Despite the low level of live music attendance and recorded music purchases, music listening is the most preferred leisure time activity for Austrians. However, the main music consumption hub is still radio, followed by the computer and the mp3-player for the younger generation and CDs as well as TV for the older age groups. The results also highlight a gap between the generations, with the 50+ group, still relying on the traditional music consumption channels, and "Generation Web 2.0", who grew up with new online media. The author concludes that youngsters "*(...) like their music to be uncomplicated, convenient and inexpensive*" (p. 31).

Adopting a different approach but with a similar aim, Juan Montoro-Pons analyses the audiences for popular music concerts in Spain. In an

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econometric demand model, the author explains the frequency of attendance at live music performances and its relationship to media participation. His analysis is based on data from two waves of the "Survey for Habits and Cultural Practices in Spain" (2006 and 2010). The Spanish data show that roughly 12 percent of the respondents in Spain attended a live music performance over the previous three months, a statistic that is in line with the results of the Austrian survey. Moreover the statistical model predicts the likelihood of live music attendance is driven by cultural capital accumulated through media participation or as the author puts it: "*[T]he average profile of the live music consumer [is] a male, young, educated consumer with time availability and actively engaged in the media consumption of recorded music, both by purchasing and by copying and downloading music files and full albums*" (p. 51). In other words, the more recorded music is consumed the higher the probability of concert attendance.

In the final article of this issue, John Fangjun Li examines the development of the digital music industry in China. The digital market segment has a higher economic relevance within China's music industry than comparable Western music markets. Li distinguishes three types of music companies in China: (1) traditional record companies, engaged in mobile and online music distribution; (2) technology driven companies with a strong link to the Internet; (3) telecommunication companies bundling music in their multimedia packages. Despite their differences, these three different business models are converging in the near future into a new kind of all-inclusive media enterprises, based on Internet and mobile networks. Might China be the forerunner of the digital music industry for the 21st century?

The IJMBR is aimed at all academics, from students to professors, from around the world and from all disciplines with an interest in music business research. Interdisciplinary papers are especially welcomed if they address economic and business related topics in the field of music. Thus, we look forward to receiving as many interesting papers as possible and request that you send papers for consideration to:

music.business.research@gmail.com.

Music reception in the digital age – empirical research on new patterns of musical behaviour

Michael Huber³

Abstract

Developments since the 1990s make it abundantly clear to what extent new conditions can cast doubt upon previously unquestioned ideas about how people experience music. Twenty years after the internet was opened up to all comers with the graphics-enabled web browser Mosaic, new behaviours related to music have become established which would never before have been thought possible. But it is still the case that not all experts understand (or respect) the new ways in which members of "generation Web 2.0" receive their music. Empirical music sociology can help here. Using reliable data on the population of the small European country Austria this essay demonstrates where the deep divisions between "digital natives" and "digital immigrants" in music reception already appear irreversible, and also where they have played almost no role for a long time now.

Keywords: Music consumption behaviour, empirical research, representative survey, music sociology

1 Music reception in a changing society

Since the 1990s people's experience of music has changed at a breathtaking pace. Technical, economic and social developments throughout society have radically changed the conditions for making, distributing and receiving music.

The most radical change of recent years stemmed from the technical possibility of digitising recorded music as binary code, already developed in the 1980s and referred to by music sociologists as "digital

³ Michael Huber is an associate professor at the Institute for Music Sociology at the University of Music and Performing Arts Vienna, Austria. His research is focused on music reception in the digital mediamorphosis, structures of the current musical life in Austria, and musical socialisation. His upcoming publication will be entitled "Musikhören im Zeitalter Web 2.0" ("Music Listening in the Era Web 2.0"). (huber-m@mdw.ac.at).

mediamorphosis". The most far-reaching effect of this development is that recorded music no longer requires a physical storage medium, but can now be "played" via data lines. This ability became relevant for day-to-day music consumption via four further developments in the second half of the 1990s: (a) the consolidation and growth of the internet, (b) the increasing capacity of data lines, (c) the ability to compress the data volumes to be transferred to around one tenth of the original size (mp3), and (d) the development of a search engine for automated access from individual computers (Napster). Despite the patience required in the early days (downloading a three-minute track took around 70 minutes in 1998) access to music now occurs against a backdrop of completely new conditions:

- A great deal of music is available at any time (without payment) via the internet.
- It is not possible to prevent the (unpaid) retrieval of this music.

Many internet users – principally young people with a lot of time and little money – used this new ability intensively. Within the music media industry this was at first underestimated, then later "recognised" as the cause of falling sales figures (fig. 1).

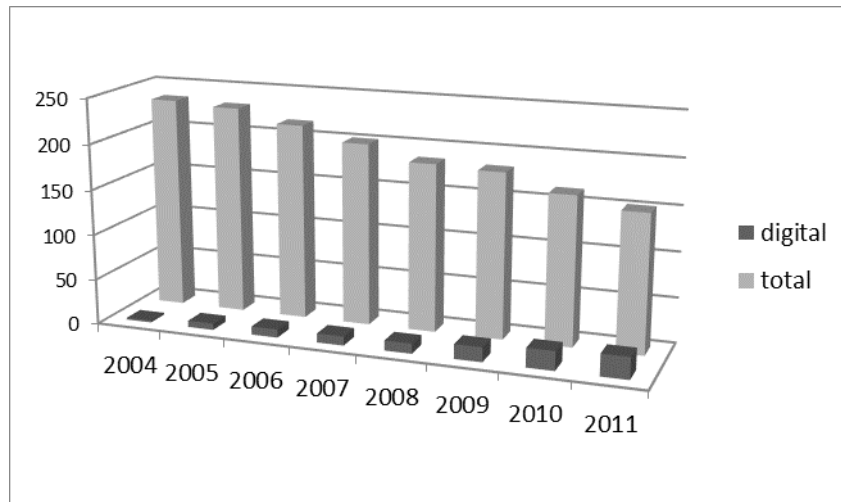


Figure 1: Music sales in Austria in million EUR (IFPI Austria)

Although this cause has been the main focus of discussion within the music industry for more than ten years, to this day no scientific evidence of causal connections has been found.⁴

Around ten years ago the relevance within society of the internet as a music source received yet another boost with the emergence of "Web 2.0". The new situation, whereby receivers of information could now also send it, allowed the "ordinary user" to take part in the shaping of the "internet database". This occurred intensively thanks to the BitTorrent process (whereby very small information chunks are scattered, gathered and reassembled) and also to music recommendations by mail order companies and music streaming providers. As it is impossible to carry out any action on the internet without leaving tracks, past consumption automatically influences future (music) offers.

These new conditions and possibilities for access to music are plain to see, however their actual influence on music listeners' everyday life remained unclear for a long time. Empirical music sociology is accus-

⁴ For an overview see Peter Tschmuck's weblog musicbusinessresearch.wordpress.com.

tomed to deducing its research questions inter alia from unexplained connections of changing economic conditions and music users' new patterns of behaviour.

It is only right to mention at this point, however, that music sociological research is also carried out with the help of hermeneutic interpretation of texts, or a critical-philosophical eye. But to understand social behaviour – and here we are looking at music reception (Blaukopf 2012 [1969], Blaukopf 2012 [1982]) – we must rely on empirical social research. Nonetheless, for a critical judgement of the value of the following findings, we must appreciate that empirical music research also has its weaknesses.

(a) In surveys, information on reception behaviour is usually gathered retrospectively. We have to rely on survey participants to remember correctly, and to really tell the truth.

(b) The particular influence of different cultural landscapes hinders the transferability of results, e.g. between European countries and the USA (Lehmann 1994, Blaukopf 1996, Neuhoff 2001). For example, Europe's cultural heterogeneity means it has no uniform folk music. The major role in national identity played by country and western music in the USA is mirrored by e.g. the chanson in France (but only in France), or German-language Schlager music in the Alpine countries (but only in that region).

(c) When gathering data on music preferences, our main problem is that day-to-day music choices depend on context and mood, and surveys usually do not take account of this (Russell 1997, Zillman & Gan 1997, Schramm 2005). Further, research settings severely limit the listener's sphere of perception (Sloboda et al. 2000).

(d) One problem which should not be underestimated is the bias found in answers due to social desirability. This cannot be completely avoided, neither with the aid of style labels (such as "jazz" or "classical music"), nor with the use of music samples in questionnaires (Karbusický 1975, SRG 1979, Müller 2000, Behne 2009, Huber 2010). In societies with a distinctly "high culture" questions on (music) preferences or (music) tastes are particularly susceptible to biased answers, as respondents

position themselves according to their perceived cultural level. Every society sees certain actions, opinions or other characteristics as especially positive. Any position clearly outside this "social desirability" will generally feel uncomfortable, and will thus be played down, if not avoided altogether. This "social desirability effect" may be enhanced by a shifted perception on the part of the respondent as regards past behaviour. In this way Reuband (2007) could demonstrate that in social surveys mainly the less-educated respondents could remember going to the opera more times than was in fact the case. As musical styles are often associated with a certain "typical" public, positively evaluating this music can lead to a kind of symbolic "fitting in", and thus a certain social positioning. This can most clearly be seen in demonstrations of denial regarding any music with whose public one would rather not be associated (Bryson 1996).

(e) Not least is the fact that only very few surveys cover a representative cross-section of the public; some studies do not even carry out random sampling. This is mainly the case for online surveys and polls of concert-goers. While the situation is not as bad as in US experimental music psychology – where the study authors' own students end up as the "guinea pigs" – even in current empirical findings on music reception we almost never find a representative sample of the population as a whole, which often makes e.g. comparisons between the behaviour of younger and older music consumers impossible.

2 Methods and state of research

The research results presented here are from a face-to-face survey conducted in 2009 with 1,042 Austrians by the Institute for Music Sociology in Vienna. The main focus of the survey was musical preferences, although some attention was also paid to the use of media and expectations of music. The sample is representative of the Austrian population as regards the social characteristics of gender, age, education, occupation, profession, migration background, size of home and federal state of residence within Austria. The present study derives its quality from its

representative nature and its comprehensive treatment of musical behaviour.

The only topical studies to have analysed a similar corpus of data were the 2008 Survey of Public Participation in the Arts by the National Endowment for the Arts (U.S.) and *Les pratiques culturelles des Français à l'ère numérique* (Donnat 2009). In both of these studies, however, music is only one aspect of a greater whole, and is less specifically considered than in ours. Furthermore, neither of these surveys is concerned in the same way with the effects of social characteristics on cultural behaviour. The study *Music Experience and Behaviour in Young People* from Bahanovich & Collopy (2009) offers a very thorough examination of music and a wealth of illuminating results, although the focus is clearly on "digital natives", as only 14- to 24-year-olds were surveyed.

| AUTHORS | SOCIAL STRUCTURE DATA | So/Pe/Tr | RRS | TD |
|---|-----------------------|----------|-----|----|
| BMUKK/IFES (2007), Austria | G A E M | SoPe | + | - |
| National Endowment for the Arts (2009), U.S. | G A E M I | SoPeTr | + | - |
| Ministère de la Culture (2009), France | G A E P C | SoPeTr | + | - |
| ARD/ZDF Medienforschung (cont.), Germany | (media user typology) | Tr | + | + |
| Schramm/Hägler (2007) Switzerland and Germany | G A | Tr | - | + |
| Bahanovich/Collopy (2009), UK | (14-24 years old) | Tr | - | + |
| Huber (2010), Austria | G A E M P C R | SoPeTr | + | + |

Caption: G(ender), A(ge), E(ducation), M(igration background), I(ncome), P(rofession), C(ity size), R(egional belonging); So(ciability music), Pe(rformance music), Tr(ansmission music); R(epresentative)R(andom)S(ample); T(heory)D(iven)

Table 1: Quantitative surveys on music reception

There is hardly any theory-driven empirical research on music reception which can claim to represent the whole population of the survey area and take account of social factors such as age or level of education. This can chiefly be explained by the great effort required in carrying out such a representative study. But even studies which do not satisfy the highest scientific criteria can offer valuable insights: the results of the state-funded study of culture users (Kulturnutzerstudie (IFES 2007)) are mainly of interest as a snapshot analysis of the reception of musical performances. However, conclusions regarding behaviour changes due to digitalisation are not possible here. As regards Austria's cultural structure, the findings offer few surprises: higher educational levels lead to greater participation in high culture, with women showing more initiative than men. More than two thirds of the population essentially never go to concerts. And the fact that the cultural activities on offer in remote areas tend to be rather scant and predictable is not really perceived as a problem by most people in such areas. Despite this there is overwhelming endorsement of the significant level of state funding of cultural institutions. Also interesting on this point are the results of a representative study of the use of time (Statistik Austria 2009), which give an insight into the importance of "sociability music"⁵ and recorded music. According to this study, Austrians spend more time listening to music as on any other secondary activity, with no difference in the genders. "Listening to music" as a principal activity comes after watching television, reading, walking, sport, gardening, surfing on the internet, relaxing and shopping; more or less on a level with "communicating by computer". Men listen attentively to music significantly longer than women (61 min. vs. 40 min. per day). Moreover 2% of women and 3% of men make music as a principal leisure activity.

Since the identification of a "Web 2.0 generation", also distinguished by new musical behaviours, there has been corresponding,

⁵ Music sociology differentiates between three types of music according to the spatial, temporal and hierarchical separation of production and reception: sociability music, performance music, transmission music (cf. Niemann 1974). In "sociability music" this separation scarcely exists, as the listeners take an active role in the music event (e.g. by singing or dancing). To hear this music, one must be in the right place at the right time. This listener experience cannot normally be reproduced.

patchy research allowing conclusions to be drawn about the particular consumption patterns of young people. In an extensive survey of concert-goers in Berlin, Hans Neuhoff (2007) demonstrated convincingly the influence of social stratum and educational level on music preferences; at the same time, however, he showed that the effects experienced, along with personal and social factors (such as age, indeed), depend mainly on the situation in which the music is received. The subject of "mp3 music" was the focus in an empirical investigation for the first time in an online survey by Schramm & Hägler (2007: 120). The key finding is that *"in most people, the mp3 age is characterised by deliberate, discerning and extensive music listening. Furthermore, many people claim that using mp3 has improved their music knowledge"*. With regard to the question of effects on traditional (recorded) music they uncover both complementary and substitution effects. However the base data and research methods used require us to be cautious about how much we read into these results.

A secondary analysis of representative data from Germany, carried out by Otte (2008), essentially represented an examination of the findings of the studies of Bourdieu (1984) and Schulze (1992) – which were both confirmed – and Peterson (1992; Peterson & Kern 1996) – which were both rebutted. According to this, the influence (in Germany) of educational level on music preferences is strong enough, as it ever was, to negate the relevance of musical omnivorousness.

In their work on "Music Experience and Behaviour in Young People" (British Music Rights 2008, Bahanovich & Collopy 2009) David Bahanovich and Dennis Collopy carried out ground-breaking research into music consumption behaviour. Unfortunately their chosen sample was neither random nor representative of the population as a whole, which severely restricts the scientific impact of the results. Nonetheless a whole range of interesting propositions regarding the new musical behaviours of young Britons (14 to 24 years olds) is brought to light. Alongside unsurprising findings, such as the value hierarchy of live music – music medium – owning mp3 – mp3 availability, of particular note is the emotional "affinity" of music and mobile phones: both are considered

very important, but people want to spend as little money as possible on either of them. A similar double standard lurks in basic attitudes to music: an emotional approach characterised by readiness to pay out and concern for the welfare of the musicians runs parallel to an experimental approach to music which is not (yet) emotionally endowed, which people mainly want to access quickly, simply and largely free-of-charge.

In the conclusion to a (music pedagogically-oriented) long-term study of how young Germans approach their music, Behne (2009: 109) firmly states that *"two characteristics of young people's cultural behaviour which are frequently and willingly criticised"* are clearly debunked by his research: conformity and lack of self-determination regarding music.

Finally it is worth noting that in the most recent edition of the regular study of German young people by the German Shell charity (Shell 2010) two tendencies are clear: "listening to music" has lost its (in 2002 still unchallenged) crown as favourite leisure activity to "surfing the internet". And age differences within the "young people" group are becoming ever more important in this regard, as shown in table 2.

| | |
|----------------|---|
| 12 to 14 years | Sport (41%), Playstation (40%) |
| 15 to 17 years | Internet (67%), listening to music (66%) |
| 18 to 21 years | Meeting up with people (63%), clubbing (43%) |
| 22 to 25 years | Television (56%), books (32%), going to the pub (12%) |

Table 2: Favourite leisure activities (Shell 2010: 98)

We can see, then, that there is a whole range of special factors to take into account when addressing young people's musical behaviour. Even within this group, the crucial dividing lines run through the social factors of ethnicity, gender, class and age. The representative compiling of valid findings on musical behaviour requires a great deal of effort, and this is probably why it is so rarely done (by independent research teams).

The following findings are based on 1,042 face-to-face interviews with randomly-chosen Austrians, and are representative of the whole population as regards gender, age, education/training, profession, work

situation, migration background, size of town or village, and county (Austrian federal state). The survey was comprehensively compiled; the results presented here are those concerning music consumption behaviour. There will be a particular emphasis here on the extent to which the younger age group (up to 30 years of age) differs from the older group, and on the role played by education and technical aptitude as an influential factor in musical behaviour.

Frequency analysis was used to check all responses for correlation with social characteristics. All correlations described here are significant. If no significant correlation is described, then none could be identified, such as for example between frequency of performance attendance and size of town of residence.⁶

As stated at the beginning, it is the great difference between the musical behaviour of Digital Natives and Digital Immigrants which will be the focus here. Marc Prensky, who pinned down this difference, described the phenomenon as simply a question of age and/or generation, stating: *"Today's students – K through college – represent the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, video games, digital music players, video cams, cell phones, and all the other toys and tools of the digital age"* (Prensky 2001: 1).

So one could simply say that young people are very different from everyone else. Correspondingly as a first step the following results show the principal differences between the under-30s and the over-30s.⁷ However we may also expect differences in music reception behaviour within the Digital Natives group itself, so a further cluster analysis was

⁶ Question groups of various measurement dimensions were scaled by factor analysis, to the extent that metric data levels and a sufficient number of cases or an approximate normal distribution were present. With metric variables aggregate indices were generated, and with ordinal variables count indices were generated. Relationships between variables or indices (measurement dimensions) were calculated using Spearman- (at ordinal data level) or Pearson correlations (at metric data level).

⁷ The margin was adjusted by 30 for calculation purposes, as every downwards shift minimises the number of respondents, and thus would have compromised the quality of the data. A limit of 20 would doubtless bring the identified differences much more clearly to the fore, as a few Digital Immigrants can be found between 20 and 30.

carried out with the aim of identifying sub-groups which were as homogenous and discrete as possible as regards their approach to music. It was then possible to describe the resulting groups far more precisely than merely via age, and to depict the "Generation Web 2.0" we identified in a less contrived way than the "Digital Natives" mentioned above. This was made possible by including variables in the analysis to measure the following characteristics:

- Evaluation of specific music styles: 8 items, of which 5 directly surveyed, and 3 as summarised indices of similar music styles (rural, virtuoso, electronic)⁸
- Preferred music consumption media: 7 items
- Interest and involvement in music: concert attendances (2 items), spending on music (3 items), actively playing music and singing (3 items), subjective assessment of the importance of music in one's own life (1 item) and the duration of attentive music listening (1 item).

An attempt was made through several rounds to isolate clusters.⁹ The five groups of the Austrian music listener typology allow the most precise interpretation. With more clusters some groups stand out only slightly, and with fewer clusters the typical character is lost.

⁸ Respondents were not invited to offer their favourite music, but rather to rate given music styles. For these ratings see Huber 2010.

⁹ A cluster centre analysis was carried out because the number of cases is relatively large, with this method having the advantage that elements could be exchanged between the groups during the merging process (cf. Backhaus et al 2008: 412). This method employs Euclidean distance as a measure, which is why the variables included, which partly have diverse scaling, were standardised for the analysis. Thus descriptions of individual groups do not relate to absolute figures, but are rather to be understood relative to the other groups. Moving averages were not used. Missing values were excluded in pairs. Characteristics were not weighted, so equilibrium was assumed. There is slight to moderate correlation in the variables, and the greatest Pearson's correlation (bivariate correlation) lies below 0.7. All variables included have a very significant influence on cluster formation.

3 Findings

3.1 Listening to music during leisure time

Listening to music is one of Austrians' favourite leisure time activities; over half (55%) of the population does this (almost) daily. Only television and reading play an even larger role in leisure time. However, this listening occurs as a secondary activity. But attentive listening also plays a significant role, taking place more often than e.g. hiking, walks, or sport. Almost half (47%) of all respondents listen to music attentively at least several times per week. Notable here is that both the under-30s and the over-60s attentively listen to music significantly more than all other age groups. Those in employment or busy with family apparently find less time to listen to music as they would like. Leaving one's cosy home to do so, however, is a relatively rare event. Only very few (7%) go to concerts at least several times a month; a good third (36%) at least several times a year, but over a quarter of the population (28%) never go to musical performances at all. Austrians who relatively often go to concerts tend to be those of higher education.

3.2 How long people listen to music per day

Music listening as a secondary activity can occur for many hours, as it requires comparatively little attention or effort. Almost half (46%) do this for more than two hours in a normal day, and almost nine out of ten Austrians (86%) for more than half an hour per day. As one would expect, attentive listening receives less time: still 7% of respondents listen attentively to music for more than two hours per day, although most (51%) do this for less than half an hour. Music listening duration in a normal day – whether as a secondary activity or attentively – is completely independent of all social-demographic characteristics, including even age.

3.3 In what social settings people prefer to listen to music

Most Austrians, more than two thirds of respondents, prefer to listen to music alone. The remaining third is split equally into "as a couple", "with a few other people" and "as part of a large audience". The social-demographic characteristics of age and education have no influence over the preferred social setting to hear music.

3.4 How much music people own

Around half (53%) of respondents own at least 50 original recordings on physical music media. One fifth (19%) possess the equivalent number of mp3 tunes, i.e. at least 500. Possession of music is not a given: 11% of respondents do not possess a single original recording, and 57% not one mp3 tune. The size of respondents' physical music media collection gives no clue as to the size of their mp3 collection, although those without any music media at all also tend not to possess any mp3 music. School-leavers have considerably fewer original recordings than graduates. No significant link was observed between age and possession of music.

3.5 Which devices people use to listen to music

The principal means of listening to music in Austria is still radio: 91% of respondents use it at least sometimes. Televisions (49%) and CD players (56%) also rank highly. Mp3 players, computers and mobile phones still play a secondary role in the population as a whole (as at 2009!). Use of these newer media is very much a question of age: the under- and over-30s are very different here (fig. 2). Graduates listen to CD players strikingly often, school-leavers strikingly seldom.

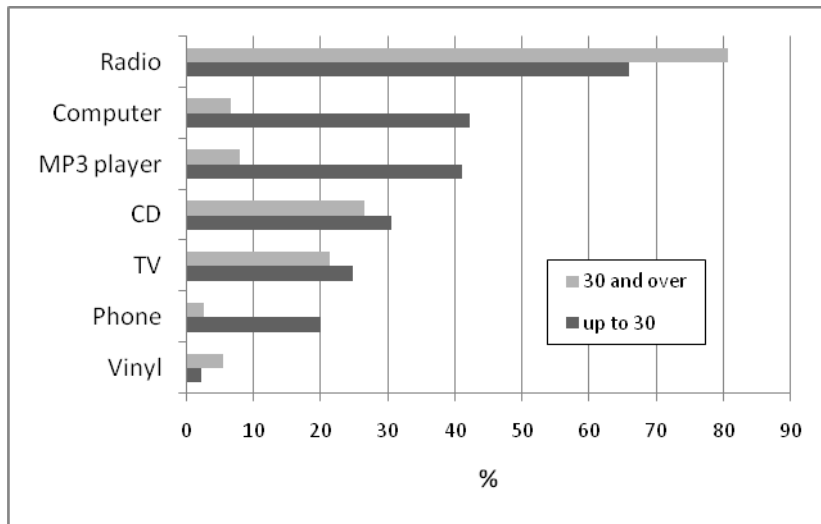


Figure 2: Devices often used for music listening

It is interesting to note that education level has almost no influence on readiness to use new media to listen to music, with the possible exception of older people of high education, who are less open to new media. While mp3 players and computers play a greater role in urban areas than in remote areas, this cannot be determined for mobile phones. Inadequate mobile network coverage seems not (any longer) to be a problem in Austria.

3.6 The role of the internet in accessing music

Over half (52%) of Austrians never use the internet to listen to music. Unsurprisingly the under-30s hold back less here too. In looking for information on music, listening and sharing the "digital natives" are the pioneers. Only in buying are they just as uninterested as older people (fig. 3).

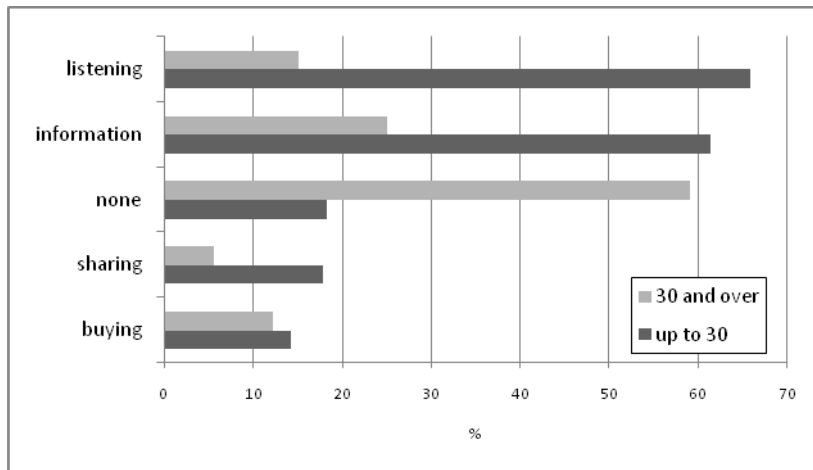


Figure 3: Internet use

Finding out about music on the internet is also a question of education level, particularly clearly in the 50-69 age group (44% graduates vs. 5% school-leavers). A similar ratio applies to 30 to 49-year-olds as regards listening to music via internet. However in the largest internet user group, the under-30s, the general affinity with the internet is so strong that the effect of education level disappears. Education level also plays no role in music sharing, which is almost only practised by the young.

The more internet-minded gave "social community sites" as their preferred music service on the internet. More than two thirds (68%) use such networks; among the under-30s this is as high as 84%. Preferences for other services are largely unaffected by age: 14% use streaming, 22% paid downloads, and 38% file-sharing sites.

The use of social networking sites is clearly related to the size of the place of residence (the bigger the town, the more these sites are used). Streaming services are generally not yet very widely used, in remote areas they are almost never used by the less-educated, and little more by those with higher education. In rural areas, the over-30s practically never buy music over the internet.

A change in music-listening behaviour thanks to the new possibilities offered by the internet is strongly connected to age. Half of under-30s now listen to more music with the advent of mp3 through the internet, as opposed to only one in five of older people. No significant connection was observed between education and internet use for music.

But "technically-competent" people of middle age (30-50) – who are mostly highly-educated, very mobile and live in cities – use new media almost as often as younger people. For this question we split the age groups even further (14-19, 20-29, 30-39, 40-49, 50+), as it is clear that use of new technology is very dependent on age. Sitting in front of a computer (as a leisure activity!) every day goes from 67% of teenagers, through 40% of 40-49 year-olds, to 29% of over-50s. In all age groups women do this much less frequently. The effect of age is even clearer in the use of computers for listening to music, for mp3 players it is similar, and mobile phones are used for music almost exclusively by teenagers.

Using the internet to get information about music shows a somewhat different pattern. Age also has a strong influence here (69-58-35-33-17%), but women are just as strongly represented as men. Only in the over-40s do we see significant gender differences. There is also very little gender difference when listening to music over the internet. Purchasing music over the internet is equally rare across all age groups up to 50, and both genders. Social networking sites are liked equally by men and women up to 40, with gender differences appearing only after 40. They are generally used very much less with increasing age (84-59-28-22-8%). Streaming services are generally not yet very widely used, and their use strongly depends on gender, with women using them only half as often as men. File-sharing services are less used by women; their use decreases moderately with age (40-27-12-18-7%). This is probably the reason why women own considerably less mp3 music. We can say that women do not so often tend to be "early adopters" of new technologies. However, they use the established features of the internet almost as often as men.

The powerful influence of education is striking in advanced internet use by the middle-aged. Whilst people of all educational levels use mp3

players and computers equally, and gather information from the internet (school-leavers do this slightly less), those with the Austrian "Matura" (higher school certificate normally required for university entry) mostly listen to and buy their music over the internet. This applies to an even greater extent to graduates.

3.7 Preferred music styles

To research Austrians' music preferences, an open question was used to elicit spontaneous information.¹⁰ Most (47%) answered – either by naming or excluding – by referring to music *styles*. From painstakingly-listed details on other particulars (musicians' names, pieces of music) to the panoply of styles reflected in Austria's radio and concert scene¹¹, the following ranking emerged: Austrians' favourite music comes from the very "Austrian" field of *Volksmusik/Schlager* (18%). Well behind, but certainly ahead of all others, comes the style of *Album Oriented Rock* (15%). At some distance come *Adult Contemporary* and *Classical Music*, both with 10%. Last in this quintet of best-loved music styles in Austria comes *Contemporary Hit Radio* (9%). All other styles are much less popular, although the largest single group comprises those with *no* music preference, nearly one in five. Music tastes in Austria are generally very much age-related. Older Austrians prefer *Volksmusik*, *Schlager* and *Adult Contemporary*, while the younger group favours *Album Oriented Rock* (35%), *Contemporary Hit Radio* (16%), *Urban Contemporary* (13%) and *Techno/House* (11%) (fig. 4).

¹⁰ The question used was "When you are asked about your favourite music, what is the first answer that comes into your head?"

¹¹ The common international radio formats are considered here; however, they could not be investigated as such, as the specialist terms applied to them are largely unknown. We therefore use the term "Oldies" for "Adult Contemporary (AC)", and "aktuelle Hitparaden-Musik" for "Contemporary Hit Radio (CHR)". "Album Oriented Rock (AOR)" is here "Rockmusik abseits der Hitparaden", and we called Urban Contemporary "HipHop/Black Music".

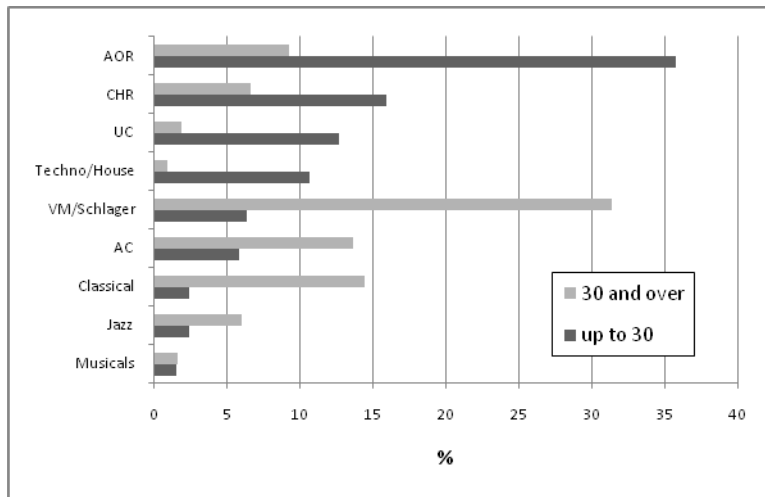


Figure 4: Favourite music style

Education also plays a major role, and certainly not the one described in the "omnivorousness" findings of Richard Peterson (1992). The probability of someone preferring *Classical Music* increases in clear proportion to educational level. The exact opposite applies to an even greater extent to *Schlager/Volksmusik*. *Album Oriented Rock* is very clearly favoured by those with the Austrian "*Matura*". This preference is significantly stronger than among those with higher or indeed lower educational levels. The number of graduates showing a preference for specific music styles such as *Urban Contemporary* or *Techno/House* is vanishingly small. Within the under-30s group education level shows a clear influence in that those with the *Matura* have an even stronger preference for *Album Oriented Rock* (49%), whilst the school-leavers' favourites are rather *Techno/House* (24%) and *Contemporary Hit Radio* (22%).

3.8 Musical performances attended, and how often

From another perspective, preferences for particular styles of music are very specifically indicated by whether one attends live performances of

that music style. The actual choice of music offered regionally is also taken into account; these regional offerings do not always give one the chance to go to live concerts of one's own favourite music, especially in remoter alpine areas of Austria. The type of music event most often attended in Austria is therefore disco/clubbing, with almost half (45%) of respondents recalling going to such an event during the previous twelve months. Other favourites are brass band and pop/rock concerts (both around 40%). While going to musicals or jazz concerts is scarcely influenced by age, disco/clubbing or pop/rock concerts are very clearly the territory of the young, and *Volksmusik* performances attract principally older audiences. Among the over-60s, pop/rock concerts, discos and jazz performances are strikingly less popular than other music events. Apart from jazz and musical shows, performance attendances among the 50-59 and the 60+ age groups show strong similarities, and again differ greatly from those of younger generations. Education once again strongly influences attendance frequency in general, and particularly the type of performances attended. The higher the level of education, the more often one visits classical music concerts, opera or jazz concerts. The number of events attended increases with educational level for all music styles, with the notable exception of *Volksmusik*.

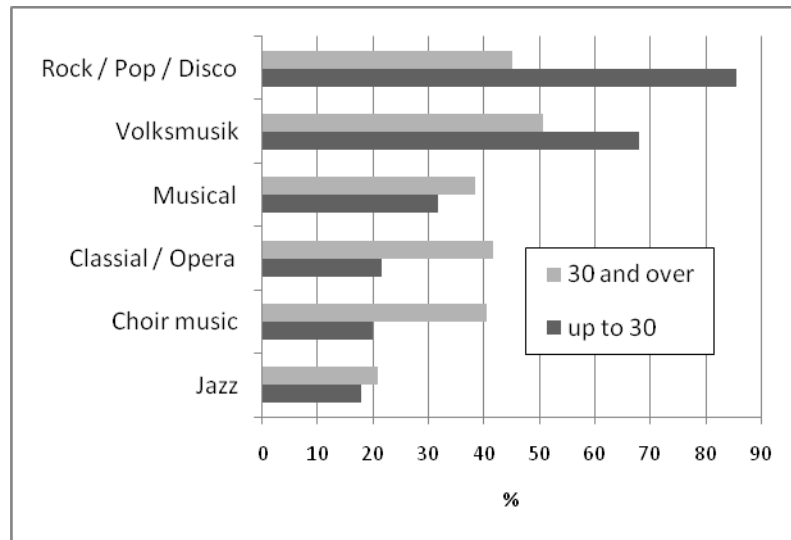


Figure 5: Attended events

3.9 How much money people spend on music

Four in ten Austrians spend absolutely no money on music. Those who spend money tend to "invest" in performances rather than music media, and certainly not in mp3 tunes. At the time of the survey (2009) six out of seven respondents did not spend any money on music downloads; around one in ten (9%) spent this amount on music media, but almost nobody did on downloads (2%). Generally speaking, willingness to spend money on music has no connection to the age of respondents. Education does play a role, to the extent that school-leavers spend significantly less on music events than the higher-educated. Music media collectors are again characterised by comparatively higher levels of education (and income).

3.10 What people want from music

By far the most important function of music for Austrians is its recreational value. For more than half (55%) of respondents it is very important that music should enable relaxation. Music as a means of expressing one's personality is also mentioned, above all by the under-30s. Also, the younger one is, the more important it is that music should connect one to one's friends. No significant link was observed between education and expectations from music.

3.11 Who sings and makes music, and how often

Finally, peoples own musical activities in "Music Country Austria" were investigated. Significantly more than half (58%) sing to themselves (at least sometimes), and almost a third (32%) sing with others. One in five never sings. Age and education play no appreciable role here, although women sing much more than men. Higher levels of education carry a considerably higher chance that a musical instrument has been learned. Not even a quarter (24%) of school-leavers has learned an instrument, but over two thirds (67%) of graduates have.

3.12 The Austrian music listener typology

Listener typologies have strengths and weaknesses, and in constructing them we run the risk of either oversimplifying them for the sake of impact, or making them too complex. The listener types presented below were developed with the help of a cluster analysis; they can be considered a counter to the listener types in the literature, which are sometimes out-of-date, and/or have been constructed using less-than-comprehensible methods. The aim of such a typology is not to develop new ideas for presenting hypotheses, as would be the case with ideal types. Nor is it to develop new, independent variables better able to predict, which may be a goal of lifestyle research. Rather, it is nothing more than a description of characteristics which come together in the typical groups. The groups described here allow a simplified, alternative presentation of the dependencies of different variables to form a com-

prehensible whole. For this it is essential to recognise that a preference for specific music styles often goes hand-in-hand with specific social-demographic factors, with preferences for certain music media, and with firm expectations from music. Constructing listener types via a cluster analysis aims to bring groups together which are as homogenous as possible within the group, and as heterogeneous as possible between the groups. Although a certain level of respondent detail is lost in this way, the deciding features for the questions can be better worked out. The most obvious advantage in investigating new patterns of musical behaviour in the internet age is the identification of a special population segment – "Generation Web 2.0"– which is the very embodiment of these new behaviours. By creating original names for listener types one achieves clear definitions, although under certain circumstances there may be an impression of undue simplification. It goes without saying that there are grey areas here, and a member of the music lovers type can certainly also be a highbrow, but in case of doubt they will always fit better in the first group. Here are the listener types (fig. 6):

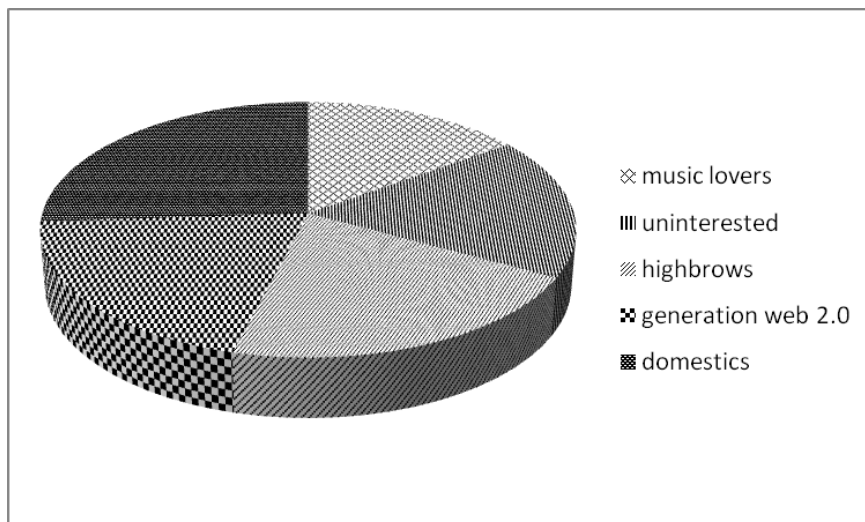


Figure 6: Austrian music listener typology

Thus in Austria we have five more-or-less equal-sized groups of music listeners, with the following characteristics:

3.12.1 Music lovers

This group sees all music in a more positive light than the average. In particular world music, musicals, CHR and AOR are more positively rated. These people often go to concerts, listen attentively to music most often, and see music as an indispensable part of their lives. They sing a great deal, and very often also play an instrument. They use all music media more often than the other groups, particularly new media rather than radio. All of the functions of music are of above-average importance to them, especially a rhythm they can dance to, connection with friends, and expression of personality. This cluster, at 15% of the 1,042, is the smallest. Members of this group are relatively young, with an average age of 39.

3.12.2 Uninterested

If this group has any preference at all, it is for Volksmusik/Schlager or Oldies; other music tends to be eschewed, in particular world music and AOR. But neither affirmation nor rejection can be said to be strong, as there is simply insufficient basic interest in music to lead to rejection as such. They are particularly inactive and uninterested in music, rarely listen to it attentively, spend very little money on it, and seldom go to concerts. They also almost never play music or sing. Radio is the preferred medium, and this is the only area in which this group fits the average for the population. All other ways of listening to music are very seldom used, particularly CDs, and they are far below the average in their use of new media. This group attaches no importance to music's functions, certainly not expression of emotions or personality, or connection with friends, which all lie well below the average. This cluster represents 18% of respondents, and their average age is 49, although the age range is in fact huge. Education level is relatively low, with a remarkably high proportion of people who never reached their Matura.

There are more men than women in this group, mainly in the 30-50 age group.

3.12.3 Highbrows

These are the typical connoisseurs of high culture. They prefer classical music and jazz, and strongly reject Volksmusik/Schlager as well as techno/house. They often go to concerts, most often listen attentively to music, and see music as an indispensable part of their lives. They spend a great deal of money on music performances and original recordings. They play music themselves more often than all other groups here. They use new media rather rarely, but will particularly often play CDs or vinyl records. Their evaluation of music's functions is less extreme than in either of the above mentioned groups, with emotional expression being seen as much more important than rhythm or connection with friends. This group covers 21% of respondents, the average age is 48, and the education level is the highest on average. All age groups can be found here, although somewhat more often the older groups. There are more women than men in the 30-50 age group, but over 50 men most clearly tend to fit in the cluster.

3.12.4 Generation Web 2.0

Members of this cluster love techno/house, UC and AOR, and they strongly reject Volksmusik/Schlager and Oldies. Their levels of activity and interest are average, as is the amount of money they spend on music, and their musicality. As for their openness to new media, however, they are above the average, frequently using computers, mp3 players and mobile phones for music, but also CDs and television. They use radio and vinyl records only very rarely. Personal and emotional expression and connection with friends are somewhat more important here; otherwise the group is average. 20% of respondents are in this group, and as regards the variables used to construct the clusters, they are the least homogenous. Mean age is 27, and the spread is the narrowest of all groups. The group represents 57% of under-30s and 26% of 30 to 39-

year-olds (an above-average number of whom have a higher education level). There are few over-40s.

3.12.5 Domestics

This group loves to listen to Volksmusik/Schlager, and also likes Oldies. "Younger" music styles such as techno/house, UC and AOR are looked down upon. They seldom go to concerts or buy original recordings; their attentive music listening and their own music playing are at average levels. They listen to radio very often, and hardly ever use either new media or CDs. All functions of music are considered important here, particularly the rhythm, lyrics, the connection with friends, and that the music be played by exceptional musicians. This group, with 26% of respondents, is the biggest and most homogeneous as regards the variables used to construct the cluster. The average age is 55, and the education level is the lowest of all groups. The proportions of each age group increases with age, from 6% of 30-year-olds to 49% of the over-60s. Graduates account for far below 10%, and a very large proportion have no Matura. People living in the countryside are over-represented here just as much as those with low incomes.

4 Summary

To sum up, we can say that in Austria a higher level of education has a great effect on one's preoccupation with music. The more highly-educated go to more concerts, buy more music media and listen correspondingly more often to music on a CD player. They clearly prefer classical music and jazz, both recorded and live. They invest significantly more money in their music and are relatively likely to have received musical training. Age plays a role chiefly to the extent that younger Austrians listen to music attentively relatively often, and intensively use newer devices such as computers or mobile phones. They are power-users of the internet as a medium for gathering information about music, and for exchanging and directly listening to it. Young people's preoccupation with music in general has been greatly boosted by internet use.

Under-30s turn their backs on Volksmusik, preferring pop, rock and electronic music, both recorded and in live concerts. They don't just value "their" music as a means of relaxation, but – much more than older people – they also consider it important to be able to express their personality (individuality) and connect with their friends via music. What is striking is how clearly a population segment stands out which could never have been identified before the digital music revolution: the "Generation Web 2.0". Although this group's style preferences are very similar to the under-30s (as defined purely by age), it cannot be limited to these. There are also young people in the "music lovers" and "uninterested" groups. Along with their socio-structural inhomogeneity, what really distinguishes "Generation Web 2.0" is their idea of when, how, where and with which devices music is listened to. Or as Prensky (2001, p.1) says: "*their thinking patterns have changed*". Their approach to music is playful, short-term, social, very visual and mobile. They like their music to be uncomplicated, convenient and inexpensive. Music suppliers who grasp this and build it into their product offer will get this group's attention. There is still too little concrete understanding of how to manage this. Above all there is a lack of qualitative research as to why these people listen to music, and what they expect from it. Or is this just the thinking of a "Digital Immigrant"? Whatever the case may be, this generation deserves attention as it will influence the future of the music business, even though most revenue today is still generated by the traditional routes of original recording sales and concert tickets.

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Analysing the popular music audience: determinants of participation and frequency of attendance

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Abstract

The past decade has witnessed a gradual shift in the popular music audience leading to the predominance of live performances as the main revenue source in the industry. Whether this trend is sustainable and how it relates to other sectors, mainly the recorded music industry, crucially depends on consumer's demand. We analyse the demand for live popular music by resorting to data by the 2010-11 Survey for Cultural Habits and Practices in Spain. The aim of this paper is twofold. Firstly, to determine the factors that explain frequency of attendance to live performances and how it relates to media participation. Secondly, to classify consumers by identifying different demand segments.

Keywords: Live music attendance, cultural capital, media-based consumption, zero-inflated count model

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1 Introduction

The past decade has witnessed a shift in the popular music market worldwide, with the live industry outperforming the more traditional recorded music sector. Spain is a clear case study: recorded music revenues have declined by a mean annual rate of -13% — from 633 million in 2001 euros to 179 in 2010 — over the period 2001-2010. In contrast, live performance revenues have grown at an annual rate of 8.4% — from 85 to 173.5 million euros over the same period. Indeed, in 2011 live music turnout has overtaken that of prerecorded music in Spain.

However remarkable at the aggregate, individual level figures provide us with a deeper insight on the process. Comparing data by the 2006 and 2010 waves of the *Survey for Habits and Cultural Practices in Spain* — from now on SHCP2006 and SHCP2010 —¹³ we find noteworthy similarities and differences in the popular music audience over time.

Attendance to live popular music performances, measured in relative terms,¹⁴ has hardly changed over time: roughly 12% of those sampled attended — i.e. 88% had not — to a live performance over the past three months. The distribution of attendance in both years is, as would be expected, highly skewed with a long tail to the right. This is an interesting finding in itself, as it implies that revenue growth in the industry — from 155m euros in 2006 to 182m in 2010 — has been primarily driven by price increases.¹⁵ Moreover, attendance in Spain has a strong seasonal pattern, with a peak around the second term of the year — 40% of the observed frequency — and a trough in the fourth term — 14% to 15% of the observed frequency depending on the year.

Overall, this reflects an increasing relative economic relevance of live music which has become the main market in the popular music in-

13 The SHCP is a survey based research which offers individual level information about cultural participation by the Spanish population over 15. It is undertaken by the Spanish Ministry of Culture.

14 Certainly, absolute data on attendance can increase if population grows. However data for population over 15, the segment targeted by the SHCP, has only slightly increased from 30,61m in 2007 to 31,31m in 2011.

15 A fact that is reinforced using SGAE (2011) aggregate data on attendance, with a reported audience of 28 million in 2006 and 31 million in 2010. This agrees with Krueger (2005) findings on price dynamics of live performances in the US.

dustry. On the grounds of this increasing relevance, a deeper analysis of the live popular music industry applies.

This paper aims at empirically explaining consumer behavior in the live popular music sector. By using a representative survey on cultural participation for the Spanish population over 15 we shed light on the factors that determine the frequency of participation in live music performances by the Spanish audience. Three determinants stand out:

- Sociodemographic variables. We find statistically significant gender-effects — female are less likely to participate and/or do it less frequently — and time-effects — with individuals' time-restrictions being a strong determinant of participation and/or its frequency.
- Educational attainment and cultural capital, i.e. past consumption and the building up of knowledge which proxy using variables such as music listening or reading habits to mention two. Both are traits that also explain other forms of cultural consumption.
- Media participation. Somehow related to the cultural capital, media participation can be seen as a complement to popular music attendance. However one should note that consumers engagement with recorded music has been significantly altered by the digitization of music and its widespread availability over the Internet. In this sense the results point to significant differences between the effect of purchases — that increase the likelihood of attendance and its frequency — and copying of recorded music¹⁶ — only increases the frequency of participation.

Furthermore, heterogeneity of cultural consumption arises as a natural extension of our estimation strategy. Given that most individuals in

¹⁶ By copying we mean any alternative use of recorded music, which includes copying from peers but also downloading from the Internet or file-sharing from peer-2-peer networks.

the population are non-attendants, one could ask whether this is a uniform group. As the results show, non-attendants can be classified in terms of their likelihood of never-attending by resorting to a zero-inflated count model which allows us to single out different behavioral patterns in the consumption and use of popular music.

The paper is organized as follows. Firstly, we start with a review of the literature and the general setup for cultural participation applied to live music consumption. Secondly we introduce the empirical work. Here we start by describing and summarizing the dataset, and continue by showing the main findings that stem from the application of the proposed testing strategy. Finally, we close with the discussion of the main results and some conclusions.

2 The consumption of live popular music

2.1 Literature review

Attendance to live popular music can be analyzed from the economic perspective of cultural participation. From a microeconomic standpoint, current engagement with the arts is primarily determined by previous consumption experiences in which individuals build up a stock of *cultural capital*. This can be either seen as the outcome of a habits formation process or rational addiction,¹⁷ or as the discovery of tastes derived by a learning by consuming approach.¹⁸

While the theoretical model can be seen as the solution of an individuals's maximization process, the testing of its implications entails dealing with the fuzziness of the concept of cultural capital and, more important, trying to capture it with current available information. Here it is worth noting that the microeconomic estimation of demand models for the cultural consumer are primarily based on survey data.¹⁹

17 See the Stigler & Becker (1977) household production model and its application to culture and the arts by Ateca-Amestoy (2007).

18 As in the Levy-Garboua & Montmarquette (1996) model of theater demand.

19 These pose specific practical and econometric problems, mainly derived from the unobserved heterogeneity between individuals and how it is tackled within the research framework.

What are the main findings in the empirical literature of cultural participation?

From the broader perspective of the performing arts, Seaman (2006) offers a detailed review of the applied literature on participation. Overall, the econometric findings point to education standing out as the most strong determinant of demand, even more than income — especially in survey-based studies —; the relevance of quality, even though trying to capture it is not straightforward; and the need to include the dynamics that emerges in cultural consumption, be it the outcome of rational addiction, inertia or a learning-by-consuming process. Other findings relate to the price inelasticity of performing arts, the limited evidence with regards to complements and substitutes and the fact that some non-standard lifestyle and socialization variables may play a role.

As for the empirical evidence in popular music consumption, it is interesting to note that very few papers deal with it from a microeconomic perspective, and even less analyze the demand for live popular music performances. Next, we review five papers that deal with popular music consumption. All of them share a similar approach by applying an econometric strategy — usually some qualitative dependent variable estimation framework — to nationwide individual-level survey data.

The main research question in van Eijck (2001) is the analysis and determinants of musical tastes — as the variety of music genres of choice — in the Netherlands. By clustering individuals using a factor model, the author finds that popular music consumption is negatively related to age, education and active music participation. On the other hand, gender and occupational status do not have a significant effect.

Prieto-Rodríguez & Fernández-Blanco (2000) analyze listening music habits in Spain, trying to identify what are the traits, if any, that popular music and classical music listeners share. Using a bivariate probit model, the econometric findings point to a negative age effect and a nonlinear effect of education on popular music listening and a positive one on classical music listening. Time availability also plays a key role in explaining participation in both activities, while there is no evidence of gender effects.

The analysis of Canadian audiences for years 1992 and 1998 is undertaken by Fisher & Preece (2003). Based on reported attendance, they segment the audience in classical music attenders, i.e. *snobs*, and classical and other music attenders, *omnivores*. Their findings suggest that education, gender — i.e., being female —, income, age and other forms of cultural participation (reading and going to the movies) are strongly associated with the incidence of snobs. As for omnivores, the main difference is that they are younger; other variables have similar qualitative effects on both groups.

Favaro & Frateschi (2007) analyze attendance to classical and popular music performances in Italy. They use a multinomial logit model to estimate observed consumer choices — only classical/only popular/both. Their findings point to age and gender — being female — being positively related to attending both types of events and negatively related to only popular music attendance. Education and time availability have a positive effect on attendance in all groups, while results for occupational status are ambiguous.

Montoro-Pons & Cuadrado-García (2011) analyze live and prerecorded popular music participation in Spain. The authors estimate a bivariate probit model for attendance and purchase of music in two different time frameworks. The findings show some similarities in the pattern of participation in both markets — there is a strong gender-effect, i.e. being female, has a negative effect on attendance and purchases, and cultural capital has a positive effect — but also some differences — time availability, the use of technology and economic-related variables have asymmetric effect on participation. More interesting, by using a recursive specification the authors find a direct effect of recorded music consumption on live attendance but not the reverse, which they relate to recent changes in consumption of prerecorded music.

Finally, from an unrelated methodological standpoint, Earl (2001) analyzes attenders' motivations to live popular music events. By using subjective personal introspection, the author concludes that attendance to live music events has to be driven by factors different to those of the demand of music itself, one of them being what he labels the *pilgrimage*

motivation, i.e. the social ritual surrounding the participation in such live events.

The previous review raises two questions. First, of the few papers that analyze popular music consumption, only one includes in the analysis live and prerecorded consumption. If we acknowledge that there is a link between media consumption and live attendance, then one should include both aspects in the analysis. Second, all of the papers deal with participation — as the binary choice made by consumers — but none with its frequency — how many times?. In this paper we fill this gap in the literature by bringing these features together. We jointly model participation and frequency of participation using a unified framework, i.e. a zero-inflated count specification. In other words, our estimates allow us to identify what factors determine participation and what factors affect the number of times an individual attends. Additionally, we include media consumption as control variables that ultimately allow us to identify the correlation between live and recorded music decisions. Next, we specify an empirical model for the frequency of live popular music attendance and define a testing strategy.

2.2 Explaining attendance

We assume that individual i frequency of participation —number of concerts— per unit of time can be expressed as:

$$y_i = f(x_i) = f(\text{Soc}_i, \text{Ec}_i, \text{Ed}_i, \text{Geog}_i, \text{Cult}_i, \text{Med}_i, \text{Eq}_i, \text{Pref}_i) \quad (1)$$

with Soc_i being individual i socio-demographic characteristics, Ec_i economic factors, Ed_i educational attainment, Geog_i geographical variables, Cult_i cultural capital variables, Med_i media-consumption related variables, Eq_i cultural equipment and other physical capital in the household and Pref_i revealed preferences on live music. We acknowledge that media-based consumption is a way of accumulating cultural capital. However we explicitly model it as a separate variable to single it out as the main means by which consumers accumulate cultural capital.

Expression (1) allows us to estimate the average profile of the attendee. This implies interpreting the individual impact of each covariate

on the response^y, and test some well established regularities previously found in the literature, mainly the impact of income, time restrictions, and, more specifically, the relevance of education and cultural capital in explaining consumption.

Further, it accounts for the net impact of media-based consumption in its double role as a substitute of live participation —i.e. as a means of satisfying music-related needs—, and as an addictive mechanism in that it leads to the gathering and accumulation of knowledge, and hence of consumption capital, about music. Additionally we are also interested in disentangling the different effect on attendance, if any, of recorded music consumption, i.e the purchase of music recording, and other forms of music use, such as copying, sharing and downloading from the Internet.

Finally, and based on the analysis of frequency of participation, the model allows the identification of the different segments that make up the market. This will allow us to characterize different behavioral patterns according to segment membership which, ultimately, could be a helpful tool for practical purposes.

2.3 Model specification

The response variable y in expression (1) is the outcome of a count process. The most simple setup for this model is to assume for y a Poisson process, in which the mean of the endogenous variable — $\mu = E[y]$ — is a function of a set of covariates x_i , such that

$$\mu_i = \exp(x_i' \beta) \quad (2)$$

The main drawback of the Poisson distribution is that it assumes equidispersion, i.e. equal mean and variance, which can be a rather strong assumption. When overdispersion is an issue,²⁰ one can resort to alternative specifications such as the negative binomial model that allows for a more flexible modeling of the variance of the conditional response. In this case $y \sim \text{Poisson}(y|\mu\nu)$, being μ the mean of a poisson

²⁰ Indeed, after examination of the descriptive statistics for frequency of attendance in table, this seems to be the case with our dataset.

count process and v a random process that introduces multiplicative randomness.²¹

Assuming $E(v) = 1$ and $\text{Var}(v) = \sigma^2$, then the mean is $E(y) = \mu$, but dispersion increases compared to a Poisson distribution. If we model the mean of this process in terms of the regressors in expression (2), we set

$$\mu = \exp(x'\beta) \quad (3)$$

Then one can estimate the set of parameters β by maximum likelihood using numerical methods.

Note that the negative binomial distribution is usually preferred to the Poisson model as it accommodates overdispersion. However, as Cameron & Trivedi (2005) note, the negative binomial model is less robust to distributional misspecification than the Poisson.

A second and somewhat related issue when modeling count data is that of excess zeros, i.e. a higher than expected frequency of zeroes in the dataset. In our case the excess of zeros implies that the frequency of non-attendance is greater than what would be predicted by a count model. To model a count process with inflation of zeros, one can resort to a zero-inflated model in which a binary process and a count process are combined. Let $f(\cdot)$ represent the binary process and $g(\cdot)$ the count. Then the response probability, suppressing the regressors for simplicity, is given by:

$$P(y_i | x_i) = f(0) + (1 - f(0)) g(y_i) \quad (4)$$

In this setup a zero can be either the outcome of the inflation part, when $f(0) = 1$ or a count, for $f(0) = 0$. Interestingly, there are different underlying behavioral assumptions in both kind of zeros. That allows us to interpret the results in terms of individual preferences.

21 In fact, the negative binomial distribution models the multiplicative randomness as a gamma distribution.

3 Empirical work

3.1 The Data

To estimate expression (1) we use secondary data provided by the SHCP2010. The SHCP2010 is a research that aims to describe cultural practices and habits of the Spanish population over 15. Its main objective is to provide information about population demand for the activities within the different cultural sectors.

The survey is carried out by the Spanish Ministry of Culture — as part of the National Statistics Planning — and complies with the guidelines by the EUROSTAT's working group on Cultural Statistics. The National Statistics Agency (INE) collaborates in the methodological underpinnings of the sampling design, which is a two stage sampling method with stratified primary sampling units. The theoretical sample size was set to 16,400 second stage units, i.e. individuals. The survey was conducted using personal interviews between March 2010 and February 2011.

As for its scope, the survey covers individuals' involvement with heritage, reading, performing arts, classical and popular music concerts, cinema and video, prerecorded music, television and radio, computer and the Internet, and other practices related to culture and/or leisure.

With regards to live popular music attendance the survey reports frequency of attendance as the answer to how many times the survey-taker attended to a popular music live concert in the last three months. This will be the dependent variable in expression (1). Table 1 tabulates the response variable. From it we see that non-attendance is the most frequent outcome — 88% of the sample — a result that points to a zero-inflated process. Moreover only 4.8% of those surveyed attended at least twice to a performance in the past three months.

Not surprisingly, live attendance and media based consumption and use are correlated. Accumulation of cultural capital can take different forms but recorded music is still a way of building up knowledge about acts and music. Using a binary variable for attendance, we compute the tetrachoric correlation between alternative forms of popular music use

— copying and/or downloading — and consumption — physical or digital purchases. Table 2 shows the results. Interestingly this correlation is strongest between copying and attendance and weakest between recorded music purchasing and copying. Obviously these are just raw correlations and we must take into account covariates that could partially explain them. Next we enumerate them.

First, socio-demographic characteristics. In this group we include gender (Female), age — and its square to account for nonlinearities —, marital status (Single) and whether the survey-taker is responsible for children under the age of 18 living in their same household (Child). We also account for the size of the household giving a breakdown on age brackets: number of individuals in the household over 18 (N-over18), between 15 and 18 (N-over15), between 10 and 18 (N-over10) and less than 10 (N-less10).

Second, economic variables. One drawback of the SHCP2010 is that it does not include information about the survey-taker income. Therefore we need use indirect income indicators, such as labor market situation (variables Student, Employer, Employee, Unemployed, Retired, and Househusband) and education attainment variables (variables High-School, Vocational, and University). Overall it is reasonable to assume these will be correlated with income, although educational variables also will give a rough approximation to the cultural capital individuals hold. Nevertheless there are other variables that we expect to be correlated with income. Whenever this is the case, we point it out.

Third, geographical variables. We include a dummy for each of the 17 regions in Spain. We include them to control for regional income differences, supply side factors and other latent regional differences. However these are not included in the regression output as they do not have a direct interpretation and that would unnecessarily complicate the presentation of the results. Additionally, we also include a variable City-Size. This provides the following classification for cities:

- Province capital (CitySize1);
- Population over 100,000 (CitySize2);

- Population between 50,000 and 100,000 (CitySize3)
- Population between 10,000 and 50,000 (CitySize4).

The reference case is that of cities with less than 10,000 inhabitants that are not province capitals.

Fourth, we need to take into account music cultural capital. Here we include, as it has been mentioned, the use of media for the satisfaction of music needs. Three dummies are considered. The variable *Media* takes on value 0/1 depending on whether the survey taker purchased recorded music and/or downloaded or copied recorded music over the past three months. In order to be able to discriminate between both effects on attendance — but at the cost of an increasing model complexity as it will be shown — we also split *Media* in two: *Purchase* and *Copy*.

Additionally, we include other variables that account for the accumulation of consumption capital specific to music. Within this category we include:

- A variable to control for daily music listening time in minutes (*Minutes*);
- a dummy accounting for watching music programs on TV (*TVMusic*);
- a dummy for reading cultural magazines at least once a month (*Magazines*) and a dummy for those that read music-related reviews (*Critics*)
- finally, two dummies accounting for the active involvement in music by means of playing an instrument, singing or performing any other activity related to music (*Active*), and the participation in courses related to music (*Courses*).

Fifth, we also include variables that measure a household physical capital. The survey includes information for music related equipment (music instruments, radio sets, CD players, portable disc players, MP3 players, tape players, turntables and the like) and other cultural

equipment in the household (TV sets, cameras and videocams, videogame consoles, ebook reader, number of books, computers, smartphone, broadband and mobile broadband mainly). This is relevant as physical equipment is either basic for listening to music or related to it and, therefore, to habit formation. However it should be noted that we expect physical equipment to be correlated to household income due to the lack of a measure for it. This, in turn, makes the estimated effect for these variables rather imprecise and very likely to be correlated with other control variables. Moreover, the large number of variables in this group calls for a dimension reduction for estimation purposes. To do so, we summarize all the information about music equipment and physical capital, by using a principal components analysis. This reduces the number of variables from 19 to 6 (3 for music related equipment and 3 for other physical capital) which still capture over 50% of the total variance. As in the case of regional dummies, we will not include these components in our estimation tables as they will be uninformative and will interfere with the interpretation of the main results.

Sixth, Internet variables. We already have considered a broadband Internet connection as part of the physical capital of the household. However we also include as separate variables being a user of file sharing networks (P2P) and of direct downloads services (DirectDownload) in order to capture for potential substitution and exposition effects in the consumption of popular music.

Finally, we also include the self reported valuation of the survey taker (Valuation) in popular music live performances. It is measured as the interest of the individual in popular music performances in a 0-10 scale. Here we aim at proxying underlying preferences for this kind of cultural events. Table 3 lists all the above variables and their main statistics.

3.2 Estimation results

3.2.1 A basic count model

We start by estimating the frequency of attendance by using a negative binomial specification as a benchmark model.²² The main results are shown in table 4. All tables include estimates — except for the dummies for 17 Spanish regions and the physical capital and music-related equipment components that are omitted from the output for the sake of simplicity — robust standard errors (below in parenthesis), significance level (*0.1,**0.05), and, at the bottom of the table, the log likelihood, and an overall significance test and its p-value. Note that all estimation results take into account survey design weights.

Some results are worth noting. Firstly, and after controlling for other covariates, the observed seasonal pattern in the response variable is statistically significant for the second and fourth term. Taking as reference the first term of the year, frequency of attendance is significantly higher in the second term and lower in the fourth term with no statistically significant effect in the third term of the year.

Secondly, socio-demographic characteristics are relevant to understand the profile of live popular music consumers. Female are less likely to attend than male, while age affects negatively attendance and although only the nonlinear part of age is significant for models 1 and 2, a joint significance test rejects the null in all three cases. Consistently with similar works in other cultural fields, single individuals are more likely to participate than those in a relation, although after controlling for other covariates, having children to take care of was not significant. However, number of household members below 10 years old had a clear negative impact, which could partially explain the lack of significance of the variable Children. No labor market related variable was significant except for Retired; this could account for the fact that cultural participation is time intensive and retirees have plenty of it.

²² The negative binomial model allows us to accommodate for overdispersion, which is the case in the dataset. Being the mean attendance 0.6, and variance 1.39 equidispersion can be rejected.

Thirdly, cultural capital variables are relevant. Educational attainment — vocational and higher education positively affect attendance —, and variables related to active creation, or the gathering of information and knowledge by individuals — participation in courses, reading of cultural magazines or of critics evaluations, and daily average number of minutes listening to music — all have the expected sign.

Fourthly, as for Internet variables, we see that being a file-sharing user has no significant effect while being a downloader has a positive effect. This result is consistent with a positive sampling or exposition effect of recorded music on attendance. An effect that also stands out if we include the variable *Media*, individuals that purchased or copied music, which is positive and significant — Model 2 in the table. In this case we drop the covariates P2P and DirectDownload as there would be a perfect pairwise correlation among these and Media. Finally in Model 3 we split the net effect of media into media consumption through purchase and through download-sharing-copying. Interestingly, we note that the effect of buying on participation is greater in magnitude than that of copying. This could be due to the fact that those who purchase recorded music show, in general, a greater willingness to pay for music (hence also for live music).

3.2.2 Estimation of a zero-inflated count model

The high frequency of non-participation, see table 1, is very likely due to an excess of zeros in the dataset which, on the other hand, could be the cause of overdispersion. To address this we resort to the estimation of a zero-inflated count model, as per expression (4). By so doing we are assuming that the population is composed of two subpopulations: one the frequency of attendance of which always takes on value 0, i.e. non-attenders, and one driven by a count process.

Table 5 shows the estimation results. For each model the table shows estimation results for the negative binomial model — the count part — and for the likelihood of the response being always zero — the inflation part.

Starting with Model 1 and going through the inflation part, we see that non-attendance is explained by very few variables. First, the seasonal pattern is reinforced, with non-participation being negatively related to those taking the survey in the second term. Secondly, we see that socio-demographic variables matter: raising children increases the likelihood of non-attendance, while being single and student decreases its likelihood. Overall we consider that these findings point to a significant time-effect which is consistent with the nature of cultural participation. On the other hand self reported valuation on popular music decreases the likelihood of never attending. This result is linked to individual preferences that ultimately should drive attendance. Interestingly this determines whether an individual participates or not but does not alter the frequency of participation (as shown by the result in the count part of the model).

As for the count part of the model some results are consistent with estimates in table 4. Being female decreases the frequency of participation but interestingly it does not increase non-participation (as the inflation part estimates show), while being single increases it (again a time restriction effect). Surprisingly the frequency of participation increases with children but it is negatively affected by the number of children below 10 years old which may compensate for any positive effect. Overall the estimates signal to a strong time-effect.

None of the variables related to the labor market situation of the individual seem to affect the frequency of participation. However education (variables Vocational and University) does in a positive fashion, as expected. Overall we assume these account for a mixture of cultural capital and income effects.

Finally, cultural capital related variables — being actively involved in music creation and reading magazines or critics reviews — have the expected positive effect on attendance.

All of these results hold for Model 2. However one interesting result is related to the effect of media consumption on both parts of the model. While purchasing recorded music has a significant effect both on the inflation part —decreasing the likelihood of non-attendance — and the

count part — increasing the frequency — the effect of copying only affects the count part. Hence purchasing can be seen as an activity that signals to a very strong involvement with music, while copying points to a behavior that could be shared between both participants and non-participants.

4 Conclusions

This paper has undertaken an analysis of the frequency of attendance to the live music market. We have pursued two main goals. First to identify the profile of the consumer in the live performances popular music market, a market that is becoming increasingly relevant for artists and a new source of business for the industry as a whole. Second, to be able to segment the market and see, if any, the different behavioral patterns between the different demand groups.

Results provide the average profile of the live music consumer, a male, young, educated consumer with time availability and actively engaged in the media consumption of recorded music, both by purchasing and by copying and downloading music files and full albums.

However one must acknowledge that attendance data show a clear polarization between attenders and non-attenders, with 88% of the sample not having attended to a live performance in the three months prior to taking the survey. To better understand this behavior we have estimated a zero-inflated count model which allows us to segment the population based on observed features. In short, it classifies the population by discriminating between two types of zeros: those that, given their current situation,²³ have not attended over the period of reference but could have potentially attended, and those that will never attend.

The estimated model predicts that the likelihood of being an actual or potential attender is mainly driven by cultural capital related variables, a feature that is common to participation in other forms of art.

23 Think of individuals facing some type of restriction, i.e. time or income that yields a corner solution in their maximization problem. Even though they have preferences for live music, these would be latent.

Even though from the inflation part of the model we get a description of never-goers, we can exploit the predictions of the model and identify the size of the demand segment of potential attenders and condition it on other variables of the model. By using an ex-post Bayes rule, the model classifies 64% of the sampled individuals as zeroes, i.e. never-goers, while actual non-attendance in the sample is 88%. Hence a back of the envelope calculation leaves us with 22% of potential attenders or latent demand. This, on the other hand, increases potential participation from roughly 12% to 36% of the population.

Furthermore, the distribution of latent demand shows some interesting features: while 89.3% of female and 86.7% of male are non-attenders, the model estimates that roughly 64% of both groups are never-goers, leaving a slightly higher latent demand among women. From this same perspective, media participation offers an interesting insight: while actual non-participation is slightly larger among those that copy music —27% compared to 26% non-attendance in those that purchase— the estimated rate of never-goers is greater for those buying pre-recorded music, roughly 40%, than for those copying, equal to 34%. Maybe age interferes in this calculation as those that only copy and download music are also younger. In any case, this is an interesting result which is consistent with media participation fostering attendance.

To conclude, the above discussion shows that, as long as there is a latent demand, there is room to increase live popular music audiences. The key point is how to relax the restrictions that potential attenders face, something that goes beyond the scope of this paper. However it offers some hints that could be related to supply decisions, such as to smooth the obvious seasonal pattern of live music consumption or to remove some barriers to consumption (i.e. for those that are raising children) to mention two.

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6 Appendix

| Attendance | Frequency | Percent | Cum. |
|------------|-----------|---------|-------|
| 0 | 12,752 | 88.03 | 88.03 |
| 1 | 1,039 | 7.17 | 95.2 |
| 2 | 315 | 2.17 | 97.38 |
| 3 | 159 | 1.1 | 98.47 |
| 4 | 58 | 0.4 | 98.87 |
| 5 | 54 | 0.37 | 99.25 |
| 6 | 30 | 0.21 | 99.45 |
| 7 | 12 | 0.08 | 99.54 |
| 8 | 7 | 0.05 | 99.59 |
| 9 | 6 | 0.04 | 99.63 |
| 10 | 26 | 0.18 | 99.81 |
| 11 | 1 | 0.01 | 99.81 |
| 12 | 11 | 0.08 | 99.89 |
| 15 | 6 | 0.04 | 99.93 |
| 20 | 7 | 0.05 | 99.98 |
| 24 | 1 | 0.01 | 99.99 |
| 30 | 1 | 0.01 | 99.99 |
| 50 | 1 | 0.01 | 100 |
| Total | 14,486 | 100 | |

Table 1: Frequency of attendance to live popular music performances over the past three months.

| | Attendance | Purchase | Copy |
|------------|------------|----------|-------|
| Attendance | 1.000 | | |
| Purchase | 0.3312 | 1.000 | |
| Copy | 0.4288 | 0.2817 | 1.000 |

Table 2: Correlation matrix between live attendance and recorded music purchases and downloads

| Variable | Mean | Std. Dev. |
|--|-------------|------------------|
| 1. Music attendance and use | | |
| Frequency of attendance | 0.259 | 1.177 |
| Purchase | 0.114 | 0.318 |
| Copy | 0.193 | 0.395 |
| 2. Socio-demographic variables | | |
| Female | 0.520 | 0.500 |
| Age | 48.216 | 19.102 |
| Single | 0.361 | 0.480 |
| Child | 0.291 | 0.454 |
| N-over18 | 2.553 | 1.083 |
| N-over15 | 0.159 | 0.425 |
| N-over10 | 0.132 | 0.390 |
| 3. Labor market related variables | | |
| Employer | 0.077 | 0.267 |
| Employee | 0.373 | 0.484 |
| Unemployed | 0.125 | 0.331 |
| Student | 0.094 | 0.292 |
| Retired | 0.199 | 0.399 |
| Househusband | 0.117 | 0.322 |
| 4. Educational attainment | | |
| Vocational | 0.135 | 0.342 |
| HighSchool | 0.136 | 0.343 |
| University | 0.17 | 0.376 |
| 5. Geographical related variables | | |
| CitySize1 | 0.414 | 0.493 |
| CitySize2 | 0.089 | 0.284 |
| CitySize3 | 0.097 | 0.296 |
| CitySize4 | 0.212 | 0.409 |
| 6. Proxies for cultural capital | | |
| Minutes | 32.019 | 39.2 |
| TVMusic | 0.098 | 0.298 |
| Magazines | 0.185 | 0.388 |
| Critics | 0.212 | 0.409 |
| Active | 0.102 | 0.303 |
| Courses | 0.009 | 0.097 |

Continued on next page

| | | |
|---|---------|---------|
| 7. Music physical capital in the household | | |
| Radio | 0.919 | 0.273 |
| Tape Player | 0.525 | 0.499 |
| Turntable | 0.264 | 0.441 |
| CD/DVD/Blue ray player | 0.830 | 0.376 |
| Digital music player | 0.428 | 0.495 |
| Walkman/Diskman | 0.244 | 0.43 |
| MP3 player | 0.522 | 0.5 |
| Mobile phone with music player | 0.547 | 0.498 |
| Number of music instruments owned | 0.836 | 1.599 |
| 8. Other cultural physical capital in the household | | |
| eBook reader | 0.008 | 0.09 |
| Number of books (physical format) | 158.652 | 444.096 |
| Number of encyclopedias (physical) | 1.853 | 3.636 |
| Number of books (digital format) | 15.307 | 479.999 |
| Number of encyclopedias (digital) | 0.134 | 1.077 |
| Number of computers | 1.227 | 1.149 |
| Broadband access | 0.571 | 0.495 |
| Mobile broadband | 0.089 | 0.285 |
| Smartphone | 0.354 | 0.478 |
| Videogame console | 0.389 | 0.488 |
| 9. Involvement in copying and file-sharing in the Internet | | |
| P2P | 0.079 | 0.270 |
| DirectDownload | 0.109 | 0.312 |
| 10. Valuation of live popular music | | |
| Valuation | 6.044 | 3.17 |
| Sample size | 14,486 | |

Table 3: Summary statistics

| | Model 1 | Model 2 | Model 3 |
|------------------|-----------------------|-----------------------|-----------------------|
| Media | | 0.4332** (0.0875) | |
| Purchase | | | 0.4720** (0.1028) |
| Copy | | | 0.2119** (0.0830) |
| Term 2 | 0.8158** (0.1027) | 0.8143** (0.1016) | 0.8148** (0.1018) |
| Term 3 | -0.0105 (0.1068) | -0.0100 (0.1062) | -0.0110 (0.1067) |
| Term 4 | -0.3163** (0.1153) | -0.3145** (0.1166) | -0.3229** (0.1165) |
| Female | -0.3670** (0.0831) | -0.3390** (0.0826) | -0.3409** (0.0820) |
| Age | -0.0007 (0.0191) | 0.0026 (0.0191) | -0.0027 (0.0187) |
| Age ² | -0.0004* (0.0002) | -0.0004* (0.0002) | -0.0003 (0.0002) |
| Single | 0.3819** (0.0929) | 0.3528** (0.0924) | 0.3491** (0.0922) |
| Children | 0.1994 (0.1478) | 0.2168 (0.1478) | 0.2164 (0.1483) |
| Employer | 0.2952 (0.3299) | 0.2784 (0.3153) | 0.3069 (0.3012) |
| Employee | 0.4571 (0.2925) | 0.4423 (0.2834) | 0.4746* (0.2683) |
| Unemployed | 0.2319 (0.3055) | 0.2329 (0.2974) | 0.2685 (0.2819) |
| Student | 0.2753 (0.3059) | 0.2763 (0.2985) | 0.3224 (0.2813) |

Continued on next page

| | | | |
|--------------|-----------------------|-----------------------|-----------------------|
| Retired | 0.8379** (0.3853) | 0.8228** (0.3756) | 0.8295** (0.3639) |
| Househusband | 0.4898 (0.3493) | 0.4995 (0.3430) | 0.5127 (0.3305) |
| n-over18 | -0.0967** (0.0396) | -0.0802** (0.0391) | -0.0813** (0.0390) |
| n-over15 | 0.0351 (0.1033) | 0.0385 (0.1050) | 0.0428 (0.1051) |
| n-over10 | -0.2139* (0.1177) | -0.2139* (0.1177) | -0.2226* (0.1171) |
| n-less10 | -0.5133** (0.1021) | -0.5121** (0.1026) | -0.5152** (0.1019) |
| Vocational | 0.3049** (0.1132) | 0.3032** (0.1129) | 0.2834** (0.1118) |
| HighSchool | 0.1652 (0.1418) | 0.1471 (0.1420) | 0.1536 (0.1414) |
| University | 0.3036** (0.1077) | 0.2755** (0.1080) | 0.2690** (0.1088) |
| P2P | -0.0255 (0.1044) | | |
| Download | 0.1721** (0.0862) | | |
| Valuation | 0.2016** (0.0233) | 0.1956** (0.0231) | 0.1983** (0.0230) |
| TVMusic | 0.1243 (0.1139) | 0.0946 (0.1112) | 0.0949 (0.1109) |
| Active | 0.5240** (0.0985) | 0.5040** (0.0976) | 0.4922** (0.0985) |
| Courses | 0.3340* (0.2011) | 0.3683* (0.2181) | 0.3264 (0.2210) |
| Magazines | 0.3193** (0.0854) | 0.3116** (0.0863) | 0.2930** (0.0878) |

Continued on next page

| | | | |
|-----------|----------------------|----------------------|----------------------|
| Critics | 0.4161** (0.0836) | 0.4108** (0.0837) | 0.3984** (0.0841) |
| Minutes | 0.0033** (0.0008) | 0.0030** (0.0008) | 0.0029** (0.0008) |
| CitySize1 | 0.0861 (0.1180) | 0.0977 (0.1177) | 0.1029 (0.1172) |
| CitySize2 | -0.1714 (0.1616) | -0.1688 (0.1616) | -0.1710 (0.1635) |
| CitySize3 | -0.0858 (0.1455) | -0.0819 (0.1454) | -0.0640 (0.1455) |
| CitySize4 | -0.0756 (0.1328) | -0.0717 (0.1309) | -0.0699 (0.1294) |
| ll | -1.78e+07 ** | -1.77e+07 ** | -1.77e+07 ** |
| χ^2 | 1464.0106 | 1461.1826 | 1455.4334 |
| p | 0.0000 | 0.0000 | 0.0000 |

Table 4: Count model estimations for attendance to live popular music performances (negative binomial specification)

| | Model 1 | | Model 2 | |
|------------------|-----------|-----------|-----------|-----------|
| | Count | Inflate | Count | Inflate |
| Purchase | | | 0.2227* | -0.5889** |
| | | | (0.1184) | (0.2394) |
| Copy | | | 0.1948* | -0.2548 |
| | | | (0.1182) | (0.2750) |
| Term 2 | 0.3055* | -1.1769** | 0.2838* | -1.2829** |
| | (0.1598) | (0.3308) | (0.1658) | (0.3770) |
| Term 3 | 0.1262 | 0.2912 | 0.0721 | 0.1826 |
| | (0.1671) | (0.2950) | (0.1633) | (0.2911) |
| Term 4 | 0.1703 | 1.0121** | 0.1196 | 0.9412** |
| | (0.1817) | (0.2857) | (0.1753) | (0.2768) |
| Female | -0.2702** | 0.1630 | -0.2773** | 0.0970 |
| | (0.1016) | (0.1919) | (0.1027) | (0.1969) |
| Age | -0.0622** | -0.0574 | -0.0593** | -0.0515 |
| | (0.0280) | (0.0516) | (0.0282) | (0.0544) |
| Age ² | 0.0005* | 0.0009* | 0.0005 | 0.0009 |
| | (0.0003) | (0.0005) | (0.0003) | (0.0006) |
| Single | 0.0571 | -0.6101** | 0.0513 | -0.5992** |
| | (0.1566) | (0.2825) | (0.1596) | (0.3040) |
| Children | 0.4455** | 0.5604** | 0.4414** | 0.5255* |
| | (0.1776) | (0.2728) | (0.1771) | (0.2753) |
| Employer | -0.1101 | -0.7790 | -0.0417 | -0.6503 |
| | (0.6269) | (0.9783) | (0.6081) | (1.0374) |
| Employee | -0.2197 | -1.2193 | -0.1334 | -1.0714 |
| | (0.5730) | (0.9091) | (0.5423) | (0.9485) |
| Unemployed | -0.3163 | -1.0081 | -0.2463 | -0.8999 |
| | (0.5650) | (0.8943) | (0.5311) | (0.9270) |
| Student | -0.5788 | -1.7952* | -0.4652 | -1.6616 |
| | (0.5836) | (0.9990) | (0.5439) | (1.0327) |
| Retired | 0.6298 | -0.4141 | 0.7235 | -0.2340 |
| | (0.6449) | (0.9456) | (0.6214) | (0.9883) |
| Househusband | -0.2710 | -1.2970 | -0.1487 | -1.1017 |
| | (0.6374) | (0.9978) | (0.6105) | (1.0257) |
| N-over18 | -0.0477 | 0.1069 | -0.0435 | 0.0895 |
| | (0.0432) | (0.0912) | (0.0438) | (0.0936) |
| N-over15 | 0.0544 | 0.1842 | 0.0420 | 0.1590 |
| | (0.1073) | (0.2196) | (0.1070) | (0.2190) |
| N-over10 | -0.1217 | 0.1936 | -0.1116 | 0.2088 |
| | (0.1309) | (0.2277) | (0.1330) | (0.2359) |
| N-less10 | -0.4054** | 0.2040 | -0.4211** | 0.1864 |
| | (0.1376) | (0.2235) | (0.1437) | (0.2380) |

| | | | | |
|------------|----------------------|-----------------------|-----------------------|-----------------------|
| Vocational | 0.3908** (0.1515) | 0.2014 (0.2702) | 0.4071** (0.1544) | 0.2808 (0.2766) |
| HighSchool | 0.1050 (0.1417) | 0.0433 (0.2599) | 0.1248 (0.1439) | 0.1043 (0.2733) |
| University | 0.2926** (0.1454) | -0.1262 (0.2672) | 0.3086** (0.1464) | -0.0325 (0.2723) |
| P2P | 0.2525* (0.1402) | 0.4927* (0.2890) | | |
| Download | 0.0734* (0.1064) | -0.5070* (0.2917) | | |
| Valuation | 0.0413 (0.0341) | -0.3140** (0.0412) | 0.0451 (0.0350) | -0.3066** (0.0417) |
| TVMusic | 0.0277 (0.1208) | -0.2136 (0.2925) | 0.0036 (0.1252) | -0.2379 (0.3140) |
| Active | 0.4895** (0.1202) | -0.1164 (0.2576) | 0.4894** (0.1212) | -0.0588 (0.2679) |
| Courses | 0.2232 (0.2474) | -0.8654 (0.5927) | 0.1569 (0.2534) | -1.1011* (0.6480) |
| Magazines | 0.2184** (0.1107) | -0.1720 (0.2158) | 0.2146** (0.1094) | -0.0983 (0.2177) |
| Critics | 0.3525** (0.1070) | -0.1879 (0.2012) | 0.3422** (0.1071) | -0.1777 (0.2052) |
| Minutes | 0.0020 (0.0014) | -0.0032 (0.0036) | 0.0018 (0.0014) | -0.0032 (0.0037) |
| CitySize1 | 0.0455 (0.1571) | -0.1474 (0.2806) | 0.0194 (0.1596) | -0.1911 (0.2883) |
| CitySize2 | -0.4095* (0.2240) | -0.5615 (0.4529) | -0.4662** (0.2178) | -0.6704 (0.4429) |
| CitySize3 | -0.2584 (0.2183) | -0.5371 (0.4337) | -0.2891 (0.2351) | -0.6017 (0.4833) |
| CitySize4 | 0.0454 (0.1653) | 0.1112 (0.2819) | 0.0022 (0.1692) | 0.0464 (0.2924) |
| ll | -1.72e+07** | | -1.72e+07** | |
| χ^2 | 389.8224 | | 403.3236 | |
| p-value | 0.0000 | | 0.0000 | |

Table 5: Zero inflated count model for frequency of attendance

The development of the digital music industry in China during the first decade of the 21st century with particular regard to industrial convergence

John Fangjun Li²⁴

Abstract

This article concerns the development of China's digital music industry and will specifically focus on the influence of industrial convergence. Part one examines the early development of China's digital music industry. The second part concerns the systems and structures of the digital music industry and the major types of digital music business companies and the third and final section provides some conclusions about China's digital music industry and industrial convergence.

Keywords: Digital music, digital music industry, industrial convergence, online music industry, mobile music industry, digital music market

The phenomenon of convergence, whereby the technologies for providing electronic consumer services in media, entertainment, communications, and commercial activity are inexorably coming together, will have enormous implications for economic, social, political and cultural behaviour in the twenty-first century. (Throsby 2002: 13)

1 Introduction

As industries develop they often encounter moments when different components converge and/or integrate. The stages when these occur vary; convergence for example happened earlier in the telecommunications industry than in the computer technology industry. One result of

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the convergence of a number of aspects of the contemporary media industries was the creation of a new (meta-)sector in the form of the "creative and cultural industries". The music industry is a sub sector of this larger meta-sector, one that is heavily integrated with²⁵the information communication technology industries²⁶, particularly during the first decade of the 21st century (Li 2010, Li & Morrow 2012).

The music industry comprises performance, manufacture of goods, audio recording, media soundtrack and digital distribution areas (amongst others) and readily lent itself to integration. This "integration" not only influenced the live music sector, the recorded music industry and music publishing during the 20th century and before in China but also significantly the digital music industry during the 2000s (Li 2013). In the late 1990s, digital-industry related convergence influenced the music industry's development in China (Zhang & Wang 2009) and this convergence led to the creation of the digital music industry. The music industry integrated intensively and rapidly with the information communication technology (ICT) industry during the late 1990s and the 2000s (Li 2010).

This article concerns the development of the digital music industry and the influence of convergence on this industry in China during the 2000s. It aims to address the questions of how the digital music industry developed in China and how convergence influenced the digital music industry in China.

The article has three sections. The first (chapter 2) discusses the early activities of the digital music industry in China. In section two (chapter 3), the development of the digital music industry and the influ-

²⁵ The cultural and creative industries mainly includes the following 9 industry sectors: cultural heritage; (1) printed matter and literature; (2 & 3) music and the performing arts; (4) visual arts; (5&6) audiovisual media (5 cinema and photography; 6 radio and television); (7) social cultural activities; (8) sports and games; (9) environment and nature (UNESCO 1986: 2)

²⁶ The information and communication technology industries are mainly constituted by the following 5 industry sectors: (1) IT services, systems integration and software support; (2) Internet services and telecommunications; (3) software and digital content development; (4) wholesale and retail distribution of software and hardware; and (5) manufacture of ICT products and components (IBSA 2010: 3)

ence of industrial convergence are considered through an examination of the systems and structures of the digital music industry and major types of digital music companies, the digital music market and the key development issues of the industry. The final section (chapter 4) discusses the development of China's digital music industry from the perspective of the convergence of industries.

2 The early development of China's digital music industry

2.1 Theoretical basis

To further examine the development of the digital music industry in China and the influence of industrial convergence on the industry during the 2000s, it is necessary to establish a theoretical basis for this study. This theoretical basis involves three perspectives: firstly definitions of digital music and the digital music industry, secondly the relationship between the recorded music industry and the digital music industry, and thirdly industrial convergence within the music industry.

2.1.1 From digital music to the digital music industry

The terms "digital music" and the "digital music industry" are sometimes used interchangeably within the music industry in China due to their similarities and connections (Li 2006). However, they are quite distinct as the former refers to a form of production, while the latter refers to an industry structure. Their similarities and differences may also be evident from their definitions.

Many Western scholars attempt to define digital music but few discuss the digital music industry from different perspectives such as computer music, music theory and music business. Cullinan & Oppenheimer (2006), Pan (1993), and Pohlman (1996) all define digital music as music manipulated by using digital devices, for which it must be converted into a digital signal, or from sound into numbers, modified, and then recorded using digital recording software such as compact discs or MP3s.

Stephens (2007: 4) defines digital music as digitally constructed and music that is produced using computer software and hardware. Moreover, he identifies specific elements of digital music as follows:

Digital Music: Sound Recording using digital technologies during production; Ringtones; Electronic Music; Computer Music; Digital Sampling; Software usage: MIDI (software), Sequencers, Trackers (cheap); Mixing, filtering, equalization done on computer; Audio digitizing card; digital music publishing companies; Online Radio; Digitized musical instruments, i.e. digital synthesizers; Video Game Music.

Not Digital Music: Sound Recording using digital file formatting alone (only saved in MP3); Electromechanical instruments, i.e. Electric guitar music; MIDI alone; all music on CDs is not necessarily digitally produced; Turntables and other DJ equipment that manually produces sound; FM/AM Radio; Analogue musical instruments, i.e. Synthesizers (Stephen 2007: 6)

Chinese researchers and research institutions, such as Jin (2006), the Enfordesk Think-Tank of Analysis International (ETTAI) (2010), Li (2006), and the New Watson International Information Consultation Company (NWIICC) (2008) also provided definitions of digital music. Jin (2006) simply defines digital music as involving music that can be stored and disseminated in a digital form.

Li (2006) defines digital music as involving a digitized form of music production and consumption. He also points out that digital music can be further separated into two major categories: mobile music and online music; the former is also designated "wireless digital music" while the latter is referred to as "cable music". Moreover, Li (2006: 374) identifies certain types of mobile music such as mobile ringtones, polyphonic ringtones, and listening to music in the IVR business.

Some Western and Chinese researchers such as Rayport and Sviokla (1995), Stephens (2007), the ETTAI (2010) and the NWIICC (2008) define the extent of the digital music business and/or industry including the subsectors of it such as online music business and digital music business. Rayport & Sviokla (1995: 82) contend digital music related business can be considered the major part of the digital music industry that created

value with digital assets that can be re-harvested in an infinite number of transactions.

Stephens (2007: 4) argues the digital music industry blends technological innovation, artistic expression, creativity, and information technology management. He also contends that production within this industry relies heavily upon computer technologies that enable users to develop and alter sounds and to create an immense palette of possible innovation (ibid). Stephens considers digital music within this wider perspective.

The ETTAI (2010) points out the mobile music industry is an essential subsector of the digital music industry in China. It summarizes the mobile music business as one mainly involving polyphonic ring tones, ring back tones, wireless music clubs, wireless music search, software of mobile users etc. It also notes that consumers and/or entertainers obtain mobile music through SMS, MMS, WAP, IVR, WWW (ibid).

The NWIICC (2008) discusses the categories and definitions of the digital music business and/or industry. It also notes the digital music business consists of two major segments: online and mobile. He specifically discusses their definitions and the business models and/or methods and asserts the online music business is processed through Personal computers (PC) as well as the online music business model directly makes profits through selling digital music, or indirectly makes profits through commercial advertisements but not directly through music. The mobile music business is processed through telecommunication facilities (usually mobile) and the mobile music business model directly makes profits through paying fees for music download.

In terms of the above definitions of digital music and the digital music business/industry, the online music and mobile music industry sectors can be respectively defined as follows. The online music business and industry are all those music business and industry activities that transmit music to personal or company computers and other digital storage facilities directly via the Internet. Mobile music mainly involves the digital music business and industry activities that provide digital music via mobile value added services to mobile phone users. It can involve

ring-tones, alarms, notifications (such as prompt text messages), ring-back tones, listening to music through IVR, streamed media (also known as "online broadcasting"), and whole song downloads to mobile businesses and services.

2.1.2 The relationship of the digital music industry and the recorded music industry

It is essential to consider the relationship between the digital music industry and the recorded music industry as a part of the theoretical basis. Firstly, there are certain connections between them. Their connections mainly represent "homology" and "convergence" characteristics. The "homology" specifically refers here to the similar processes of both types of the music industry. This similarity mainly comprises creative activities such as music composition, music performance, and music producing/recording and these activities co-exist in both the recorded music industry and the digital music industry. Due to this "homology" of production processes, the digital music industry and the traditional recorded music industry are highly integrated industry sectors.

Nevertheless there are certain differences between the digital music industry and the recorded music industry. The first difference mainly involves production forms, distribution and transmission channels and media, sales and profit models, and entertainment and consumption modes. Secondly, they each developed a unique economic and cultural form during different periods. The recorded music industry developed during the modern industrialization period from the early 1900s through to the early 2000s and it mainly depended on the mechanical industry technology and economy. This enabled it to promote the mass music market and culture. The digital music industry, however, has only developed during the contemporary information period from the early 2000s to the present-day and it has mainly depended on digital information technology and convergence. This enabled it to promote the niche music culture and market, arguably two different music industry sectors.

Moreover, certain Western researchers such as Bockstedt et al. (2004) and Stephens (2007) point to other slight differences between

these two sectors. Bockstedt et al. (2004: 4) state that from the production perspective: *"For digital music, there is no longer a physical product to manufacture. Instead the product itself is information: the digital music recording. A song is recorded once, but in a digital format it can be replicated and distributed an infinite number of times with low costs for reproduction."*

Such research indicates the digital music industry adopts the digital information means of production and this greatly improves the speed and range of distributing music, even though this industry has had difficulties controlling piracy.

Similarly, Stephens (2007: 7) also indicates the differences between these two industries from the music management model and industrial integration perspective: *"The dominant transnational firms have traditionally developed music in a costly closed system where all portions of production have been owned and operated by the firm. The digital music industry has developed as an alternative to this music management model. Digital music firms are characterized by the ability to reduce costs through horizontally integrated business models that enlist project-based labour, Internet communications technologies, as well as formal and informal social networking."*

Stephens' research indicates the recorded music industry is the traditional music industry mainly focused on the vertical integration while the digital music industry mainly focuses on horizontal integration. This also indicates that the breadth and depth of integration in the digital music industry is relatively higher than in the traditional recorded music industry.

2.1.3 Industrial convergence in the music industry

Industrial convergence is an essential factor that influenced the development of the digital music industry in China since the late 1900s (Li & Morrow 2012, Li 2013). According to Mao & Ning (2007: 25), "industrial convergence" can be defined in the following way: *"The essence of the connotation of industrial convergence is that information technology and its industries impact other industries to generate a new integrated indus-*

try, this new industry contains new industry properties. This phenomenon mainly reflects that the border disappears and integrates a different and new industry. This convergence does not simply add two or more industries, but it is a new division of labour based on integrating original industries."

Mao & Ning (2007), Mao & Zhuang (2007), Li (2010) and Li & Morrow (2012) point out digital convergence played an essential development role in the music industry in China during this century. Although convergence, particularly industrial convergence, also appeared and influenced the development of the music industry during both the ancient and modern periods, the degree of convergence increased during the current period (Li & Morrow 2012, Li 2013).

The generation and development of the music performance industry largely depended on the influence and convergence of other cultural industry sectors such as dance, literature (such as poetry), and drama during ancient times (Li 2012). Similarly, the generation and development of the recorded music industry also relied largely on the influence and convergence of the telecommunication and media technologies and industries on the music industry during the modern period (ibid, Tschmuck 2006). Likewise, the digital music industry has also largely depended on the influence and convergence of the ICT sector (mainly computing and telecommunications) on the music industry mainly during the early 21st century in China.

2.2 The development of the digital music industry

This section concerns the early development of the digital music industry in China that took place during the period from the late 1990s to the 2000s. Due to both the rapid spread, development and convergence of digital technologies relating to computing, telecommunication and music, as well as the Chinese special preference and enthusiasm for new technologies (Zhang 2007), the development of China's digital music industry was almost synchronous with the West (Sun 2006, Chen 2010). The Chinese digital music industry sat centre-stage within the music

industry's value chain and greatly influenced China's music industry during this period.

Online and mobile digital music as the newer music communication and business means of production and activities began in the mid-1980s and the early 1990s in the West (Hayward & Orrock 1995, Bozina et al. 2006). Western digital technology and music business/industry, in particular certain digital music business models (such as P2P), had a great influence on China's digital music industry during the 2000s (Li 2006, Sun 2006, Chen 2010). This influence specifically led to the creation of a digital technology and content based cultural and technological industry – the digital music industry (Li 2013, Li 2010, Li & Morrow 2012).

The computer and communications technology industries began to integrate with the music industry in China from the late 1990s (Li & Morrow 2012) and began to involve China's music industry during this period (ibid, Montgomery 2010). Certain major digital music business firms were established and developed the online music business during this time. The most representative firms mainly included 9sky (9sky.com, 1999), Wanwa (wangwa.com, 2000), A8 Music Group (a8.com, 2000), 163888 (163888.net/www.ifenbei.com/fenbei.me, 2003), Top100 (*ju jing*, top100.cn, 2005), the Alliance of Digital Music Distribution (tai-joy.com, 2005), Baidu MP3, Kuro's P2P. They rolled out the digital music business in China and also greatly influenced the music industry during the early 2000s (Sun 2006, 2007, Li 2006).

The digital music industry emerged during a period from the late 1990s to the early 2000s. The 9Sky and the A8 Music Group are two of the earliest music business firms involved in the online music business (1999) and the mobile music business (2000). More mobile music business appeared during the early 2000s (Yao 2007). It is slightly late to the online music industry in China (Montgomery 2010). The A8 Music Group was one of the first music business companies involved in the mobile music business in 2000. Moreover, music polyphonic ring-tones were also jointly exploited by the China Mobile Group (CMG) and the Taihe Rye Music Firm (TRMF) in 2003 (Wang 2012). The China mobile music web "www.10086.cn" (formally named "www.12530.com") was the

largest online music store in China. This was established in 2009 and notably offered through-payments for mobile ring-tones (Sun 2006), which was a significant step for the mobile music industry. Shanghai Synergy Culture and Entertainment Group (SSCEG) also played an essential role in China's mobile music industry. This firm included two leading record companies involved in the mobile music business, the Shanghai Audio-Visual Press and the Shanghai Audio-Visual Company (Li & Morrow 2012, Sun 2009). According to Sun (2009), SSCEG signed an agreement with China Unicom²⁷ and Sina.com²⁸ to cooperate in the digital music business in 2009 (Sun 2009).

Although China's digital music has faced problems with intellectual property (Sun 2009, Montgomery 2010) and an unstable development (Li 2006), it still progressed well due to industrial convergence. According to Chen (2010) and Hu (2006), the value of digital music sales (as in online music and mobile music) reached 3.6 billion Yuan and exceeded recorded music sales (e.g. CD) in 2005. 2005, therefore, is referred to as "the first year of digital music" (ibid, Sun 2006). By midway through the first decade of the 21st century the digital music industry had become one of the leading music industry sectors in the entire music industry in China.

3 Systems and structures of the digital music industry and majors types of digital music business companies

3.1 The integrated systems and structures

The digital music industry in China is typical for an integrated system and has a complex structure. The term "integrated" specifically refers to several inter-relating industry sectors such as music, telecommunication and computing. The integrated systems and structures not only shaped China's digital music industry during the 2000s, but also evidence the

²⁷ China Unicom is the second largest telecommunication company in the China.

²⁸ Sina.com is one of the leading web portals in China.

intensive influence of industrial convergence on the music industry, particularly the recorded music industry.

The "service providers" (SPs) and "content providers" (CPs) played an essential role in the integrated systems and structures of the digital music industry in China (Li 2006). Krueger & Swatman (2003) define "SPs" as the "mediator" between music content providers and music users (ibid.) while the "CPs" are web-based data hosts that gather a variety of information, particular music, and organize them into electronic databases, with revenue coming from subscription fees (Krueger & Swatman 2003: 3). The SPs are generally split into two types: online music and mobile music (Li 2006). They are specifically described by the following figures 1 and 2:

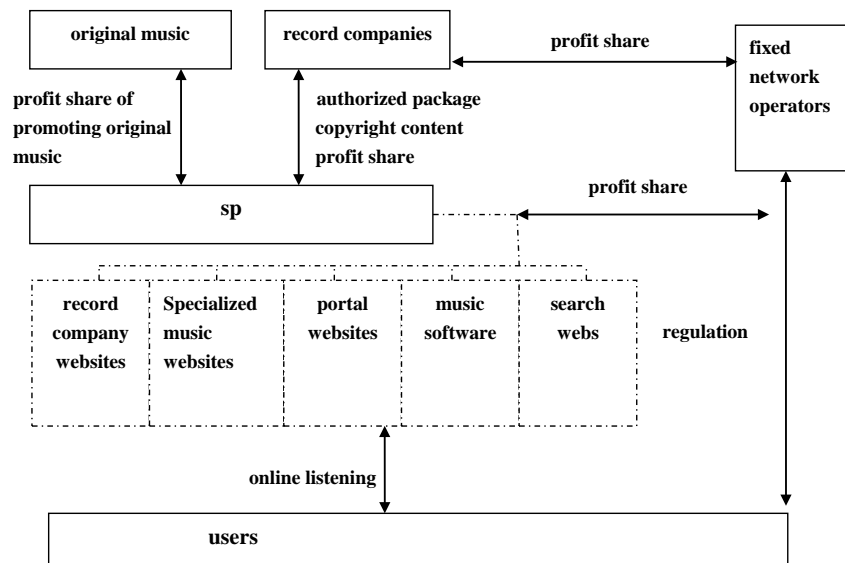


Figure 1: The system and structure of China's online music industry

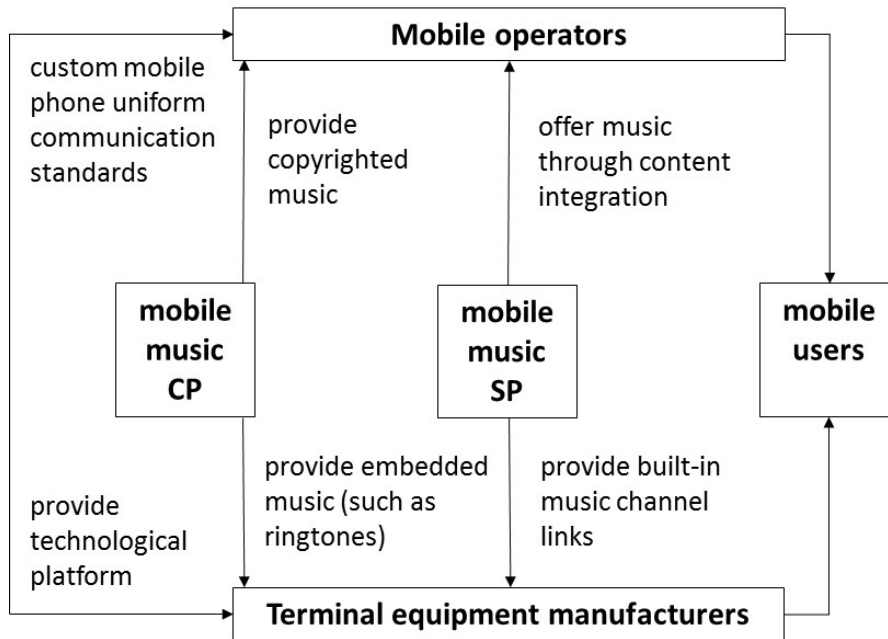


Figure 2: The system and structure of China's mobile music industry

In terms of the above, these two systems and structures indicate that recorded/music business/industry, computing technology business/industry, and telecommunication business/industry integrated into a larger music-industry related convergence system. In this system, the SPs sometime also played the CP role and the CPs played the SP role. The SPs, however, played a more essential role in the digital music industry in China during the 2000s. In order to comprehend this integrated systems and structures of China's digital music industry during this period, it is necessary to further discuss the different types of SPs

3.2 Types of Online Music Business SPs

The online music business SPs during the 2000s in China were also an integrated organization system. Five types of online music business ser-

vice providers (SPs) can be identified within their integrated system: i) record company; ii) professional music web; iii) portal web; iv) music software company; and v) search webs (see table 1).

| SPs types | Representative companies |
|-----------------------|---|
| Record company | Taihe Rye (Taile Wang), Shanghai Synergy Cultural and Entertainment (Shanghai Audio Audio-Visual Press and Shanghai Audio Visual Company) |
| Specialized music web | Wangwa, Jiutian Music Web, A8 Music Supermarket, Aiguoze (patriot) Music Web |
| Portal web | TOM, Sohu, Sina, and QQ |
| Music software | Kugou (Kugoo) |
| Search web | Baidu, Yahoo, Zhongsou, and Sougou |

Table 1: The Major Online Music SPs in China

Baidu MP3, Jiutian Music Web and the Kugou/Kugoo are the major SPs, with Baidu MP3 the most visited search portal, Jiutian Music Web the most visited specialized music website and Kugou/Kugoo the most popular music software (the I-research 2005). Kugou was used for free downloading and listening to music, the reach of its application for free downloading music and listening to music was 68.8% and it was ranked no 1 (ibid).

This online music business SPs system not only involves the computing technology industry but also the music and/or recorded industry as well as the telecommunication industry (e.g. mobile) as the basis of an integrated online music business system.

3.3 Types of mobile music business SPs

The mobile music business SPs played an essential role in the mobile music industry in China during the 2000s (Li 2006). The SPs controlled key resources of the digital music industry, such as market access and platforms as well as marketing and promotion resources (Sun 2006). Compared to other beneficiaries such as music radio and record compa-

nies, the SPs were closer to the mobile music users, making it easier for them to adjust their strategies on music content provision (Li 2006).

In terms of different characteristics of mobile music SPs in the mobile music industry, five categories of SP can be identified: i) super-portal web-oriented SPs, ii) comprehensive professional SPs, iii) SPs with own music resources, iv) professional SPs with a focus on music services, v) SPs with regional advantage (see table 2).

| Types of SPs | Representative companies |
|---|---|
| Super portal web oriented SPs | Sina, Tom |
| Comprehensive professional SPs | Zhang Shang Ling Tong ('Linton'), Kong Zhong Wang ('Air Network') |
| SPs with own music resources | Rock and Mobile, A8 Music Group |
| Professional SPs with a focus on music services | Longteng Sunshine, Quan Tian Tong |
| SPs with regional advantage | Jilin Aike, Yingchun Xunyun |

Table 2: Types of Mobile Music SPs

The above mobile music SPs were also intensively involved with the music and/or recorded industry and the computer technology industry and during the 2000s can be considered as an integrated music business organization system.

3.4 Types of digital music business integrated company

Due to industrial convergence and the influence of digital technology on the music industry, in particular the digital music industry, during the 2000s in China, music-business company characteristics became more complicated than in the 20th century. Music business companies during the 2000s not only encompassed traditional industry roles such as composition, performance and recording but also concerned themselves with other integrated business and technical areas like computer technologies, and telecommunication. The following section discusses the

types of digital music companies that were part of the digital music industry and typified music-industry related convergence

In terms of the business background and major music services and/or productions, digital business companies in China during the 2000s can be categorised into the following three types of integration: i) music record company oriented, ii) online business company oriented, and iii) telecoms company oriented.

3.4.1 The music record company oriented

This type of digital music company is mainly based on record companies or cultural and media companies and also links with other music business areas such as online and mobile. Although it concentrates on the traditional industry processes such as music production, publishing, and distribution, it also involves other digital music business processes such as online and mobile music distribution. The major companies and/or business platforms include Taihe Music Net and the Taihe Rye Company, the Cloud Music Chain Marketing System Platform of the Shanghai Synergy Culture and Entertainment Group, the Philharmonic Net of the Rock Mobile Company.

This type of company transformed from the traditional business model to the newer digital music business model to meet the demands of the developing digital music industry during the 2000s (Li & Morrow 2012). This type of digital music business firm found it difficult to develop the digital music business due to music copyright and unfair profit distribution issues (as later explained in the section "Major Issues"). However, they produced a large amount of music content for the digital music industry and as such played an essential role in this industry (ibid, Montgomery 2010).

The digital music business content providers (CPs) differ slightly from the traditional record companies. The CPs involved a wider range of music businesses than the traditional record companies. For instance, the Taihe Rye Company and Shanghai Audio-visual Press as typical CPs not only involved the business processes such as music production, publishing and physical product (such as CD) distribution but also involved

online music distribution and mobile music distribution (Li & Morrow 2012).

The CPs often collaborate intensively with both the online and mobile SPs such as telecommunication operators (TOs) to create the value in the whole digital music industry during the 2000s (ibid). This collaboration can also be regarded as a typical form of industrial convergence. The CPs and SPs, SPs and TOs as well as CPs, SPs, and TOs integrated with each other achieving a form of industrial convergence between the music industry and the information communication technology sector that continues to the present day (Li 2010, Li 2013).

3.4.2 The computing technology company oriented

This type of computer technology-oriented digital music company focuses on Internet technology and business and examples of this kind of company included Sina Net, 1ting Music Net, Gigantic Whale Net, Tencent, Tom Online, Baidu MP3, Wireless Music Stars, A8 Music Group, Aigo Music Net, Air Net and Linktone. All played an essential role in the digital music industry, in particular in the online music industry during the 2000s in China.

These computer technology-oriented companies usually provide digital music business service and production (Li 2006) and can also be thought of both as mobile music SPs and online music SPs. A8 Music Group are regarded as an online music SP while TOM, Tencent, and Air Net are considered mobile music SPs.

3.4.3 The telecommunication technology company oriented

This type of digital music company is focused on telecommunication technology and business during the 2000s and can also be regarded as the Telecommunication Operators (TOs). Firms include China Mobile, China Unicom, China Netcom, China Telecom, China Railcom. China Netcom and China Telecom operate fixed-line telephones business while other telecommunication firms such as the China Mobile and China Unicom mainly operate wireless telecommunication business (Fu 2008). The

latter have played an essential role in the mobile music industry (Li 2013).

This type of music company also operated a mobile music business and made profits through the PHS ("personal hand set system") (Fu 2008). Although China Unicom particularly China Mobile played a leading role in the mobile music industry in China during the last century (Montgomery 2005), other telecommunication technology-oriented firms also played an essential part in the digital music industry, in particular in the mobile music industry, during the 2000s.

4 China's digital music industry and industrial convergence

4.1 The digital music market

The digital music market is an essential part of the development of the digital music industry in China. The mobile music industry progressed sooner and better than the online music industry in China because it handled the music copyright and/or pirate issues better during the 2000s (Montgomery 2005, Sun 2009). The digital music market is therefore much more about the mobile music market than the online music market.

Compared to the mobile music market, the online music market encountered serious copyright problems during the 2000s as free downloads of music became commonplace in the online music market (Chen 2010). The usual business model mainly relied on the online advertisement, which were generally paid for by commercial companies and those selling free-downloaded music.

The market size of China's digital music market soon progressed and increased during the 2000s (Hu 2006, Montgomery 2005), with the total value and market size of the mobile music market much larger than the online music market (Zhang & Wang, 2009). According to Sun (2009), during the late 2000s the mobile music market and sales accounted for more than 90 percent of the total digital music market and sales while online music represented less than 10 percent.

With the increasingly standardized digital music market and the promotion of new technology (such as 3G), the digital music market size rapidly increased in China during the second half of the 2000s (Li 2006). According to I-research (2005), the market size of digital music in China increased from 8 million Yuan (approximately 1.23 million US dollars) in 2003 to 27.8 million Yuans (approximately 4.21 million US dollars) in 2004.

However, I-research (2005) also points to the skewed market development of online music and the mobile music that started in 2004. The size of the online music market that year was much smaller than the mobile music market with more than 90 percent of digital music attributable to mobile music and less than 10 percent to online music.

The China Science Published Research Institute (CSPRI) (2008) also substantiates this skewed development of the online music industry and the mobile music industry during the second half of the 2000s. According to the CSPRI (2008), the value of the mobile/wireless music market was more than 8 billion RMB Yuan (approximately 1.17 billion US dollars) in 2007 while the total value of the online music market in the same year was just 120 million Yuan (approximately 17.6 million US dollars).

IFPI (2008) also refers to the skewed development of the digital music market and industry, stating that China was among the Top 9 digital markets in terms of sales by channel. It pointed out the online market represented 27% but the mobile market 73% of the total. The mobile market is worth around US\$ 7 billion annually with record companies estimated to receive less than five percent of those revenues. The size of the local mobile music market is the second largest in the world after Japan (IFPI 2008: 8).

During the 2000s the mobile music industry developed well even if the online music industry did not. The unfavourable distribution of profits between the mobile music business operators and music owners/music record companies was disadvantageous to the digital music industry. However, in general, the digital music industry played an essential role in the whole music industry during the 2000s. This industry

broadened its reach by integrating with most digital publishing and information communication technology industries.

4.2 Major issues

Although the digital music industry became one of the major music industry sectors and developed well during the 2000s in China, it encountered difficulties. These mainly arose from issues such as copyright and/or serious levels of piracy and the unfair distribution of profits between service providers and content providers. These issues have restricted the development of digital music industry.

IFPI (2008: 8) points out record companies were estimated to have received less than 5 percent of the total mobile music revenues. Although China had enormous potential for growth in mobile music, any serious market growth was hamstrung by the rampant rate of online piracy, estimated at more than 99 percent of the market (IFPI 2008, Montgomery 2010).

The online music industry presented a serious piracy threat (Montgomery 2010, Li 2013) and according to Sun (2009), most online music business companies provided pirated music to attract both visitors through to download music for free and companies to pay for commercial advertisements for their businesses. The online music industry neither protected the copyright of music owners' content nor shared the financial benefit with the owners and this thwarted the growth of the online music industry during the 2000s.

Although the mobile music industry developed well, it was an unhealthy process that affected the entire Chinese music industry. The specific issue that manifested itself was the unfair profit distribution between music service providers and music content providers/owners. Bill Zhang, the Vice President of Shanghai Synergy Cultural and Entertainment Group points out the seriousness of this issue in the following way: *"The total revenue of China's wireless digital music reached 30 billion Yuan (approximately 4.76 billion US dollars) in 2009. Of which 94% of the profit was taken by telecommunication operators (TOs), service providers (SPs) took 4-5%, music content providers (CPs) only took no*

more than 1%. This is a deformed industrial value chain. Moreover, telecommunication operators (TOs) have an absolute word power, the exchange of digital music copyright is opaque, our CPs cannot easily obtain transparent information, let alone sales data information (Chen 2010: 10).

Moreover, Dong (2011) also stresses the "unfairness" of this distribution of income, noting (2011) the mobile business operators earned 27.9 billion Yuan (approximately 4.42 billion US dollars) in 2010, but service providers gained 2.02 billion Yuan (approximately 320 million US dollars, the profit distribution rate of profit was respectively 7.2% (SPs) and 92.8% (mobile) in 2010. This uneven distribution of profits ensured music rights owners have not secured the level of deserved benefits from mobile music industry sales, something that is not conducive to a long-term stable and healthy mobile music industry.

It is worth noting here the online music industry began paying to download music from the Internet from 31 December 2012 (Qin 2012: 16). Baidu, QQ music, Duomi, Kugou and Kuwo as well as Warner, Sony and Universal now offer the paid download music business. This indicates that the era of free downloads of music via the Internet may be over and the online music industry may start to prosper and will enable the music industry particularly the digital music industry to develop.

China's digital music industry needs to fundamentally reform and innovate. More cultural and economic policies are required to promote the culture and information industries to integrate and develop. "The Cultural Industry Promotion Policy" was created and implemented in 2009 to adapt to and meet the demands of the developmental environment of industrial convergence earlier this century. Moreover, it is critical to make and implement strict and effective laws regarding intellectual property and copyright in music to facilitate and protect the healthy development of the Chinese music industry

5 Conclusion

The digital music industry played an essential role in the Chinese music industry during the 2000s and can be regarded as one of the major music industry sectors in the entire music industry. The 21st century can be considered to be the contemporary period of China's music industry due to the emergence of the digital music industry. The ancient and modern periods, however, are respectively referred in this article as the phases from ca. 4,800 years ago to the early 20th century and from the early 20th century to the early 21st century; the music performance industry sector and the recorded music industry sector respectively played essential roles and exerted a lot of influence in these periods.

The nature and characteristics of advanced technologies, high growth rates, and the strong convergence of the digital music industry greatly enhanced the evolution and development of the music industry in China during the 2000s. The digital music industry evolved and developed mainly by integrating and/or collaborating with certain related industries including the cultural and media industry sectors and in particular the information communication technology industries. The digital music industry, on the other hand, also greatly influenced the cultural and creative industries, the information communication industries as well as other music industry sectors in China during the 2000s. These convergences made China's music industry during the 2000s into a complex system and structure.

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