

2011

The Effects of Gender, Age, and Income on the Willingness to Pay for Music Downloads

Markus Makkonen

University of Jyväskylä, Finland, markus.makkonen@jyu.fi

Veikko Halttunen

University of Jyväskylä, Finland, veikko.halttunen@jyu.fi

Lauri Frank

University of Jyväskylä, Finland, lauri.frank@jyu.fi

Follow this and additional works at: <http://aisel.aisnet.org/bled2011>

Recommended Citation

Makkonen, Markus; Halttunen, Veikko; and Frank, Lauri, "The Effects of Gender, Age, and Income on the Willingness to Pay for Music Downloads" (2011). *BLED 2011 Proceedings*. 39.

<http://aisel.aisnet.org/bled2011/39>

This material is brought to you by the BLED Proceedings at AIS Electronic Library (AISeL). It has been accepted for inclusion in BLED 2011 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

The Effects of Gender, Age, and Income on the Willingness to Pay for Music Downloads

Markus Makkonen

University of Jyväskylä, Finland
markus.makkonen@jyu.fi

Veikko Halttunen

University of Jyväskylä, Finland
veikko.halttunen@jyu.fi

Lauri Frank

University of Jyväskylä, Finland
lauri.frank@jyu.fi

Abstract

This paper examines the effects of gender, age, and income on the willingness to pay (WTP) for music downloads. The examination is based on an online survey of 1 330 Finnish consumers conducted in June 2010. The analysis of the survey data follows a two-phase strategy. In the first phase, the effects of the explanatory variables on the consumers' unwillingness to pay (UWTP) for album and track downloads are examined by using contingency tables and the Pearson's χ^2 tests of independence. In the second phase, the effects of the explanatory variables on the consumers' actual WTP for album and track downloads are examined by using one-way analysis of variance (1-ANOVA) and post-hoc multiple comparisons. The results of the analysis suggest that there are several statistically significant differences in the WTP for albums and tracks between the examined consumer segments. These findings and their implications should be taken into consideration in the future business models of music download stores.

Keywords: music downloads, willingness to pay, gender, age, income, online survey

1 Introduction

During the past decade, the selling of recorded music as downloadable files and streaming content over the Internet has become increasingly common. In 2009, the Internet and other digital channels already accounted for about 25 % of global recorded music sales, constituting a market of \$4.3 billion (IFPI, 2010). However, this increase in sales of digital formats has not been able to offset the dramatic decrease in sales of

physical formats that has continued since the turn of the millennium. As a result, total global sales of recorded music have decreased by about 36 % from \$26.5 billion in 2000 to \$17.0 billion in 2009 (IFPI, 2010). In addition, there seems to be significant country-specific differences in the adoption rates of digital channels. For example, in the US, digital channels already accounted for about 43 % of recorded music sales in 2009. By contrast, in Finland, a country often seen as one of the forerunners in many information society issues, the corresponding figure was only 8 % (IFPI, 2010).

So clearly the adoption of novel digital channels has not been a global success story. But what are the reasons why so many consumers have not adopted them? As reported in a recent study on the factors why Finnish consumers have not adopted music download stores (Halttunen, Makkonen, & Frank, 2011), there seems to be a multitude of reasons. They can be roughly classified into two main categories. First, there are the reasons related to the *ability* of consumers to use the channels. For example, some consumers may simply lack the necessary know-how, hardware, software, network connectivity, or payment methods for using them. Second, there are the reasons related to the *willingness* of consumers to use the channels, which often refers to their *willingness to pay* (WTP) for the content sold in digital music stores and services. In several prior studies (e.g., Bauxmann et al., 2005), this WTP has been found to be relatively low, especially when compared to the current prices of the content. The causes for this may relate to the positive pull factors of alternate acquisition channels or to the negative push factors of the stores and services themselves. For example, some consumers may still prefer to purchase their music stored on physical carriers (e.g., CDs, LPs, or cassettes) or acquire it through free sources, such as traditional or online radio stations, peer-to-peer (P2P) file sharing networks, or advertisement-supported subscription services. Others may simply be dissatisfied with the current attributes of the stores and services themselves as well as the content sold in them.

When thinking about the reasons falling into these two categories, it seems safe to assume that especially in many developed countries, where the adoption rates of online shopping are already high, the reasons in the first category can explain only a limited amount of the laggard adoption. Thus, it is the reasons in the second category and especially the WTP for digital music that seem to be in a key position. Unfortunately, relatively few academic studies have analytically examined the WTP for digital music. Some exceptions include the studies by Bhattacharjee, Gopal, and Sanders (2003), Walsh et al. (2003), Bauxmann et al. (2005), Amberg and Schröder (2007), Breidert and Hahsler (2007), Fetscherin and Lattemann (2007), Sandulli and Martín-Barbero (2007), Styvén (2007), Sinha and Mandel (2008), Chiang and Assane (2009), Doerr et al. (2010), and Sinha, Machado, and Sellman (2010). However, these studies have several shortcomings. First, most have examined only the WTP for single-track downloads and service subscriptions, and few have covered the WTP for full-album downloads, which constitute a significant share of the digital music market (IFPI, 2010). Second, most studies have concentrated on the linear regression relationships between WTP and other (explanatory and explained) variables and paid little attention to the non-linear relationships as well as to the absolute WTP preferences of different consumer segments and their divergence. Third, most studies have been conducted in the context of relatively large recorded music markets (e.g., the US, Germany, and Spain) and among rather restricted populations (e.g., students and P2P users). Thus, the generalisability of their findings, especially to smaller recorded music markets, remains questionable.

In this paper, we aim at addressing these shortcomings by examining the effects of three socioeconomic variables on the WTP for the digital music sold in music download stores. By *music download stores*, we refer to online stores that sell digital music as downloadable files on a pay-per-download (i.e., à la carte) basis (e.g., the iTunes Store). The three variables are gender, age, and income, which have been found to be important antecedents of consumer behaviour in general and online shopping in particular (cf. Chang, Cheung, & Lai, 2007; Zhou, Dai, & Zhang, 2007). These variables are also particularly interesting in the context of the WTP for digital music because, although their effects have been examined in several prior studies, the findings concerning them have been quite contradictory. Our examination covers the WTP for both single-track and full-album downloads and concentrates on exploring the absolute WTP preferences of different consumer segments and their divergence through analysis of variance (ANOVA). The examination is conducted in the context of Finland, a relatively small recorded music market with several interesting special characteristics, by utilising data from an online survey of 1 330 Finnish consumers conducted in June 2010.

The paper consists of five sections. After this introductory section, we briefly discuss the concept of WTP and its measurement in Section 2. Section 3 describes the methodology of the study. The results of the study are reported in Section 4. Section 5 discusses the most important results and draws conclusions. Finally, the limitations of the study and potential paths of future research are briefly considered in Section 6.

2 Willingness to Pay

Willingness to pay (WTP) is commonly defined as the maximum price a buyer is willing to pay for a given quantity of a product or service (Wertenbroch & Skiera, 2002). Thus, it can be considered a critical input for the business models of all companies that aim at implementing optimal pricing policies. There are many different methods for measuring WTP. Breidert (2005) classifies these into two main categories. The methods in the first category aim at measuring WTP by eliciting *revealed* consumer preferences through observations, which may be based on actual market data, or on field or laboratory experiments. Typical examples of these kinds of experiments are auctions conducted by using the Vickery (1961) or Becker-DeGroot-Marschak (BDM, 1964) mechanisms. The methods in the second category aim at measuring WTP by eliciting *stated* consumer preferences through direct or indirect surveys. In direct surveys, consumers are directly asked about their WTP by using open-ended or closed-ended questions. In the context of non-market products and services, this approach is also commonly referred to as the contingent valuation (CV) method (cf. Mitchell & Carson, 1989). In indirect surveys, consumers are offered a selection of products or services with varying attributes, and WTP is inferred indirectly from their rankings or ratings of these alternatives. A common example of this kind of an approach is the conjoint analysis (CA) method (cf. Green, Krieger, & Wind, 2001).

Observation-based and survey-based methods have both their advantages and their disadvantages in measuring WTP. On one hand, observation-based methods are typically perceived as producing more reliable and valid estimates of the consumers' true WTP, but they are capable of producing only *ex-post* information and are often quite complex to employ. On the other hand, survey-based methods are often more simple to employ and capable of producing also *ex-ante* information, but they are

typically perceived as producing less reliable and valid estimates of the consumers' true WTP, often either underestimating or overestimating it.

In the context of digital content in general and digital music in particular, both observation-based and survey-based methods have been employed in measuring WTP. However, the employment of survey-based methods has been much more common. Among survey-based methods, the most commonly employed method has been a direct survey with one or more open-ended questions (e.g., Fetscherin & Lattemann, 2007; Sandulli & Martín-Barbero, 2007; Chiang & Assane, 2009), most probably due to its intuitiveness and simplicity from the perspective of both the respondent and the researcher. Because of these same reasons and to promote comparability with prior studies, this measurement method is employed also in this paper.

3 Methodology

To examine the effects of gender, age, and income on the WTP for music downloads, we conducted a self-administered online survey among Finnish consumers. The survey questionnaire was composed by using the LimeSurvey 1.87+ software, and before the actual survey, it was pre-tested with several postgraduate students and industry experts. The actual survey was launched in June 2010, and it was online for three weeks. During this time, the survey link was actively promoted by sending multiple invitation e-mails through the internal communication channels of our university as well as through a mailing list provided by a Finnish retail chain, which contained 5 000 e-mail addresses of their randomly sampled regular customers. In addition, the survey link was posted to two websites promoting online competitions and surveys as well as to two music-related discussion forums. To raise the response rate, all the respondents who completed the survey were also offered an opportunity to take part in a prize drawing, in which 41 gift cards worth a total of 1 500 € were raffled among them.

Altogether, the survey questionnaire consisted of 108–112 items (depending on the responses). However, only five of them were used for the purpose of this paper. Gender, age, and income were each measured by one item. The measurement scale of gender was nominal (male or female), while age was initially measured with an interval scale but was later categorised into three age groups (under 30 years, 30–44 years, and 45 years or over). Income, which referred to annual gross income per person, was measured with an ordinal scale. The scale initially consisted of ten income groups, but their number was later reduced to three (under 15 000 €, 15 000–29 999 €, and 30 000 € or over). The WTP for album and track downloads was measured with two open-ended questions in which the respondents were directly surveyed for their general WTP for the albums and tracks sold in music download stores. Both the questions were optional, so the respondents had the option to answer both, one, or none of them.

The survey data was analysed by using the PASW Statistics 18 software. The analysis was conducted independently for albums and tracks, meaning that the same analysis procedures were first performed for the respondents who had stated their WTP for albums and then for the respondents who had stated their WTP for tracks.

Because of the high number of responses with a WTP of zero, the analysis followed a two-phase strategy. A similar strategy has been used previously by Sandulli and Martín-Barbero (2007) as well as Chiang and Assane (2009). In the first phase, we examined the effects of gender, age, and income on the unwillingness to pay for music downloads.

By *unwillingness to pay* (UWTP), we refer to a special case of WTP, in which a buyer is willing to pay nothing for a given quantity of a product or service. The examination was done by first dividing the sample into two groups: *unwilling payers* with a WTP of zero ($WTP = 0$) and *willing payers* with a WTP of greater than zero ($WTP > 0$). After this, contingency tables and the Pearson's χ^2 tests of independence were used to analyse the differences in the percentages of unwilling payers between men and women as well as between the three age and income groups to see whether any statistically significant dependencies between UWTP and the explanatory variables could be found.

In the second phase, we examined the effects of gender, age, and income on the actual WTP for music downloads among the willing payers. This was done by first excluding the respondents with the highest and lowest five percent of the WTP values from the analysis to minimise the effects of extreme values. After this, one-way analysis of variance (1-ANOVA) was used to investigate whether any statistically significant differences could be found in the WTP means between men and women as well as between the three age and income groups (and their two-way combinations). If these were found and there were more than two compared groups, post-hoc multiple comparisons using the Tukey's test were used to examine which of the groups differed. During the analysis, we noticed that the data in some of the compared groups showed signs of non-normality and heteroscedasticity, thus violating the assumptions of 1-ANOVA. This was mainly caused by the tendency of the respondents to round the WTP values to major price points, as also noted by Wertenbroch and Skiera (2002). The violations were not severe and, therefore, unlikely to significantly affect the results when considering the low number of compared groups, the high number of responses in each group, and the approximately balanced group sizes (Bathke, 2004). However, to be on the safe side, we replicated the analysis by using the non-parametric variants of 1-ANOVA (i.e., the Kruskal-Wallis test) and post-hoc multiple comparisons. The results of the non-parametric analysis were almost identical to those of the parametric analysis. The few minor deviations are reported as footnotes in the following section.

4 Results

The survey was properly completed by 1 447 respondents. The mean response time was a bit less than 17 minutes, indicating that the survey questionnaire was rather long for a self-administered online survey. This was also implied by the relatively high drop-off rate of 25.9 %. However, we do not consider the response time or drop-off rate too high in terms of suggesting severe respondent fatigue.

Of the 1 447 respondents, 117 (8.1 %) stated their WTP for neither albums nor tracks, and they were excluded from further analysis. Of the remaining 1 330 respondents, 1 321 stated their WTP for albums and 1 323 stated their WTP for tracks. Of them, 106 (8.0 %) were unwilling to pay anything for albums and 126 (9.5 %) were unwilling to pay anything for tracks. After excluding the respondents with the lowest and highest five percent of the WTP values, the WTP values of those willing to pay something varied from 2.00 € to 17.00 € for albums and from 0.10 € to 3.00 € for tracks. This resulted in the sample mean of 8.55 € (SD = 3.40 €, SE = 0.10 €) for albums and 0.92 € (SD = 0.58 €, SE = 0.02 €) for tracks. The excluded respondents did not differ significantly in terms of gender and income, but the exclusion rate was slightly higher in the age group of 45 years or over. This was emphasised especially among women.

Descriptive statistics of the sample (N = 1 330) are presented in Table 1. Overall, the sample can be characterised as highly heterogeneous in terms of the gender, age, income, and socioeconomic group of the respondents. It also contained relatively many respondents (25.3 %) who had purchased music from a download store. The gender, age, and income distributions of the sample corresponded quite well to the gender and age distributions of the Finnish Internet population in 2010 as well as the income distribution of the Finnish income recipients in 2009 (Statistics Finland, 2011). Women and the age group of under 30 years were somewhat overrepresented, whereas men and especially the age group of 45 years or over were underrepresented. However, there were no signs of severe non-response bias in terms of these three variables. The risk of this bias severely affecting the findings was also further reduced by the fact that we focused on examining WTP separately among men and women as well as in the three age and income groups (and their two-way combinations), thus controlling for the effects of these variables.

	Number	Percentage
Gender		
Male	581	43.7 %
Female	749	56.3 %
Age		
–29 yrs.	506	38.0 %
30–44 yrs.	473	35.6 %
45– yrs.	351	26.4 %
Income		
–14 999 €	458	34.4 %
15 000–29 999 €	350	26.3 %
30 000–€	350	26.3 %
N/A	172	12.9 %
Socioeconomic group		
Student	327	24.6 %
Employed	725	54.5 %
Unemployed	115	8.6 %
Pensioner	70	5.3 %
Other	81	6.1 %
N/A	12	0.9 %
Purchased music from a download store?		
Yes	337	25.3 %
No	943	70.9 %
N/A	50	3.8 %

Table 1: Descriptive statistics of the sample (N = 1 330)

4.1 Unwillingness to Pay (UWTP)

The results of the first phase of analysis are presented in Tables 2 and 3. Table 2 lists the percentages of unwilling (WTP = 0) and willing (WTP > 0) payers in each examined consumer segment. Table 3 summarises the results of the χ^2 tests.

Gender was found to have a statistically significant dependency with the UWTP for neither albums ($\chi^2(1) = 0.079$, $p = 0.778$) nor tracks ($\chi^2(1) = 0.039$, $p = 0.843$). By contrast, age was found to have a statistically significant dependency with the UWTP for both albums ($\chi^2(2) = 10.746$, $p = 0.005$) and tracks ($\chi^2(2) = 6.408$, $p = 0.041$). In the case of both albums and tracks, the percentage of unwilling payers increased quite linearly with age. Also income was found to have a statistically significant dependency with the UWTP for albums ($\chi^2(2) = 6.077$, $p = 0.048$) but not with the UWTP for tracks ($\chi^2(2) = 3.618$, $p = 0.164$). In the case of albums, the percentage of unwilling payers was the highest in the income group of 15 000–29 999 € (9.8 %), followed by the income groups of under 15 000 € (7.5 %) and 30 000 € or over (4.9 %).

	Albums			Tracks		
	N	WTP = 0	WTP > 0	N	WTP = 0	WTP > 0
Gender						
Man	578	7.8 %	92.2 %	578	9.3 %	90.7 %
Woman	743	8.2 %	91.8 %	745	9.7 %	90.3 %
Age						
–29 yrs.	502	5.6 %	94.4 %	506	7.5 %	92.5 %
30–44 yrs.	471	7.9 %	92.1 %	470	9.4 %	90.6 %
45– yrs.	348	11.8 %	88.2 %	347	12.7 %	87.3 %
Income						
–14 999 €	454	7.5 %	92.5 %	458	9.4 %	90.6 %
15 000–29 999 €	348	9.8 %	90.2 %	348	10.6 %	89.4 %
30 000– €	348	4.9 %	95.1 %	347	6.6 %	93.4 %

Table 2: Percentages of unwilling (WTP = 0) and willing (WTP > 0) payers

	Albums				Tracks			
	N	χ^2	df	p	N	χ^2	df	p
UWTP x gender	1 321	0.079	1	0.778	1 323	0.039	1	0.843
UWTP x age	1 321	10.746	2	0.005	1 323	6.408	2	0.041
UWTP x income	1 150	6.077	2	0.048	1 153	3.618	2	0.164

Table 3: Results of the χ^2 tests ($p < 0.05$ are bolded)

4.2 Willingness to Pay (WTP)

The results of the second phase of analysis are presented in Tables 4 and 5. Table 4 lists the WTP means, standard deviations, and standard errors of mean in each examined consumer segment. Table 5 summarises the results of the 1-ANOVA tests.

In terms of gender, women were found to have a significantly higher WTP for both albums ($F(1, 1 091) = 49.985$, $p < 0.001$) and tracks ($F(1, 1 075) = 34.312$, $p < 0.001$). This was also true when the differences between men and women were examined separately in each of the three age and income groups. The only exception was the income group of under 15 000 €, in which no statistically significant difference between men and women was found in the WTP for tracks.¹ In the case of albums, the relative magnitude of the difference was about the same in each of the three age and income groups. In the case of tracks, the relative magnitude of the difference increased with income and was also higher in the age group of 30–44 years.

In terms of age, no statistically significant differences between the groups were found in the WTP for albums ($F(2, 1 090) = 1.257$, $p = 0.285$), and this was also true when the differences were examined separately among men and women as well as in each of the three income groups. By contrast, statistically significant differences between the age groups were found in the WTP for tracks ($F(2, 1 074) = 8.004$, $p < 0.001$). According to multiple comparisons, the group that differed from the other two groups was the age group of under 30 years, in which the WTP for tracks was lower than in the age groups of 30–44 years ($p = 0.026$) and 45 years or over ($p < 0.001$). Statistically significant differences between the age groups were also found when they were examined separately among men and women, but multiple comparisons suggested a difference only between the age groups of under 30 years and 45 years or over.² By contrast, no statistically significant differences between the age groups were found when they were examined separately in each of the three income groups.

1 The non-parametric tests suggested women having a higher WTP for tracks also in the income group of under 15 000 € but not in the age group of 45 years or over.

2 The non-parametric tests suggested a difference also between the age groups of under 30 years and 30–44 years but only among women.

	Albums				Tracks			
	N	Mean (€)	SD (€)	SE (€)	N	Mean (€)	SD (€)	SE (€)
Gender								
Man	483	7.75	3.20	0.15	469	0.82	0.52	0.02
Woman	610	9.18	3.42	0.14	608	0.99	0.61	0.02
Age								
-29 yrs.	430	8.36	3.50	0.17	428	0.84	0.53	0.03
30-44 yrs.	400	8.73	3.13	0.16	392	0.94	0.57	0.03
45- yrs.	263	8.57	3.60	0.22	257	1.01	0.65	0.04
Income								
-14 999 €	373	8.24	3.44	0.18	374	0.84	0.54	0.03
15 000-29 999 €	280	8.52	3.38	0.20	280	0.95	0.65	0.04
30 000- €	306	8.60	3.38	0.19	294	0.97	0.57	0.03
Gender and age								
Man (-29 yrs.)	195	7.56	3.20	0.23	187	0.76	0.47	0.03
Man (30-44 yrs.)	171	7.87	2.96	0.23	167	0.82	0.51	0.04
Man (45- yrs.)	117	7.88	3.51	0.32	115	0.92	0.59	0.05
Woman (-29 yrs.)	235	9.02	3.61	0.24	241	0.90	0.56	0.04
Woman (30-44 yrs.)	229	9.38	3.11	0.21	225	1.03	0.60	0.04
Woman (45- yrs.)	146	9.12	3.58	0.30	142	1.09	0.69	0.06
Gender and income								
Man (-14 999 €)	160	7.55	3.19	0.25	158	0.78	0.53	0.04
Man (15 000-29 999 €)	106	7.62	3.15	0.31	106	0.84	0.60	0.06
Man (30 000- €)	173	7.90	3.29	0.25	162	0.85	0.47	0.04
Woman (-14 999 €)	213	8.76	3.53	0.24	216	0.89	0.55	0.04
Woman (15 000-29 999 €)	174	9.07	3.40	0.26	174	1.02	0.68	0.05
Woman (30 000- €)	133	9.52	3.28	0.28	132	1.11	0.65	0.06
Age and income								
-29 yrs. (-14 999 €)	261	8.06	3.52	0.22	262	0.81	0.53	0.03
-29 yrs. (15 000-29 999 €)	86	8.58	3.25	0.35	83	0.84	0.49	0.05
-29 yrs. (30 000- €)	33	8.39	3.79	0.66	31	0.90	0.60	0.11
30-44 yrs. (-14 999 €)	75	8.73	3.34	0.39	77	0.89	0.56	0.06
30-44 yrs. (15 000-29 999 €)	120	8.75	3.07	0.28	119	0.96	0.65	0.06
30-44 yrs. (30 000- €)	153	8.73	3.21	0.26	150	0.96	0.54	0.04
45- yrs. (-14 999 €)	37	8.52	3.02	0.50	35	0.98	0.58	0.10
45- yrs. (15 000-29 999 €)	74	8.09	3.95	0.46	78	1.07	0.77	0.09
45- yrs. (30 000- €)	120	8.51	3.50	0.32	113	0.99	0.61	0.06

Table 4: WTP means, standard deviations (SD), and standard errors (SE) of mean

	Albums					Tracks				
	N	F	df ₁	df ₂	p	N	F	df ₁	df ₂	p
Gender	1 093	49.985	1	1 091	< 0.001	1 077	34.312	1	1 075	< 0.001
Age = -29 yrs.	430	19.422	1	428	< 0.001	428	7.966	1	426	0.005
Age = 30-44 yrs.	400	23.858	1	398	< 0.001	392	13.382	1	390	< 0.001
Age = 45- yrs.	263	7.902	1	261	0.005	257	4.358	1	255	0.038
Income = -14 999 €	373	11.637	1	371	0.001	374	3.809	1	372	0.052
Income = 15 000-29 999 €	280	12.704	1	278	< 0.001	280	4.940	1	278	0.027
Income = 30 000- €	306	18.188	1	304	< 0.001	294	15.861	1	292	< 0.001
Age	1 093	1.257	2	1 090	0.285	1 077	8.044	2	1 074	< 0.001
Gender = man	483	0.567	2	480	0.568	469	3.579	2	466	0.029
Gender = woman	610	0.643	2	607	0.526	608	5.016	2	605	0.007
Income = -14 999 €	373	1.263	2	370	0.284	374	1.726	2	371	0.179
Income = 15 000-29 999 €	280	0.898	2	277	0.409	280	2.666	2	277	0.071
Income = 30 000- €	306	0.210	2	303	0.811	294	0.274	2	291	0.760
Income	959	1.089	2	956	0.337	948	4.470	2	945	0.012
Gender = man	439	0.550	2	436	0.578	426	0.817	2	423	0.442
Gender = woman	520	2.021	2	517	0.134	522	5.393	2	519	0.005
Age = -29 yrs.	380	0.775	2	377	0.462	376	0.432	2	373	0.650
Age = 30-44 yrs.	348	0.002	2	345	0.998	346	0.444	2	343	0.642
Age = 45- yrs.	231	0.352	2	228	0.704	226	0.419	2	223	0.658

Table 5: Results of the 1-ANOVA tests (p < 0.05 are bolded)

In terms of income, no statistically significant differences between the groups were found in the WTP for albums ($F(2, 956) = 1.089, p = 0.337$), and this was also true when the differences were examined separately among men and women as well as in each of the three age groups. By contrast, statistically significant differences between

the income groups were found in the WTP for tracks ($F(2, 945) = 4.470, p = 0.012$). According to multiple comparisons, the group that differed from the other two groups was the income group of under 15 000 €, in which the WTP for tracks was lower than in the income groups of 15 000–29 999 € ($p = 0.046$) and 30 000 € or over ($p = 0.021$).³ However, when the differences between the income groups were examined separately among men and women as well as in each of the three age groups, a statistically significant difference was found only among women and only between the income groups of under 15 000 € and 30 000 € or over.

5 Discussion and Conclusions

In this paper, we examined the effects of gender, age, and income on the WTP for music downloads. The findings of the study suggest that there are several statistically significant differences in the WTP for album and track downloads between the examined consumer segments. In brief, women expressed a higher WTP for both albums and tracks, and the WTP for tracks was also found to increase with age and income. In addition, age was found to increase the UWTP for both albums and tracks, whereas the effect of income on the UWTP for tracks was more non-linear.

When the findings are compared to those of prior studies, several similarities, but also some discrepancies, can be observed. Although some of these discrepancies can be explained by the differences in research settings, their high number would seem to suggest that there may be significant divergence in the examined effects between different countries and cultures. For example, the findings of Chiang and Assane (2009) concerning the WTP for tracks are very similar to ours, also suggesting that women have a higher WTP than men and that the WTP increases with age and income. However, their findings concerning the UWTP for tracks differ from ours, suggesting that men have a higher UWTP than women and that the UWTP decreases with age and income. Also the findings of Fetscherin and Lattemann (2007) are partly in congruence but partly in conflict with ours. They also found age to have a positive effect on the WTP for tracks but found gender and income to have no effect on it. By contrast, the findings of Sandulli and Martín-Barbero (2007) differ considerably from ours. They found gender, age, and income to have completely opposite effects on the WTP for tracks as compared to our findings, and their findings also suggest that men have a higher UWTP for tracks than women and that the UWTP for tracks decreases with age. However, their findings concerning the effect of income on the UWTP for tracks are very similar to ours. This also applies to the findings of Sinha and Mandel (2008), which support our finding of women having a higher WTP for tracks than men.

All in all, the findings suggest two very important implications for the business models of music download stores. First, as also concluded by Bauxmann et al. (2005), the current prices of the albums and tracks sold in music download stores seem to be too high for most consumers. In Finland, for example, the prices typically vary from 9.49 € to 12.99 € per album and from 0.99 € to 1.69 € per track, which clearly exceeds the WTP expressed by most of the examined consumer segments, especially in the case of albums. Thus, there seems to be strong pressure to lower the prices. Bauxmann et al. (2005) suggest that these kinds of price reductions could actually increase the revenues

³ The non-parametric tests suggested a difference only between the income groups of under 15 000 € and 30 000 € or over, not between the income groups of under 15 000 € and 15 000–29 999 €.

of the actors involved in digital music retailing, although their implementation would require considerable cooperation and consensus among these actors.

Second, the findings also suggest some substantial opportunities for third-degree price discrimination (i.e., different prices for different consumer segments). For example, instead of just differentiating the prices of albums and tracks based on their novelty or popularity, also their target segments in terms of gender and age should be considered when setting the prices. Here, the most important segmentation variable seems to be gender, with women expressing an about 16–21 % higher WTP for albums and about 14–31 % higher WTP for tracks, depending on their age and income. Also age and income can be seen as important segmentation variables, but their effects on WTP seem to be somewhat weaker. For example, age and income were found to have an effect only on the WTP for tracks, and also these effects seemed to be partly caused by their two-way interaction (i.e., income tends to increase with age). When this interaction was controlled for, no statistically significant effects could be found anymore. In addition, income was found to have an effect on the WTP for tracks only among women, and the positive effect of age on the WTP for tracks was partly offset by the fact that not only the WTP but also the UWTP for tracks was found to increase with age.

In conclusion, it seems that the current business models of music download stores are facing many severe challenges, one of which is the mismatch between the prices of the albums and tracks sold in the stores and the consumers' WTP for them. In this respect, the most challenging consumer segments seem to be men and young consumers with a relatively low WTP for music downloads and, surprisingly, also elderly consumers whose UWTP for music downloads is relatively high. To confront these challenges, innovative improvements to the future business models of music download stores are desperately needed. One example of these could be the more differentiative pricing policies suggested in this paper, which better take into consideration the divergence in the WTP for music downloads between different consumer segments.

6 Limitations and Future Research

We consider our study to have three main limitations. First, the analysed data was gathered from Finnish consumers by using an online survey. Thus, the findings are directly generalisable only to the Finnish Internet population. Second, the effects of age and income on WTP were examined by categorising the respondents into only three age and income groups. This obviously limited the precision of the examination but enabled the proper examination of the two-way interaction effects between gender, age, and income, although the number of respondents in some two-way combinations of the age and income groups was relatively low. Third, WTP was measured by using two open-ended questions to directly survey the respondents for their general WTP for the albums and tracks sold in music download stores. Although a similar measurement method has been commonly employed in prior studies (cf. Section 2), it has some shortcomings. For example, Bauxmann et al. (2005) suggest divergence in WTP also between different categories of music (e.g., current hits, older titles, rarities, and newcomers), which should be taken into consideration when measuring it. Respectively, Breidert (2005) lists a number of flaws related to direct surveys as a measurement method. One is that they seldom offer consumers strong incentives to reveal their true WTP, often causing them to either overestimate or underestimate it. In our study, the risk of biased estimates

may have been further increased by the fact that relatively many respondents (70.9 %) had never purchased music from a download store and, therefore, may have been quite unfamiliar with their pricing policies. Even though the estimates are unbiased, Breidert (2005) also notes that they do not necessarily translate into actual purchasing behaviour.

To address these limitations, we see that a preferable path of future research would be to replicate our study also in other countries and cultures by using a more precise categorisation of age and income as well as a more varied set of methods for measuring WTP. These studies could also concentrate on some interesting special segments of consumers, such as the more experienced users of music download stores. Another potential path of future research would be to extend the current study to cover the WTP for not only music downloads but also music subscriptions as well as the effects of other interesting variables on the WTP for digital music.

References

- Amberg, M., & Schröder, M. (2007). E-business models and consumer expectations for digital audio distribution. *Journal of Enterprise Information Management*, 20(3), 291–303. doi:10.1108/17410390710740745
- Bathke, A. (2004). The ANOVA F test can still be used in some balanced designs with unequal variances and nonnormal data. *Journal of Statistical Planning and Inference*, 126(2), 413–422. doi:10.1016/j.jspi.2003.09.010
- Bauxmann, P., Pohl, G., Johnscher, P., Strube, J., & Groffmann, H.-D. (2005). Strategies for Digital Music Markets: Pricing and the Effectiveness of Measures Against Pirate Copies – Results of an Empirical Study. In *Proceedings of the 13th European Conference on Information Systems (ECIS 2005)*, 26–28 May, 2005 (Paper 116). Retrieved from AIS Electronic Library (AISeL).
- Bhattacharjee, S., Gopal, R. D., & Sanders, G. L. (2003). Digital Music and Online Sharing: Software Piracy 2.0? *Communications of the ACM*, 46(7), 107–111. doi:10.1145/792704.792707
- Becker, G. M., DeGroot, M. H., & Marschak, J. (1964). Measuring utility by a single-response sequential method. *Behavioral Science*, 9(3), 226–232. doi:10.1002/bs.3830090304
- Breidert, C. (2005). *Estimation of Willingness-to-Pay: Theory, Measurement, and Application*. Doctoral thesis, Vienna University of Economics and Business, Vienna, Austria. Retrieved from <http://epub.wu.ac.at/1934/>
- Breidert, C., & Hahsler, M. (2007). Adaptive Conjoint Analysis for Pricing Music Downloads. In R. Decker & H.-J. Lenz (Eds.), *Advances in Data Analysis* (Studies in Classification, Data Analysis, and Knowledge Organization, pp. 409–416). Heidelberg, Germany: Springer.
- Chang, M. K., Cheung, W., & Lai, V. S. (2007). Literature derived reference models for the adoption of online shopping. *Information & Management*, 42(4), 543–559. doi:10.1016/j.im.2004.02.006
- Chiang, E. P., & Assane, D. (2009). Estimating the Willingness to Pay for Digital Music. *Contemporary Economic Policy*, 27(4), 512–522. doi:10.1111/j.1465-7287.2009.00152.x

- Doerr, J., Benlian, A., Vetter, J., & Hess, T. (2010). Pricing of Content Services – An Empirical Investigation of Music as a Service. In *Proceedings of the 16th Americas Conference on Information Systems (AMCIS 2010)*, 12–15 August, 2010 (Paper 36). Retrieved from AIS Electronic Library (AISeL).
- Fetscherin, M., & Lattemann, C. (2007). Motives and Willingness to Pay for Digital Music. In *Proceedings of the Third International Conference on Automated Production of Cross Media Content for Multi-Channel Distribution (AXMEDIS 2007)*, 28–30 November, 2007 (pp. 189–196). Los Alamitos, CA: IEEE Computer Society.
- Green, P. E., Krieger, A. M., & Wind, Y. (2001). Thirty Years of Conjoint Analysis: Reflections and Prospects. *Interfaces*, 31(3), 56–73.
- Halttunen, V., Makkonen, M., & Frank, L. (2011). Why Haven't People Adopted Music Download Stores? In *Proceedings of the IADIS International Conference on e-Society 2011*, 10–13 March, 2011 (pp. 221–228). IADIS Press.
- IFPI. (2010). *Recording Industry in Numbers 2010*.
- Mitchell, R. C., & Carson, R. T. (1989). *Using Surveys to Value Public Goods: The Contingent Valuation Method*. Washington, DC: Resources for the Future.
- Sandulli, F. D., & Martín-Barbero, S. (2007). 68 Cents per Song: A Socio-Economic Survey on the Internet. *Convergence: The International Journal of Research into New Media Technologies*, 13(1), 63–78. doi:10.1177/1354856507072857
- Sinha, R. K., & Mandel, N. (2008). Preventing Digital Music Piracy: The Carrot or the Stick? *Journal of Marketing*, 72(1), 1–15. doi:10.1509/jmkg.72.1.1
- Sinha, R. K., Machado, F. S., & Sellman, C. (2010). Don't Think Twice, It's All Right: Music Piracy and Pricing in a DRM-Free Environment. *Journal of Marketing*, 74(2), 40–54. doi:10.1509/jmkg.74.2.40
- Statistics Finland. (2011). *Statistics Finland*. Retrieved from <http://www.stat.fi>
- Styvén, M. (2007). *Exploring the Online Music Market: Consumer Characteristics and Value Perceptions*. Doctoral thesis, Luleå University of Technology, Luleå, Sweden. Retrieved from <http://epubl.ltu.se/1402-1544/2007/71/>
- Vickery, W. (1961). Counterspeculation, Auctions, and Competitive Sealed Tenders. *Journal of Finance*, 16(1), 8–37.
- Walsh, G., Mitchell, V.-W., Frenzel, T., & Wiedmann, K.-P. (2003). Internet-induced changes in consumer music procurement behavior: a German perspective. *Marketing Intelligence & Planning*, 21(5), 305–317. doi:10.1108/02634500310490256
- Wertenbroch, K., & Skiera, B. (2002). Measuring Consumers' Willingness to Pay at the Point of Purchase. *Journal of Marketing Research*, 39(2), 228–241. doi:10.1509/jmkr.39.2.228.19086
- Zhou, L., Dai, L., & Zhang, D. (2007). Online Shopping Acceptance Model – A Critical Survey of Consumer Factors in Online Shopping. *Journal of Electronic Commerce Research*, 8(1), 41–62.