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Do online customer reviews matter? Evidence from the video game industry

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Evidence from the video game industry

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Abstract

This paper analyzes the impact of online customer reviews on purchasing decisions and the influence of online customer or "peer" reviews compared to other channels of information such as offline press (expert reviews) and trial versions (personal reviews). Using 7,024 answers of an anonymous online survey administrated from June 18 to July 5, 2004, on one of the leading websites dedicated to video games in France, we show that *i.* online peer reviews gathered by consumers before purchasing video games positively influence purchasing decisions; *ii.* the effect of online peer reviews is as important as the effects of personal and expert reviews; iii. online customer reviews complement trial versions and expert reviews from magazines.

Keywords: Customer reviews, Word-of-mouth, Internet, Experience goods, Video Games.

JEL: L82, L86.

1 Introduction

Information and cultural goods such as books, CDs, DVDs, or video games, are often viewed as experience goods that a consumer needs to "taste" to assess their quality and location with respect to his or her ideal product variety. Prior to the Internet era, consumers used to acquire information on experience goods from two main channels: experts fromf the mass media (TV, radio, newspapers, etc.) and retailers on the one hand; word-of-mouth (WOM) resulting from discussions with friends and relatives on the other hand.

Online customer reviews represent new channels of information acquisition. Firms such as Amazon, Barnes and Nobles, etc., offer consumers the possibility to read and/or write positive or negative reviews on products and to obtain and/or provide information and advice. Other consumers may then access detailed information on the quality of an experience good and sometimes may even acquire information on the reviewer's preferences. For instance, Amazon.com's top reviewers have a "web page" where consumers can consult all their reviews and evaluate what are their favorite books, movies, etc. Consumers can then compare their tastes with those of the reviewers and obtain information on the horizontal and vertical dimensions of experience goods that they will most likely enjoy.

However, if online customer reviews make purchase decisions easier for consumers, their impact raises several questions. Do online customer reviews really influence purchase decisions? Do online reviews constitute a better channel of information for potential buyers than offline magazine press and online general sites of information?

Answering these questions is important for business firms and managers. First of all, major Internet actors have decided to rely heavily on consumers' online WOM in order to build brand loyalty. Jeff Bezos, CEO of Amazon.com, considers for instance that it is a winning marketing tool even better than any TV advertising. Secondly, online WOM can be exploited by firms for revenue forecasting and planning. For instance, Dellarocas et al.

(2004) provide evidence that online movie reviews constitute a measurable proxy for WOM that can be exploited to forecast studio revenues. However, if online customer reviews become a strategic investment in business strategies, its efficiency remains controversial. First, online customer reviews are public good and, therefore, benefit for all consumers and firms in competition (Chevalier and Mayzlin, 2006); hence the incentives to provide good quality reviews can be suboptimal. And, on the other hand, sellers can have incentives to write biased reviews to improve the ratings of their products (see Dellarocas, 2003). Third, research in consumer behavior indicates that negative WOM can have a harmful effect on the adoption and diffusion of new products (Arndt 1967, Mizerski 1982, Moldovan and Goldenberg 2004, Goldenber and al. 2007). Bezos elaborates on this point: “(...) when we first started letting customers review books, some publishers were startled by this, because, of course, customers give both positive and negative reviews. I got letters from publishers in the early days, some quite hostile, saying, "Don't you understand your own business? You make money when you sell books. Why would you allow negative reviews?” Fourth, consumers might have doubt about the sincerity and the origin of reviews insofar as firms can anonymously post reviews (White 1999, Mayzlin 2006, Harmon 2004).

Because the efficiency of online customer reviews remains controversial, the paper tries to assess, first, the impact of online customer reviews on purchasing decisions and, second, the influence of online customer or “peer” reviews compared to other channels of information such as offline press (expert reviews) and trial versions (personal reviews). We use data at the individual level and analyze purchasing behaviors in the video game industry. The video game industry is a good sector to focus on for several reasons. First, video games are complex experience goods. Hints and advice provided by experienced gamers on websites can greatly influence individual purchasing decisions. Secondly, prices of video games are on average higher than prices of CDs or DVDs, which can incite consumers to collect information from different sources (including online and offline channels) before committing to a purchase. Price is indeed a significant factor as the majority of gamers are young with limited income.

We administered an online anonymous survey from June 18 to July 5, 2004 on one of the leading French websites dedicated to video games. Using 6,894 answers to the questionnaire, we estimate the effects of different pre-purchase sources of information such as online customer reviews, offline specialized press, and trial version, on purchases. The three main contributions of the paper are the following. First, we show that online peer reviews gathered by consumers before purchasing video games positively influence purchasing decisions. Second, the effect of online peer reviews is as important as the effects of personal and expert reviews. Third, online customer reviews complement trial versions and expert reviews from magazines.

The influence of WOM on consumer behavior constitutes a broader literature (see Godes and Mayzlin (2004) for a general survey). Apart from the theoretical works of Banerjee (1992, 1993) and Bikhchandani et al. (1991), several empirical contributions try to assess the influence on WOM on sales or product adoption and diffusion (Katz and Lazarsfeld (1955), Bass (1969), etc.). Among them, the closest paper to our research is that of Chevalier and Mayzlin (2006). The authors examine the relationship between a book's customer reviews and its market share across BarnesandNoble.com and Amazon.com. Using publicly available data on the two online booksellers (2,394 observations), the authors find that "the relative market share of a book across the two sites is related to differences across the sites in the number of reviews for the book and in differences across the sites in the average star ranking of the reviews". The authors then conclude that customer WOM has a causal impact on consumers' purchasing behavior at the two Internet retail sites. However, studies that use books as the unit of analysis suffer from several shortcomings. First aggregate ranks are poor measures of sales of infrequently purchased books. Secondly, many books do not receive any comments and this creates truncation issues. Thirdly and most importantly, there is a fundamental endogeneity issue related to the fact that books with the highest sales ranks also have the largest number of comments, simply because more people have read them and can write a comment about them. Finding valid instruments to correct this issue is an arduous task. Finally, comparing sales differences at two different online stores only identify the effect of customers review on sales to the extent that consumers' tastes at both locations are the

same, which is a difficult assumption to test. We contribute to this literature on two points. First, we avoid econometric issues raised by looking at aggregate data by analyzing individual purchasing decisions and confirm that online word of mouth has a significant effect on sales. Secondly, we compare the effect of different types of reviews (personal, peer and expert) on purchases, which has not been done in the literature.

The reminder of the paper is organized as follows. We describe the data in Section 2. In Section 3, we comment on the estimation results. We conclude in section 4.

2 Data

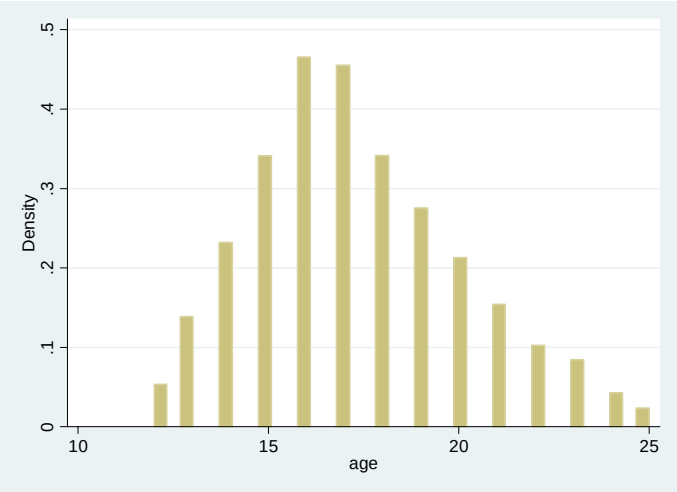
We administered an anonymous online survey from June 18 to July 5, 2004 to visitors of one of the leading French websites dedicated to video games. The main activity of this website is to provide reviews of new game releases for all major platforms (PC, PlayStation, XBOX…). Each game is assigned to an expert reviewer who gives a final assessment based on five criteria: graphics, playability, lifespan, sound and scenario. An overall rating is also given on a scale from 0 to 20. At the end of the editorial review, visitors have the opportunity to review and rate the game by posting a comment under the heading “Opinion of the readers”. The reader leaves his username, his email, his age and his location. “Hits” can generate hundreds of customer reviews; for instance, 194 customer reviews are available online for the video game “The Sims”.

Our purpose is to determine whether customer reviews have an impact on the purchasing behavior of gamers. The survey was administered directly by the website. Respondents could leave their email address to enter a contest to win t-shirts, an XBOX and video games. 6,894 students answered the most relevant questions and this is the sample that we use in the econometric analysis and that we comment on in the following sections. Summary statistics are provided in Appendix 1 and the list of questions in Appendix 4. The large number of questions related to the taste for playing video games improves on previous studies and should control for biases due to omitted variables in a reasonable way.

2.1 Demographics

The respondents are mainly male (93%) and live in urban cities with more than 10,000 inhabitants (60% live in cities with more than 10,000 inhabitants). Most of them are between 16 and 17 years old. Figure 1 gives a histogram of the age distribution in the population.

Figure 1. Age distribution



2.2 Getting video games and willingness to pay

43% of the respondents report to buy between 1 and 5 games per year, 37 % between 6 and 10 games per year and 20% more than 11 games per year. Many respondents purchased their games alone (55%) even if some gamers purchase video games with friends “sometimes” (38%) or “often” (7%). Surprisingly, 78% of the respondents usually purchase video games in traditional stores. Only 13% of the people purchase video games from online websites (9%) or from second-hand stores (4%). Few respondents report to obtain illegal copies of video games either from peer-to-peer networks (4%) or from friends (3%).

2.3 Playing video games

Many of the respondents own more than one gaming platform. Only 14% have only one gaming platform; the majority (55%) own 2 or 3 platforms, 31% own 4 to 6 platforms. The PC is by far the most widely used platform (85%), followed by the Play Station 2 (55%), the GameCube (45%) and the Xbox (21%). 48% of the respondents play also on portable consoles.

2.4 Information before purchase

A large number of questions are related to information about games and this is a special feature of the survey. Prior to purchasing a video game, people gather information to evaluate the quality of the game. We distinguish between three categories of reviews: professional or expert reviews, personal reviews and peer reviews. First, when asked about their sources of information, gamers state they first read expert reviews from video game magazines (61%) or general websites (8%). Secondly, consumers use trial versions (48%) downloaded from the Internet or borrow a copy from a friend (6%). Since consumers make their own assessment of the quality of the game, we consider that they make their personal "review". Finally, respondents use word-of-mouth from peers such as friends (60%), online forums (97%) and customer reviews from the website (80%) that we comment on the next section.

2.4.1 Online forums and customer reviews

To test the effect of customer reviews on videogame purchases, we characterize consumers who read posts from online forums and who read customer reviews.[1] 34% of the respondents claim to often consult forums and 50% do so "always" while 16% "sometimes" or "never" consult online forums before purchasing new video games. Among the students who "sometimes" visit online forums, 53% purchase 6 games or more, while this percentage reaches 57% for students who "often" or "always" visit forums. 21% of the respondents mainly consult customer reviews to get advice different

[1] Online forums are defined as forums on websites dedicated to video games or on websites of online retailers. Customer reviews refer to comments posted on the website that administered the survey.

from the editorial review, while 44% mainly read these posts to get information about the game.

2.4.2 Complementarity between information sources

People consult different sources of information prior to purchasing a video game. More than 80% of the respondents consult at least two different sources of information and 55% three sources of information, which denotes a complementarity between the different sources of information for gamers. Table 1 suggests an inverted-U relationship between the use of expert reviews written in magazines and online peer reviews. Indeed, the share of magazine readers who often consult online forums is higher than the share of these readers who never or sometimes consult forums as well as higher than the share of those who always consult forums.

Table 1. Expert vs. peer reviews

	Consult online forums				
Read magazines	Never	Sometimes	Often	Always	Total
No	84	336	845	1,387	2,652
	3.17	*12.67*	*31.86*	*52.3*	*100*
	42.21	*37.29*	*36.02*	*40.23*	*38.47*
Yes	115	565	1,501	2,061	4,242
	2.71	*13.32*	*35.38*	*48.59*	*100*
	57.79	*62.71*	*63.98*	*59.77*	*61.53*
Total	199	901	2,346	3,448	6,894
	2.89	*13.07*	*34.03*	*50.01*	*100*
	100	*100*	*100*	*100*	*100*

2.4.3 Website experience

There might be a learning curve associated with finding relevant comments and answers to specific questions from the website. 67% of the respondents have visited the website for more than two years and 23% have visited the website for more than a year (but less than two years). Experienced website users purchase on average more than new users: 43% (18%) of new users purchase on average 3 (15) games per year, while 36% (29%) of experienced users purchase on average 3 (15) games per year.

2.5 Network games

Overall, 77% of the respondents play online network games: 23% play online network games on a daily basis, 23% once a week, 16% once a month and 15% once a year. Respondents who play daily purchase proportionally more video games. We use these variables to control for a respondent's eagerness to play and for his social gaming network.

3 Estimation method and results

We determine the contributions of expert reviews (magazines), personal reviews (trial versions) and peer reviews (offline and online word-of-mouth) on videogame purchases. We estimate the following equation:

$$y_i = x_i' \beta + w_i' \alpha + \varepsilon_i$$

where y_i is the number of video games purchased per year for individual i (= 1, ..., n), x_i are individual control variables (sex, age, city size, internet connection type, and income related variables), w_i are information sources (specialized magazines, trial versions, internet forums posts, …) and ε_i represents unobserved individual characteristics that we assume uncorrelated with the other variables in the equation. Parameters α and β are estimated by ordinary least squares.[2]

Estimation results are given in Table 2. The dependent variable is the number of games purchased per year. The first two columns present the estimation results for the whole sample. To test whether the effect of information sources differs with the website experience of the respondent, we run the basic regressions across different experience categories. Columns (1) report results on the sample of students who have visited the website for less than a year, columns (2) correspond to students with 1-2 year of

[2] To apply ordinary least squares, we have constructed a continuous dependent variable that is equal to the mean of the category. If the respondent purchases 6-10 video games per year, the variable is set to 8. It was set to 15 to for the category "≥11" and to 3 for the category "1-5". Estimation by OLS does not require distributional assumption for the unobservable variable. We also estimate the model by applying an ordered probit model. The ordered probit model takes account of the fact that the dependent variable is discrete but assumes normality. Results were qualitatively similar and are available on request.

experience and columns (3) correspond to students who have visited the website for more than 2 years. In this section, we use as peer review variables visits to video game forums.[3]

Table 2. Estimation results

			(1)		*(2)*		*(3)*	
Variable	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.40	0.20	-1.34	0.56	-0.24	0.41	-0.25	0.26
City size: 10-100	0.07	0.12	0.53	0.39	0.40	0.24	-0.10	0.15
City size: 100+	0.02	0.13	-0.23	0.45	-0.06	0.27	0.05	0.16
Age: 12	0.23	0.39	-0.49	0.85	0.55	0.67	0.48	0.58
Age: 13	0.70	0.25	0.80	0.61	0.46	0.47	0.84	0.35
Age: 14	0.54	0.20	1.06	0.54	0.29	0.38	0.56	0.27
Age: 15	0.29	0.17	0.75	0.54	-0.02	0.33	0.34	0.22
Age: 18	-0.05	0.17	0.50	0.64	-0.10	0.36	-0.10	0.21
Age: 19	-0.21	0.19	-0.89	0.75	0.63	0.41	-0.38	0.22
Age: 20	-0.25	0.21	-0.91	0.78	-0.19	0.44	-0.25	0.25
Age: 21	0.41	0.24	0.18	0.84	0.48	0.55	0.35	0.28
Age: 22	0.17	0.29	0.33	0.95	-0.27	0.57	0.31	0.35
Age: 23	-0.52	0.31	-0.22	1.15	-0.86	0.67	-0.44	0.38
Age: 24	0.61	0.43	0.97	1.20	0.77	0.86	0.50	0.54
Age: 25	-0.01	0.57	2.61	1.74	1.80	1.18	-1.01	0.71
Internet access: high speed home	0.01	0.16	0.89	0.45	-0.30	0.31	-0.01	0.20
Internet access: high speed work	-0.01	0.14	0.56	0.39	-0.02	0.26	-0.13	0.18
Firewall at work	0.07	0.11	0.53	0.36	0.25	0.22	-0.06	0.13
Internet access: friends	0.07	0.11	-0.13	0.36	0.53	0.22	-0.06	0.14
Internet access: library	-0.11	0.23	-0.49	0.68	0.53	0.48	-0.19	0.29
Internet access: cybercafe	0.95	0.19	0.00	0.63	1.17	0.38	0.94	0.24
P2P download	0.02	0.11	0.16	0.33	-0.11	0.22	0.03	0.14
Group purchase: sometimes	0.20	0.11	0.01	0.34	0.45	0.22	0.14	0.14
Group purchase: often	1.19	0.20	1.93	0.64	0.90	0.41	1.19	0.25
Obtained from: P2P	-1.13	0.29	-0.20	1.25	-0.98	0.69	-1.19	0.33
Obtained from: second-hand	1.03	0.25	0.63	0.83	0.54	0.51	1.26	0.31
Obtained from: friends	-0.75	0.29	-1.32	0.99	-0.36	0.63	-0.83	0.35
Obtained from: other places	0.22	0.38	0.17	0.88	-0.09	0.74	0.32	0.50
Obtained from: online store	-0.19	0.18	-0.46	0.61	-0.29	0.37	-0.05	0.22
Expert review: magazines	0.84	0.11	0.82	0.34	0.83	0.22	0.80	0.13
Expert review: general website	-0.05	0.19	0.31	0.59	-0.82	0.41	0.04	0.23

[3] In Appendix 2 and 3, we respectively use people who read posts to get information about games and people who read posts to have an opinion different from the editorial review about a game (interacted with the variable related to the frequency of forum visits as defined in the main text) as our peer review variables. Results are fairly similar and were not reported in the main text.

Personal review: demo	-0.09	0.11	0.35	0.35	0.02	0.21	-0.19	0.13
Personal reviews: exchange	0.22	0.21	0.56	0.83	0.52	0.48	0.17	0.25
Peer reviews: friends	-0.68	0.11	-0.97	0.34	-0.91	0.22	-0.56	0.13
Peer reviews: forum sometimes	0.64	0.33	0.59	0.72	2.07	0.69	0.10	0.44
Peer reviews: forum often	0.81	0.31	0.33	0.69	2.45	0.65	0.20	0.42
Peer reviews: forum always	0.90	0.31	1.31	0.69	2.70	0.65	0.15	0.41
# platforms: 2	0.21	0.17	0.01	0.47	0.75	0.34	0.07	0.21
# platforms: 3	1.12	0.17	0.74	0.49	1.60	0.35	1.06	0.21
# platforms: 4	2.29	0.18	1.76	0.56	2.12	0.38	2.46	0.23
# platforms: 5	3.63	0.22	3.42	0.74	4.34	0.47	3.46	0.27
# platforms: 6	4.86	0.32	3.97	1.23	4.08	0.80	5.06	0.37
Network games: once a year	-0.16	0.17	-0.08	0.51	-0.54	0.34	0.00	0.22
Network games: once a month	0.07	0.17	0.30	0.51	-0.04	0.33	0.13	0.21
Network games: once a week	0.18	0.16	-0.16	0.47	-0.02	0.30	0.31	0.20
Network games: daily	0.94	0.16	0.24	0.51	0.59	0.32	1.15	0.20
Website experience: < 6 month	-0.12	0.28						
Website experience: < 1 year	-0.29	0.21						
Website experience: < 2 years	-0.20	0.12						
Constant	4.52	0.38	3.73	0.85	2.55	0.79	5.32	0.50
R^2	0.14		0.18		0.15		0.16	
# obs.	6894		681		1590		4623	

As expected, we find that expert reviews from videogame magazines have a significant and positive effect on video game purchases. On the contrary, word-of-mouth from friends has a significant and negative impact on purchases. Intuitively, a friend can give a positive or a negative recommendation. Our result suggests that the negative effect dominates. This is consistent with findings on the Amazon.com community (Chevalier and Mayzlin 2006) and on the eBay community (Resnik and Zeckhauser, 2002). Another interpretation of the negative sign could be related to the fact that a person who gets advice from a friend could also borrow a copy of the game from this friend. However, this effect would have been captured by the variable "personal review: exchange" (i.e. a game borrowed from a friend), which is not significantly different from zero. Although these effects could also characterize online word-of-mouth such as expert and online peer reviews, negative comments from personal friends are more effective.

Online peer reviews have a strong positive effect on purchases. People who often consult forums prior to making a purchase have a higher propensity to purchase video games. Indeed, people who always consult internet forums do so mainly to read customer reviews and this leads them make more informed purchases. It is interesting to compare

the effects of expert (magazine) and peer (online forum) reviews on purchases. We tested the hypothesis H_0: $\sum_k \beta_{expert,k} = \sum_k \beta_{peer,k}$ vs. H_1: $\sum_k \beta_{expert,k} < \sum_k \beta_{peer,k}$,where β_{expert} corresponds to magazine and general websites and β_{peer} to people consulting information on forum and online reviews (sometimes, often, always). We reject H_0 at the 1% level (the F-statistic is 31.06, 49.8 and 28.34 for the three specifications respectively), from which we conclude that online peer reviews are more important to consumers than magazines and general websites.

If we compare the effect of online peer reviews on purchases across different categories of persons with different experience on the website, we only find a significant effect for respondents who have been on the site for more than a year but less than two years. We propose the following interpretation. First, using all features of the website requires a learning curve, which justifies why we do not find a significant effect of peer reviews for visitors with less than a year of experience. Secondly, visitors with more than 2 years of experience are less interested in comments posted by people who are often less experienced.

Finally, we observe that connecting through cybercafé has a significant and positive effect on video game purchases. This effect is expected since most cybercafés propose network gaming activities and attract heavy gamers. Not surprisingly, we observe that downloading video games on peer-to-peer (P2P) networks has a negative effect on video games purchases[4] and that respondents who often play online network games have a higher propensity to purchase games.

4 Conclusion

We have analyzed the effect of online peer reviews on purchasing decisions and compared them to personal and expert reviews. We find that offline information sources

[4] This result contrasts with Bounie et al. (2005) who find that there are both “pirates” and “explorers”, the latter being people who download to gather information on new music releases. In the case of video games, Internet users have legal means to assess the quality of the game, such as “demos”. Therefore, we do not expect any positive effect of peer-to-peer downloading on video games purchases.

(specialized magazine, trial version) and online information have a significant positive effect on video game purchases. There is no evidence of substitution between offline and online information sources. In addition, we find that online peer reviews have a similar positive impact on videogame purchases as traditional media such as magazines. Online reviews seem to be most relevant for internet users who have acquired a certain experience with the online website that we focused on in this article. We can relate our results to the literature on the effect of expert reviews on demand (see for instance Reinstein and Snyder, 2005). Online forums provide a new channel to counter or dampen the effect of an unfair editorial review.

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Appendix 1: Descriptive statistics

Variable name	*Mean*
# Purchases	7.252103
Female	0.06745
City size: 10-100	0.3447926
City size: 100+	0.2564549
Age: 12	0.0182768
Age: 13	0.0474326
Age: 14	0.0793444
Age: 15	0.1167682
Age: 18	0.1169133
Age: 19	0.0942849
Age: 20	0.0728169
Age: 21	0.0526545
Age: 22	0.035103
Age: 23	0.0288657
Age: 24	0.0145054
Age: 25	0.007978
Internet access: high speed home	0.8617639
Internet access: high speed work	0.1753699
Firewall at work	0.4911517
Internet access: friends	0.4511169
Internet access: library	0.0535248
Internet access: cybercafe	0.0867421
P2P download	0.6502756
Group purchase: sometimes	0.3835219
Group purchase: often	0.0716565
Acquire from: P2P	0.0327821
Acquire from: second-hand	0.0427908
Acquire from: friends	0.0319118
Acquire from: other places	0.0184218
Acquire from: online	0.091819
Info-push: magazines	0.6153177
Info-push: general website	0.0819553
Info-pull: demo	0.4753409
Info-pull: friends	0.6035683
Info-pull: exchange	0.062228
Info-pull: read forum sometimes	0.1306934
Info-pull: read forum often	0.3402959
Info-pull: read forum always	0.5001451
Info-pull: read opinion sometimes	0.310705
Info-pull: read opinion often	0.1496954
Info-pull: read opinion always	0.0762982
Info-pull: read post info sometimes	0.1066144
Info-pull: read post info often	0.0691906
Info-pull: read post info always	0.0423557
# platforms: 2	0.2766173
# platforms: 3	0.2742965
# platforms: 4	0.1901654
# platforms: 5	0.091964
# platforms: 6	0.0320569

Network games: once a year	0.1504207
Network games: once a month	0.1633304
Network games: once a week	0.2348419
Network games: daily	0.2265738
Online experience: < 6 month	0.0362634
Online experience: < 1 year	0.0625181
Online experience: < 2 years	0.2306353

Appendix 2: Read post - information

			(1)		(2)		(3)	
Variable	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.40	0.20	-1.41	0.55	-0.19	0.41	-0.23	0.26
City size: 10-100	0.07	0.12	0.55	0.39	0.37	0.24	-0.11	0.15
City size: 100+	0.02	0.13	-0.09	0.45	-0.02	0.27	0.04	0.16
Age: 12	0.17	0.39	-0.52	0.86	0.38	0.67	0.45	0.58
Age: 13	0.64	0.25	0.89	0.62	0.27	0.47	0.84	0.35
Age: 14	0.51	0.20	1.12	0.55	0.15	0.38	0.54	0.27
Age: 15	0.28	0.17	0.80	0.54	-0.07	0.33	0.34	0.22
Age: 18	-0.06	0.17	0.37	0.64	-0.16	0.36	-0.11	0.21
Age: 19	-0.20	0.19	-1.01	0.76	0.65	0.41	-0.37	0.22
Age: 20	-0.26	0.21	-0.93	0.79	-0.15	0.44	-0.26	0.25
Age: 21	0.40	0.24	0.18	0.84	0.47	0.55	0.35	0.28
Age: 22	0.18	0.29	0.35	0.96	-0.24	0.58	0.30	0.35
Age: 23	-0.52	0.31	-0.29	1.16	-1.07	0.66	-0.45	0.38
Age: 24	0.63	0.43	1.03	1.21	0.75	0.86	0.52	0.54
Age: 25	0.01	0.57	2.43	1.75	1.91	1.18	-0.97	0.71
Internet access: high speed home	0.02	0.16	1.01	0.45	-0.28	0.32	-0.01	0.20
Internet access: high speed work	-0.01	0.14	0.53	0.39	-0.04	0.26	-0.12	0.18
Firewall at work	0.08	0.11	0.54	0.36	0.27	0.22	-0.05	0.13
Internet access: friends	0.06	0.11	-0.06	0.36	0.50	0.22	-0.06	0.14
Internet access: library	-0.11	0.23	-0.52	0.69	0.56	0.48	-0.20	0.29
Internet access: cybercafe	0.93	0.19	0.23	0.63	1.17	0.38	0.94	0.24
P2P download	0.03	0.11	0.12	0.34	-0.10	0.22	0.03	0.14
Group purchase: sometimes	0.19	0.11	0.03	0.35	0.42	0.22	0.15	0.14
Group purchase: often	1.16	0.20	2.01	0.65	0.91	0.41	1.15	0.25
Acquire from: P2P	-1.16	0.29	-0.22	1.26	-1.01	0.69	-1.21	0.33
Acquire from: second-hand	1.04	0.25	0.78	0.84	0.60	0.51	1.26	0.31
Acquire from: friends	-0.75	0.29	-1.21	1.00	-0.27	0.63	-0.82	0.35
Acquire from: other places	0.23	0.38	0.12	0.89	-0.27	0.74	0.35	0.50
Acquire from: online	-0.19	0.18	-0.49	0.61	-0.30	0.37	-0.05	0.22
Info-push: magazines	0.84	0.11	0.82	0.34	0.90	0.22	0.80	0.13
Info-push: general website	-0.06	0.19	0.44	0.59	-0.95	0.41	0.06	0.23
Info-pull: demo	-0.08	0.11	0.37	0.35	0.05	0.21	-0.19	0.13
Info-pull: friends	-0.67	0.11	-0.99	0.35	-0.85	0.22	-0.56	0.13
Info-pull: exchange	0.20	0.21	0.56	0.83	0.43	0.48	0.15	0.25
Info-pull: read post info sometimes	-0.11	0.17	0.13	0.50	0.38	0.31	-0.36	0.21
Info-pull: read post info often	0.16	0.20	0.64	0.60	0.47	0.40	-0.01	0.25
Info-pull: read post info always	0.64	0.25	-0.64	0.75	1.96	0.53	0.39	0.32
# platforms: 2	0.23	0.17	0.05	0.47	0.79	0.35	0.08	0.21
# platforms: 3	1.15	0.17	0.76	0.49	1.63	0.35	1.07	0.21
# platforms: 4	2.31	0.18	1.79	0.56	2.15	0.38	2.47	0.23

# platforms: 5	3.62	0.22	3.34	0.75	4.19	0.47	3.46	0.27
# platforms: 6	4.87	0.32	4.02	1.24	4.11	0.80	5.05	0.37
Network games: once a year	-0.17	0.17	-0.15	0.52	-0.58	0.34	0.00	0.21
Network games: once a month	0.07	0.17	0.21	0.52	-0.04	0.33	0.13	0.21
Network games: once a week	0.17	0.16	-0.15	0.47	-0.05	0.30	0.30	0.20
Network games: daily	0.93	0.16	0.19	0.52	0.57	0.32	1.15	0.20
Online experience: < 6 month	-0.23	0.28						
Online experience: < 1 year	-0.33	0.21						
Online experience: < 2 years	-0.21	0.12						
Constant	5.29	0.25	4.24	0.68	4.80	0.50	5.49	0.32
R^2	0.14		0.18		0.15		0.16	
# obs.	6894		681		1590		4623	

Appendix 3: read post - opinion

			(1)		(2)		(3)	
Variable	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.40	0.20	-1.32	0.55	0.36	0.24	-0.24	0.26
City size: 10-100	0.06	0.12	0.56	0.39	-0.10	0.27	-0.12	0.15
City size: 100+	0.02	0.13	-0.23	0.45	0.42	0.67	0.05	0.16
Age: 12	0.25	0.39	-0.26	0.85	0.34	0.47	0.56	0.58
Age: 13	0.68	0.25	0.99	0.61	0.25	0.38	0.85	0.35
Age: 14	0.54	0.20	1.04	0.55	0.00	0.33	0.57	0.27
Age: 15	0.31	0.17	0.86	0.53	-0.11	0.36	0.36	0.22
Age: 18	-0.03	0.17	0.43	0.64	0.64	0.41	-0.09	0.21
Age: 19	-0.22	0.19	-0.98	0.75	-0.12	0.44	-0.39	0.22
Age: 20	-0.24	0.21	-0.82	0.79	0.40	0.55	-0.24	0.25
Age: 21	0.41	0.24	0.29	0.83	-0.16	0.58	0.34	0.28
Age: 22	0.19	0.29	0.43	0.96	-1.05	0.67	0.30	0.35
Age: 23	-0.52	0.31	-0.38	1.16	0.88	0.86	-0.47	0.37
Age: 24	0.60	0.43	0.71	1.20	1.95	1.18	0.47	0.54
Age: 25	-0.01	0.57	2.49	1.74	-0.32	0.32	-1.03	0.71
Internet access: high speed home	-0.01	0.16	0.95	0.45	-0.01	0.26	-0.03	0.20
Internet access: high speed work	-0.01	0.14	0.58	0.39	0.26	0.22	-0.13	0.18
Firewall at work	0.07	0.11	0.54	0.36	0.55	0.22	-0.07	0.13
Internet access: friends	0.06	0.11	-0.11	0.36	0.59	0.48	-0.07	0.14
Internet access: library	-0.12	0.23	-0.53	0.68	1.24	0.38	-0.21	0.29
Internet access: cybercafe	0.91	0.19	0.16	0.62	-0.06	0.22	0.90	0.24
P2P download	0.03	0.11	0.22	0.33	0.45	0.22	0.02	0.14
Group purchase: sometimes	0.20	0.11	-0.03	0.35	0.86	0.41	0.14	0.13
Group purchase: often	1.17	0.20	1.83	0.64	-0.90	0.69	1.16	0.25
Acquire from: P2P	-1.15	0.29	0.02	1.26	0.59	0.51	-1.20	0.33
Acquire from: second-hand	1.00	0.25	0.44	0.84	-0.37	0.63	1.22	0.31
Acquire from: friends	-0.76	0.29	-1.22	0.99	-0.28	0.74	-0.80	0.35
Acquire from: other places	0.23	0.38	0.31	0.88	-0.37	0.37	0.33	0.50
Acquire from: online	-0.20	0.18	-0.49	0.60	0.84	0.22	-0.07	0.21
Info-push: magazines	0.84	0.11	0.80	0.34	-0.80	0.41	0.80	0.13
Info-push: general website	-0.05	0.19	0.40	0.59	0.08	0.21	0.04	0.23
Info-pull: demo	-0.08	0.10	0.36	0.35	-0.83	0.22	-0.20	0.13
Info-pull: friends	-0.68	0.11	-0.95	0.34	0.42	0.49	-0.57	0.13
Info-pull: exchange	0.20	0.21	0.52	0.83	-0.31	0.24	0.15	0.25
Info-pull: read opinion sometimes	-0.02	0.12	-0.30	0.41	-0.51	0.31	0.08	0.15
Info-pull: read opinion often	0.28	0.15	0.31	0.49	0.92	0.42	0.56	0.18
Info-pull: read opinion always	0.99	0.20	2.17	0.76	0.77	0.35	0.91	0.24
# platforms: 2	0.23	0.17	0.02	0.47	1.62	0.35	0.08	0.21
# platforms: 3	1.15	0.17	0.76	0.49	2.12	0.38	1.08	0.21
# platforms: 4	2.32	0.18	1.71	0.56	4.24	0.47	2.49	0.23
# platforms: 5	3.63	0.22	3.36	0.74	4.06	0.80	3.47	0.27

# platforms: 6	4.85	0.32	4.09	1.23	-0.49	0.34	5.05	0.36
Network games: once a year	-0.17	0.17	-0.12	0.51	0.03	0.33	-0.02	0.21
Network games: once a month	0.05	0.17	0.28	0.51	0.00	0.30	0.10	0.21
Network games: once a week	0.17	0.16	-0.18	0.47	0.61	0.32	0.29	0.20
Network games: daily	0.94	0.16	0.20	0.51			1.14	0.20
Online experience: < 6 month	-0.19	0.28						
Online experience: < 1 year	-0.31	0.21						
Online experience: < 2 years	-0.20	0.12						
Constant	5.22	0.25	4.23	0.69	4.99	0.50	5.34	0.32
R^2	0.15		0.19		0.14		0.16	
# obs.	6894		681		1590		4623	

Appendix 4: List of questions

- How many video games do you purchase per year? (0, 1-5, 6-10, 11-15, more than 15)
- Are you female / male? (yes/no)
- What is the size of the town you live in? (less than 10K, between 10K and 100K, more than 100K)
- In which year were you born?
- Do you have dial-up or broadband Internet access at home? (yes/no)
- Do you have dial-up or broadband Internet access at work? (yes/no)
- Is there a firewall on your network at work? (yes/no)
- Do you access the Internet in other places? (library, cybercafé, friends)?
- Have you ever downloaded music, video or software files on a peer-to-peer network? (yes/no)
- How often do you practice group purchases? (never, sometimes, often)
- Where do you obtain the video games you play with? (physical store, second-hand, P2P, friends, online, other)
- Before purchasing a video game, from which source do you look for information on the game? (magazines, specialized websites, general websites, demo, friends, exchange)
- Before purchasing a video game, do you look for information on web sites or forums dedicated to video games? (never, sometimes, often, always)
- How often and why do you read customer reviews on JV site? (to get information about games, to have an opinion different from the editorial line)
- On which game platforms do you play video games? (PC, play station 2, portable consoles, Xbox, Gamecube, other)
- How often do you play online network games? (never, once a year, once a month, once a week, daily)
- How long have you been surfing the site? (less than 6 months, between 6 months and 1 year, between 1 year and 2 years, more than 2 years)