Building an Online Reputation with Free Content: Evidence from the E-book Market

Dainis Zegners (ISTO, LMU Munich)

Research Question

"It is easier to add to a great reputation than to get it"
(Roman Proverb - Publilius Syrus)

Sellers' start-up problem in markets with asymmetric information:

- Harder to sell without (good) reputation
- Reputation built by selling and buyers providing feedback

Important strategy to overcome this problem:

- Introductory pricing to build reputation

Result

Introductory pricing involves trade-off:

- Low price attracts more buyers who spread information on seller
- Low price attracts buyers with lower preference who spread worse information

$\Longrightarrow$ Negative selection effect of pricing low on reputation

Empirical Setting

Online self-publishing:

- Enabled by decrease in distribution cost through digital distribution
- By 2013, about 10 **%** of books in bestseller lists are self-published (Waldfogel and Reimers, 2015)

Online self-publisher *Smashwords.com:*

- Second largest online self-publisher
- Sells e-books both on its website and distributes them to other outlets (e.g. *Apple's iBookstore, Kobo, Barnes & Noble*)
- Authors set retail price and *Smashwords* takes $\approx$ **20%** sales commission (Agency model)

Self-published authors' entry problem:

- No entry barriers and no editorial quality control
- Each self-published title on *Smashwords* competes with $\approx$ 6,000 other new titles each month and $\approx$ 300,000 older titles
- Self-published authors cannot rely on advertising by publishers, rely mainly on word-of-mouth

Popularity of "free" to built readership:

- Smashwords encourages authors to offer e-books for free
- Claims free e-books get 41x more downloads than priced e-books
- Many authors offer at least some of their e-books for free
- Overall, $\approx$ **50,000** e-books are offered for free on Smashwords vs. $\approx$ **250,000** priced e-books

Quote from *Smashwords's* Blog:

> *For many first-time authors, one of your biggest challenges is to get your first readers and your first reviews . . . Free builds readership and can help you establish your first reviews . . . Or, if your book has been out a long time and sales have dwindled, try a temporary free promotion to rev up reader-ship, reviews and word of mouth.*

Theoretical Framework

Product with consumer i's utility given by:

$$u_i = q + \epsilon_i$$

q: Product's quality (same for all consumers)
ϵ_i: Consumer's match value, randomly distributed with mean 0

Before buying: Consumer observes noisy private signal $S_i(u_i)$ with mean u_i

Buying decision: Consumer buys if $S_i(u_i) \geq p$ with p the product's price

After buying: Consumer learns u_i by consuming product

Rating decision: Consumer gives rating with probability s according to

$$r_i = u_i = q + \epsilon_i$$

Conditional expectation of observed rating:

$$E(r_i|S_i \geq p) = q + E(\epsilon_i|S_i \geq p)$$

Implying for expectation of rating:

$$\frac{\partial E(r_i|S_i \geq p)}{\partial p} > 0$$

and variance of rating:

$$\frac{\partial Var(r_i|S_i \geq p)}{\partial p} < 0$$

Hypothesis 1: A Rating of a free product ($p = 0$) will on average be lower than the rating of a purchased product ($p > 0$) .

Hypothesis 2: Ratings of a free product ($p = 0$) will on average have a higher variance than ratings of purchased products ($p > 0$).

Data

Data collected on 45,000 e-books with total of 109,000 ratings

Table: Data on e-book-level

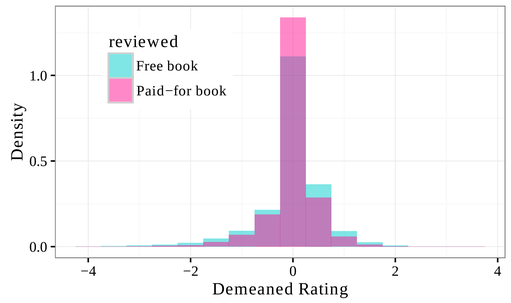
Statistic	N	Mean	St. Dev.	Min	Median	Max
Free Book (1=Yes)	45,662	0.39	0.49	0	0	1
Price	45,662	1.93	5.78	0.00	0.99	999.00
Sample Size (Percent)	27,842	0.19	0.11	0.00	0.20	1.00
Sample Offered (Yes/No)	27,842	0.92	0.26	0	1	1
N Ratings	45,662	2.57	5.35	1	1	517
Average Rating	45,662	4.42	0.83	1.00	5.00	5.00
Length E-Book in Words	45,637	42.83	48.69	0.01	23.56	1,234.00
Time Since Published (Weeks)	45,662	153.80	72.57	1.14	155.90	384.60
Number Previous Books	45,662	5.97	52.13	0	1	7,144
Number Books	45,662	17.17	165.20	1	6	17,242

Table: Data on level of rating

Statistic	N	Mean	St. Dev.	Min	Median	Max
Stars	109,511	4.48	0.87	1	5	5
Time Since Published	109,511	169.50	74.22	1.14	172.90	384.60
Free Book Rated	109,511	0.45	0.50	0	0	1

Empirical Analysis

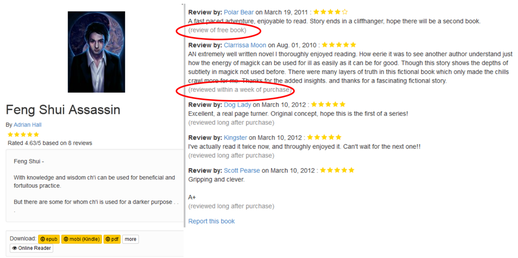
Figure: Distribution of Ratings (Demeaned)



Note: Each rating is demeaned by mean rating of an e-book.

Identification

Using e-books with ratings for both free and purchased version



Regression Equation

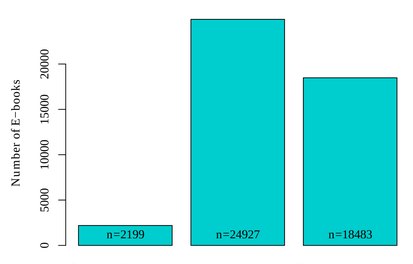
Linear regression with e-book level fixed effects:

$$Rating_{ij} = \beta FreeBook_j + f_i + Controls_j$$

$$|Rating_{ij} - MeanRating_i| = \beta FreeBook_j + f_i + Controls_j$$

$Rating_{ij}$:	Rating j for e-book i
$MeanRating_i$:	Mean Rating of e-book i
$FreeBook_j$:	Dummy indicating whether rating j for free e-book
f_i:	E-book-level fixed effect for e-book i
$Controls_j$:	Controls on level of rating j

Figure: Number of e-books with ratings for free and purchased versions



Main Results

Table: Impact of Offering Free E-book on Ratings

	Dependent variable:	
	Rating (1-5 Stars)	
	Pooled OLS	*OLS with Fixed Effects*
	(1)	(2)
Free Book (Yes=1)	**−0.074*****	**−0.090*****
	(0.007)	**(0.021)**
E-book Level Controls	Yes	No
Rating Level Controls	Yes	Yes
Observations	109,421	109,421
R^2	0.107	0.613
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Robust standard errors in parentheses	

Table: Impact of Free E-books on Rating Dispersion

	Dependent variable:	
	Abs(Demeaned Rating)	
	Pooled OLS	*OLS with Fixed Effects*
	(1)	(2)
Free Book (Yes=1)	**0.074*****	**0.041*****
	(0.004)	**(0.012)**
Rating Level Controls	Yes	Yes
E-book Level Controls	Yes	No
Observations	109,421	109,421
R^2	0.183	0.639
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Robust standard errors in parentheses	

Additional Results

Reciprocity:

- Negative selection effect smaller for female reviewers
- Consistent with women acting more reciprocal upon receiving "gift" of free e-book (Croson and Buchan, 1999)

Length of Reviews:

- Free e-books receive shorter reviews (number of characters)

Genres:

- Negative selection effect stronger for genres with higher variance in ratings

Types of Reviewers:

- Including whether a reviewer previously rated e-book from same genre or same author strongly impacts rating
- Including both variables reduces negative selection effect

References

Croson, R., and N. Buchan. 1999. Gender and Culture: International Experimental Evidence from Trust Games. *American Economic Review* 89(2):386–391.

Waldfogel, J., and I. Reimers. 2015. Storming the Gatekeepers: Digital Disintermediation in the Market for Books. *Information Economics and Policy* 31:47–58.