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Ratings, Reviews, Recommendations and the Consumption of Cultural Goods

Paul Belleflamme*
Martin Peitz**

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*Université catholique de Louvain
**University of Mannheim

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Ratings, reviews, recommendations and the consumption of cultural goods*

Paul Belleflamme
(Université catholique de Louvain)

Martin Peitz
(University of Mannheim)

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Abstract: In this short paper, we elaborate on the importance of ratings, reviews and recommendations (short, 3R systems) for the consumption of cultural goods. Our aim is to provide a non-technical perspective on the issue informed by the existing literature on the topic.

JEL Classification: L82, Z11

Keywords: Cultural goods, rating system, recommender system, consumer feedback, long tail

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1. Introduction

Before reading this paper, you cannot know whether you will find it interesting, instructive or entertaining (even if you are familiar with the authors' previous work). This paper is what economists call an experience good, a good whose quality cannot be ascertained before it is actually consumed. Because of this uncertainty, you may decide not to read this paper and use your time differently. Anticipating this risk, a publisher should put in place a number of strategies for not losing your custom. First, they may encourage previous readers to rate and review the contents of this piece, hoping that a high average rating and positive reviews will lead you to infer that this chapter is of high quality or is a good fit for your interests. Also, it may not be by chance that you came across this paper in the first place; in fact, you may have been brought to it by a recommender system, using an algorithm that inferred that you would probably like it (on the basis of your past searches on various websites and of the behaviour of readers sharing your interests or characteristics).

In general, potential consumers of cultural goods appreciate ratings, reviews and recommendations because they incur an opportunity cost in evaluating how cultural goods fare in terms of quality and how they fit their tastes. The fact that consumers rely on what other consumers did in the past to make better-informed decisions has been observed for as long as cultural goods have existed. Yet, digital technologies and the Internet have dramatically altered the role that ratings, reviews, and recommendations systems (hereafter "3R systems") play for cultural goods. They have done so in three major ways, which we explore in this paper. First, digital platforms have developed 3R systems to an unprecedented scale and have thereby become the main intermediaries guiding consumption of cultural goods. Second, 3R systems have been turned into strategic instruments for competing platforms. Third, the increasing influence of 3R systems on consumers' choices has affected cultural diversity.

2. Digital platforms and 3R systems

We define platforms as undertakings whose core mission is to enable and to generate value from interactions between users (see, e.g., Belleflamme and Peitz, 2018a). Because the Internet and digital technologies greatly contribute to reducing transaction costs, most platforms operate online nowadays and are then called 'digital platforms'. Prominent digital platforms for the provision and distribution of cultural goods include Netflix, Hulu, Amazon Prime Video (movies, TV shows), Spotify, YouTube, Apple Music, Pandora, Deezer, Tidal (music), Steam, Epic Games (games), Amazon KDP, Apple iBook (e-books), Facebook, YouTube, Periscope, Instagram Live Video (live streaming of performing arts). Digital platforms also exist for the promotion and diffusion of other cultural goods, such as paintings, sculptures or crafts (e.g., artwizard.eu organizes digital exhibitions); yet, because the consumption of these goods is much less scalable, these platforms are less prominent.

As digital platforms have gradually become the main vector for the consumption of cultural goods, they are now often more prominent than traditional cultural intermediaries (such as labels, critics, or specialist media) in dealing with the asymmetric information and matching problems raised by cultural goods. Platforms can integrate services by traditional cultural intermediaries (for example, product on Amazon are shown with quotes from professional critics) or use in-house experts (e.g., Spotify creates very popular curated lists). In line with traditional practice (e.g., Billboard Hot 100 Chart), platforms also aggregate past consumption decisions to provide unconditional recommendations (for example, Spotify highlights the most popular songs through the algorithmic playlist Top50).[1] However, on many digital platforms, consumers can obtain valuable, more-granular information from reviews and ratings by other consumers. Platforms play then the following two roles: they invite consumers to evaluate various goods that have proved successful or popular with others, and they organize the exchange of the information across consumers. As information is provided and accessed by consumers, ratings and reviews are part of platforms' information-*pull* strategy. In parallel, most platforms also pursue an information-*push* strategy by making recommendations to specific buyers; recommendations may then be based on the consumers' characteristics and observed behaviour, as well as on the goods' popularity and features. Importantly, digital platforms exploit the interdependence between information-pull and information-push strategies by using ratings and reviews as inputs for their recommendation algorithms. As a result, the efficiency of their 3R systems increases with the volume, variety, and velocity of the data that they can collect about their users and the transactions they conduct.[2] This huge quantity and diversity of data also gives digital platforms another advantage over traditional recommenders: they are able to personalize recommendations and ratings, and so to cater better to their diverse audience.[3]

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[1] As Aguiar and Waldfogel (2018) show, being placed on a curated or non-curated playlist by Spotify has a strong impact on the number of times that a song is streamed.

[2] As an illustration, it is estimated that Netflix subscribers (130 million worldwide as of July 2018) give about 4 million ratings and make about 3 million searches per day. Netflix also tracks its users' behaviour: what they watch, when (day and time of the day), where (zip code), how (on which device), completion rate, viewing pattern (pause, rewind, or fast forward), browsing and scrolling behaviour. Combining this data with a micro-classification of content (by genre, time period, mood, plot conclusiveness, etc), Netflix is able to make recommendations that influence about ¾ of its users' activity (see Jenkins, 2016, and Bulygo, 2018).

[3] Greg Peters (Netflix's Chief Product Officer) said in 2018: "Essentially, we create 300 million different versions of Netflix," (where 300 million is the total number of profiles that Netflix's subscribers have created; see Roettgers, 2018).

Of course, 3R systems can only help consumers if they contain relevant information. As far as ratings and reviews are concerned, their informativeness may be limited because of the decisions made by their providers, i.e., the consumers of cultural goods. First, consumers may leave noisy ratings and reviews (because they fail to understand what they are asked and base their evaluation on irrelevant experiences, or because they have idiosyncratic tastes). Second, some—pretended—consumers may have strategic motives to distort their evaluation and publish 'fake reviews'; in particular, authors, publishers or vendors may manipulate reviews to promote the sales of their goods (and/or slow down the sales of rival goods).[4] Third, consumers may be more prone to leave positive than negative feedback, due to so-called 'asymmetric herding behaviour'; for instance, Muchnik, Sinan and Taylor (2013) show that early positive ratings increase the likelihood of later positive ratings by 32per cent.[5] Finally, consumer's ability to learn from ratings and reviews may be hampered by another behavioural bias, which leads consumers to treat correlated information as if it was coming from independent sources; because of such 'correlation-neglect', consumers may fail to acknowledge that the ratings they observe depend themselves on information retrieved from earlier ratings, thereby putting too large a weight on earlier ratings.[6]

It is not clear a priori what attitude digital platforms should have regarding how informative ratings and reviews are. On the one hand, more informative rankings and reviews tend to make the platform more attractive; platforms may then want, for instance, to fight errors and manipulations. On the other hand, for-profit platforms may increase their revenues by sacrificing informativeness (for example, by affecting the aggregate rankings of goods, or by varying the ordering and display of individual reviews). By the same token, digital platforms may find it profitable to distort their recommender system or make it less informative. For instance, as Bourreau and Gaudin (2018) suggest, a digital platform that pays royalties to producers of cultural goods may prefer to bias its recommendations so as to enhance the consumption of goods that come with lower royalties.[7]

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[4] Anecdotal evidence of manipulations of that sort came from the accidental revelation of the true identities of book reviewers on Amazon.ca. It appeared that a fair share of these reviews was written by people with an interest in the sales of the books, i.e., the publishers, the authors themselves or their relatives and friends (see Harmon, 2004). Mayzlin (2006) also explains how professional marketers are hired in the music industry to post positive reviews of new albums on fan sites and online chat rooms.

[5] See Belleflamme and Peitz (2018b) for a detailed discussion of the previous three points.

[6] See, e.g., Enke and Zimmermann (2019), who provide evidence for the existence of correlation neglect in an experimental setting.

[7] Bourreau and Gaudin (2018) give the example of Pandora, an online radio platform, which recognized that it manipulates its recommendation algorithm to affect the frequency at which a music title is played according to the ownership of this title; they also indicate that movie streaming platforms are suspected of biasing personalized recommendations towards their own productions. Sisario (2017) reports that Spotify tends to feed its popular playlists with tracks that the platform commissions from a set of artists and for which it pays lower royalty rates.

3. The strategic use of 3R systems

Even if the main function of 3R systems is to solve the inherent asymmetric information and matching problems of cultural goods, digital platforms also deploy these systems for strategic reasons. By exploiting their 3R systems to leverage network effects and customize the cultural goods that they produce, digital platforms may find effective ways to retain their consumers, and even gain market shares, in cultural markets that are increasingly competitive. Let us examine how.

Recall that platforms' core mission is to facilitate the interaction between users and to generate value from this interaction. The main vector of value creation is the active management of the network effects that platform users exert on one another. Positive network effects arise because the more users interact on the platform the more valuable the interaction is for every user. The point we want to make here is that 3R systems contribute to produce positive network effects. More precisely, 3R systems generate the following self-reinforcing mechanism: when a platform attracts more users, it collects more ratings and reviews and monitors more transactions; as a result, the platform can analyse bigger and richer datasets, which allows it to make reviews and ratings more informative, and recommendations more personalized and precise; the platform then becomes more attractive and the user base grows. In sum, more users attract more users.

Yet, a condition for this positive feedback loop to be turned into a competitive advantage is that network effects be specific to the platform; that is, only the users of the platform should benefit from the enhanced quality of the 3R systems (otherwise, the platform would not be able to appropriate the value it created by improving its 3R systems). This is certainly so for recommender systems, as recommendations are largely based on a consumer's own behaviour; for instance, the more tracks you listen to on a streaming platform, the better the matches that the platform's recommender system will suggest to you, as its algorithm will have a more accurate representation of your tastes. As for ratings and reviews, even if consumers of cultural goods have often access to them whether or not they purchase on a particular platform, studies show that consumers tend to take note of ratings and reviews only on platforms on which they complete their purchase.[8] This suggests that the network effects stemming from rating and review systems tend also to be 'platform-specific'.

Another, complementary, way by which digital platforms can use their 3R systems to gain a competitive advantage is to capitalize on the vast amount of data that these systems generate to

[8] See, for example, Chevalier and Mayzlin (2006), who analyze the effects of book reviews on the sales patterns of Amazon and Barnes & Noble (the two leading online booksellers in the USA at that point in time).

produce their own content and serve it to the most appropriate audience. As Smith and Telang (2018) explain, "the wealth of data maintained by digital entertainment platforms can foster more creative freedom, not less. Instead of focusing solely on offerings with sure-fire mass appeal, these platforms can take a chance on unique content because they can deliver that content directly to the best audience."

Together, platform-specific network effects and content customization create switching costs for consumers of cultural goods: once they have subscribed with a particular digital platform, they tend to stay on that platform, as switching would mean losing a series of benefits (customized content, useful recommendations, informative ratings and reviews, curated playlists, social interactions with like-minded users, and so on). In the current context, in which consumers face difficulties in porting their data across digital platforms, switching costs allow platforms to enhance consumer loyalty and to compete better for their attention, which is the ultimate scarce resource in cultural markets.

4. 3R systems and the diversity of cultural goods

Most cultural goods markets exhibit a distribution of sales that is highly skewed in the sense that a limited number of goods (often a few hundred) account for the bulk of sales, while the vast majority of goods (which constitute the tail of the distribution) sell only very few units. As Brynjolfsson, Hu and Smith (2006) argue, online markets have a longer tail in the sales distribution than traditional offline markets. One driving force on the supply side stems from the lower inventory and distribution costs that allow online vendors, with 'virtual shelf space', to give access to a broader variety of goods than brick-and-mortar stores. There are further effects that contribute to increase the variety produced: online markets enhance the (re)production of niche products (for example, on-demand printing of books), as well as the production of user-generated content. On the demand side, 3R systems (together with search and sampling tools) have the potential to make consumers aware and attentive of this increased supply. Yet, awareness and attention are a necessary but not a sufficient condition for consumption. The question of interest is thus whether 3R systems also lead to the consumption of this increased supply, thereby making the long tail thicker (as the sales of niche goods would increase).

Note first that independently of 3R systems, there are several reasons why consumers may not take advantage of the increased in the variety supplied:[9] information overload (more variety intensifies the consumers' cognitive burden, which prevents them from making optimal decisions),

[9] See Bourreau, Maillard and Moreau (2015) for a detailed explanation.

incomplete information (more variety and an asymmetry of visibility make incomplete information problems more acute), herding (confronted with more experience goods, consumers may abandon their private information in favour of inferences based on the popularity of goods), and conformity (consumers caring about their social status may conform to the choices of other consumers instead of following their own tastes).

How do 3R systems change the picture? It is plausible that the customization of recommendations (and possibly of ratings and reviews) alleviates the problems caused by information overload or incompleteness; we have indeed argued above that as digital platforms accumulate a larger volume and variety of data about their consumers, they can improve their algorithms and, thereby, expose consumers to a limited set of information that is directly relevant for them. One example is Spotify's '*Discover Weekly*' playlist, which makes a set of personalized recommendations to each user. The interplay between 3R systems and consumers' imitation behaviour (due to herding and/or conformity) is, however, harder to evaluate. On the one hand, 3R systems reporting popularity measures may lead to more concentrated sales, with 'best-sellers' or 'blockbusters' becoming even more popular. On the other hand, the directed search, which is inherent in recommender systems, may reduce consumers' search costs to the extent that they feel more encouraged to search outside the set of cultural goods that they already know and like. Importantly, the relative weight of these two forces varies according to the way 3R systems are designed. As Peukert (2018) explains, recommender systems using 'collaborative filtering' base their recommendations on consumers' ratings and past consumption behaviour; as a result, these systems cannot recommend cultural goods that were never consumed or rated, which tends to make sales more concentrated. To counteract this tendency, hybrid systems also take other sources of information into account and artificially inflate the importance given to newly created goods. Moreover, the last generation of 3R systems personalize not only recommendations but also their appearance.[10]

Theoretical studies suggest that if the consumer population is characterized by taste heterogeneity, 3R systems that provide personalized recommendations may lead to a thicker tail in the aggregate, meaning that less-popular products receive a larger share of sales after the introduction of a recommender system (see Tucker and Zhang, 2011). Two recent empirical analyses support this conjecture.[11] Hosanagar et al. (2014) show that personalized recommendations induce consumers

[10] As an illustration, Peukert (2018) reports the following quote by Netflix engineers: "Someone who has watched many romantic movies may be interested in *Good Will Hunting* if we show the artwork containing Matt Damon and Minnie Driver, whereas, a member who has watched many comedies might be drawn to the movie if we use the artwork containing Robin Williams, a well-known comedian."

[11] For a review of the earlier empirical literature (from 2008 to 2012), see Bourreau, Maillard and Moreau (2015).

to widen their interests. Kretschmer and Peukert (2018) study how recommendations coming from YouTube affect the variety of music that consumers demand through other channels; they show that these recommendations trigger more sales of songs by new artists compared to established artists. A likely outcome, then, is that more niche products will be put on the market and that product variety in the market will increase.

We close this discussion by mentioning two other factors that might affect the variety of consumed cultural products and that are linked indirectly to 3R systems. First, on top of developing 3R systems, digital platforms have also introduced new pricing schemes that may influence consumers' behaviour. In particular, users of streaming platforms usually pay a flat rate against an unlimited access to a huge library of content. Compared to a pay-per-view scheme, a subscription mechanism substantially lowers the cost of experimentation for consumers.[12] One expects thus the switch to streaming to increase the discovery of new cultural goods. Datta, Knox and Bronnenberg (2018) confirm this conjecture empirically: they show that the adoption of streaming substantially raises the quantity and diversity of music consumption.

Second, as already mentioned above, the volume and variety of data generated by consumers' behaviour on digital platforms (what they consume, how they consume, how they react to recommendations, the ratings and reviews they produce, etc.) allow platforms to produce cultural goods with features that are more appealing to specific groups of consumers. The question remains as to whether such mass customization reduces or enhances variety. Smith and Telang (2018) suggest the latter; they report estimates according to which the hit shows produced by Netflix attract fewer viewers than corresponding shows produced by traditional TV networks. They interpret this not as a sign that Netflix fails to reach its consumers but rather as evidence that Netflix's strategy is precisely to meet its viewers' needs by expanding their choice set and offering them a collection of movies and shows that caters to various tastes.

5. Conclusion

3R systems (ratings, reviews and recommendations) have always played a crucial role in alleviating the asymmetric information and matching problems raised by cultural goods. We have explained in this chapter how digital platforms profoundly alter this role: by developing 3R systems to an unprecedented scale and turning them into strategic instruments, digital platforms significantly affect cultural diversity.

[12] 3R systems in combination with flat rates are possibly more effective in combatting piracy than pay-per view schemes, as they lead to a low sampling cost. On sampling in the context of piracy, see Peitz and Waelbroeck (2006).

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