Title of the Paper

Author 1[1], Author 2[2]

[1]School of Economics and Management, AAA University, Beijing 100084, China;123@qqq.com

[2]Business School, BBB University, Beijing 100090, China;456@qqq.com

Abstract

In this paper, we investigate two competing pay-tv platforms or free-to-air media platforms that consist of two groups of agents: viewers and advertisers. The pay-tv platforms can receive revenues from charging viewers pay-per-view prices and advertising, while the free-to-air platforms can only obtain all incomes from advertising. We discuss and compare advertising intensities and program content provisions of the two competing media platforms. Our findings show that if the extent to which viewers dislike advertising (the nuisance for advertising) is more massive than the marginal benefit that advertisers receive from an additional viewer, the pay-tv stations tend to maximally differentiate their program content and charge the viewers higher pay-per-viewprices. If the nuisance approaches to the marginal benefit, however, both stations should offer similar program content, and charge the viewers lower prices under certain conditions. Particularly, if both platforms provide duplicated content, they should subsidize the viewers. In contrast, we show that the free-to-air media platforms never duplicate program content with a positive nuisance for advertising, and tend to offer maximal differentiated content if the nuisance is sufficiently large. Moreover, we reveal that if the viewers greatly dislike advertising (care less about advertising), the advertising volume of the pay-tv platforms is lower (higher) than that of the free-to-air platforms. Finally, we extend our base model to the case in which a pay-tv platform competes against a free-to-air station, and numerically show that the profit of the pay-tv platform may be larger or smaller than that of the free-to-air station.

Keywords: Media platforms, two-sided markets, content provision, advertising intensity, product differentiation.

1 Introduction

Media platforms (such as TV channels, web portals, newspapers, magazines) usually receive a significant market share of their revenues from advertising.1 For example, free to-air stations such as MANGO or CCTV in China make profits from advertisers who place advertisements on the channels;2 pay-tv stations such as AMC and TNT in the U.S. receive revenues from both viewers who subscribe to the channels and advertisers; and web portals such as Baidu and Sougou in China earn profit from advertisers who place banners on the portals web pages. These platforms need to appeal to more viewers who are potential customers of advertisers products with their program content and thereby advertisers. Viewers who join these platforms, however, may dislike advertising because advertisements often interrupt and lengthen the program. At the same time, if there exist more viewers spending time on the platforms, advertisers are more likely to place advertisements, which would

bring more revenue to the platform. These media platforms share a typical characteristic of two-sided markets, i.e., viewers exert a positive network effect on advertisers while advertisers exert a negative one on viewers. We note that these markets have been extensively investigated in recent years, see, e.g.,**?**. One of their most crucial assumptions is that the two-sided market structure takes the form of a competitive bottleneck, that is, viewers choose only one of the platforms (i.e., they single-home), while advertisers may place advertising on several platforms (**?**). This implies that the platforms compete for viewers but not for advertisers. However, platforms (especially in the TV industry) often need to compete for advertisers (i.e., firms who need to advertise on the platforms to approach more customers). The reason is that, e.g., advertisers or firms(especially medium-sized or small firms) marketing departments have pre-specified and limited budgets for advertising expenditures (**?**). For example, firms would only spend around 5% of the historical sales revenue on advertising. Consequently, to expand two-sided market shares and maximize profits, platforms(e.g., free-to-air stations MANGO and CCTV, or pay-tv stations AMC and TNT) will trigger a competition and need to decide the amount of advertising and program content to balance the number of viewers and advertisers. Based on the issues above, the following practical questions deserve further investigations.

2 Literature Review

Our work is closely related to two streams of research. The first flow is associated with the pricing strategies of two-sided markets, and the second one is related to competition between media platforms. We will briefly review the two streams of literature in this section.[1]

3 The Model

Consider two media platforms, who compete against each other for two groups of agents, i.e., viewers (customers) and advertisers (producers). In the following, we view television channels as the underlying example. Our models also hold for other appropriate situations (radio stations, magazines, etc.). When these two platforms are radio stations or television channels, we assume that customers have the equipment to obtain access to the platforms.

4, The datasets generated during and/or analysed during the current study are not publicly available due to [REASON(S) WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.

5,Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

6,The data that support the findings of this study are available from [THIRD PARTY NAME] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [THIRD PARTY NAME].

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Author 1 is an assistant professor of ******.
Author 2 is an associate professor of ******.