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Advertising pricing models in media markets: Lump-sum versus per-consumer charges [☆]

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ABSTRACT

Based on a model of asymmetric competition between a pay and a free media platform, this paper investigates advertising pricing models. The pay media platform generates revenues from media consumers through subscription fees, while the free media platform generates revenues from charging advertisers either on a lump-sum basis (regime A) or on a per-consumer basis (regime B). We show that the free platform produces a higher advertising level and attracts more consumers in regime A than B although advertisers must pay more for ads and consumers dislike ads. Moreover, the pay media platform faces higher subscription fees and lower consumer demand in regime A than B. Compared to regime B, the profit of the free (pay) media platform is higher (lower) in regime A, while aggregate profits are higher only if the consumers' disutility from ads is sufficiently low. In addition, advertisers are better off in regime A than B, while the opposite is true for the media consumers. Finally, in small media markets, social welfare is lower in regime A than B, while this is true in large media markets only if the media consumers' disutility from advertising is sufficiently high.

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1. Introduction

Two generic business models coexist and compete in the various media markets: either media platforms provide their content to the media consumers for free and generate revenues from advertising (free media platform), or media platforms do not place ads but charge their consumers a

subscription fee for access to their contents (pay media platform).¹ Free media platforms possess two basic ways to charge advertisers. Advertisers are charged a lump-sum fee for placing ads or they are charged on a per-consumer basis so that the advertising charges are a positive function of the consumer size. For example, an online media platform can ask advertisers a certain fixed amount for placing ads during a certain time period (lump-sum charges) or it can charge advertisers via the concept of Pay-per-Click or

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¹ A third hybrid business model exists where media platforms place ads and charge consumers (e.g., daily newspapers and magazines). However, in this paper we focus on the two generic models: pay vs free platforms. One justification for the coexistence between pay and free media platforms is that media consumers usually dislike the presence of ads because they decrease the entertainment value of consuming the media content, see Depken and Wilson (2004), Anderson and Coate (2005), Wilbur (2008), and Casadesus-Masanell and Zhu (2010). As a result, some media consumers are willing to pay for media content and are switching to ad-free pay platforms to avoid ads (Tåg, 2009b).

Cost-per-Click where advertisers must pay for each click on the ad link (per-consumer charges). Other examples for per-consumer advertising charges include pricing models such as CPM (cost per thousand impressions/views), CPA (cost per action, where the required action is defined by the advertisers, e.g., signing up for a service or ordering products etc.), and CPV (cost per view/visitor). Particularly, Google applies the pricing model “AdWords” where advertisers create their ads and choose keywords which are related to their business. When consumers search one of the keywords on Google or use relevant Google services such as Google Mail, the corresponding ads appear next to the search results and advertisers have to pay only if consumers click on the ads rather than paying a lump-sum charge for their ads.

Yet, are per-consumer advertising charges really the optimal pricing strategy for a media platform and is the shift towards consumer-based instead of lump-sum advertising charges socially desirable? Based on a simple theoretical model of a media market that is served by one pay media and one free media platform, this paper tries to answer these and related questions by formally investigating the economic effects of the two distinct advertising pricing models on relevant outcomes such as platform profits, consumer and advertiser surpluses as well as social welfare. We conduct our analysis in a framework of asymmetric competition because such a setting is common in the real world but has been widely neglected in the existing literature. Asymmetric competition between a pay and a free media platform exists across a broad range of industries. For instance, pay TV channels compete against free TV Channels (e.g. HBO vs. CBS), subscription newspapers compete against free newspapers (e.g. Wall Street Journal vs. USA Today), fee-based webmail providers compete against free webmail providers (e.g. Yahoo! Mail Plus vs. Gmail), and paid dating platforms compete against free dating platforms (e.g. eHarmony vs. POF). In accordance with the existing literature (e.g., Anderson and Coate, 2005; Peitz and Valletti, 2008), we model media competition in the Hotelling fashion. That is, the media consumers consume ad-free media content on the pay platform and pay a positive subscription fee or they consume the media content for free and accept the presence of advertising. The free media platform can charge its advertisers either a lump-sum charge (regime A) or on a per-consumer basis (regime B). In regime A, the advertisers pay a fixed amount for placing an ad on the free media platform, which does not explicitly depend on the consumer size. In regime B, the price that advertisers must pay for placing an ad is an increasing function of the consumer size. To analyze these two pricing models, we model the advertising market explicitly and assume that advertiser demand positively depends on the consumer size.

Our model shows that the dominant pricing strategy for the free media platform is to apply lump-sum charges for the advertisers because it realizes higher profit compared to a per-consumer advertising charge. Moreover, the advertising level on the free platform is higher and the platform attracts more consumers under lump-sum charges although advertisers must pay more per ad and consumers dislike ads. We find that the competing pay media platform’s profit is lower if the free platform imposes a lump-sum charge on

advertisers because the lower consumer demand overcompensates for the higher subscription fee. As a result, the strength of media consumers’ disutility from ads determines whether aggregate profits are higher in regime A or B. Moreover, the advertisers are always better off and the media consumers are worse off if the advertiser charge is levied on a lump-sum basis. Overall, in small media markets, applying lump-sum advertiser charges always yields lower social welfare; in large media markets, this finding is true only if the media consumers’ disutility from ads is sufficiently high.

In the remainder of the paper we proceed as follows. In the next section, we review the related literature. Section 3 introduces the basic model setup and Section 4 provides the equilibrium analysis. In Section 5, we compare the relevant outcomes of both regimes and derive our main results. Section 6 discusses the robustness of the results. Section 7 concludes the paper.

2. Related literature

Our analysis of asymmetric competition between a pay media platform and a free media platform that charges advertisers contributes to the literature on the economics of media markets in two dimensions.² First, we add to this literature by comparing lump-sum and per-consumer advertiser charges in an integrated framework. Second, we contribute to the literature because prior research focuses on symmetric competition between either free media platforms or pay media platforms and then compares the two independent scenarios separately.

In the area of media economics, most papers that explicitly model the advertising market explore one of the two advertising pricing models (lump-sum or per-consumer charges). Papers that assume a lump-sum advertising charge include, e.g., Gabszewicz et al. (2001), Crampes et al. (2009), Kind et al. (2009), and Reisinger (2011).

Gabszewicz et al. (2001) develop a model in which two symmetric competing newspapers play a three-stage game and sequentially set the political opinion, the prices of newspapers, and the advertising prices. They show that newspaper editors often tend to sell tasteless political messages to their readers in order to augment the audience size and therefore to become more attractive to advertisers. Crampes et al. (2009) present a model of media competition with free entry by considering the number of active media platforms as endogenous.³ In their model of symmetric competition, the media platforms are either financed with advertising and subscription revenues or they are solely funded by advertising receipts. The authors find that under constant or increasing returns to scale in the audience size, there are an excessive number of firms and underprovision of advertising in the markets. Kind et al. (2009) investigate how the number of the media platforms and the level of horizontal differentiation between media platforms could affect the way media firms raise their revenues. They demonstrate that symmetric media platforms generate less

² For a summary of the literature, see Anderson and Gabszewicz (2006).

³ See also Choi (2006) for a model of broadcast competition with free entry.

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