



The role of online platforms for media markets – Two-dimensional spatial competition in a two-sided market

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ABSTRACT

We analyze the market for online and offline media in a model of two-dimensional spatial competition where media outlets sell content and advertising space. Consumer preferences are distributed along the style and type of news coverage where the distance costs may vary across dimensions. For integrated provision of online and offline platforms we show that entering the online market reduces average profits and may even constitute a prisoner's dilemma. Specialized provision may yield polarization in the style and type dimensions. This is in contrast to the maximum–minimum differentiation result previously established in the literature on multidimensional horizontal competition. We show that maximal differentiation in both dimensions occurs due to the discrete nature of the type dimension and asymmetric advertising markets.

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1. Introduction

In the information age, consumers demand news media to be perfectly tailored to their needs with respect to the content and, perhaps more importantly, the format of the distribution channels. This forces media outlets to consider expanding or even replacing traditional distribution channels with online platforms. In a recent survey, the Newspaper Association of America revealed that the platform type is highly relevant for consumer utility: 60% of the interviewees strongly agreed to the statement “I like to follow the local newspaper *in whatever format is convenient for me*” (Newspaper Association of America, 2012).¹ In this paper, we analyze possible outcomes of online strategies we observe in reality: Media outlets may introduce an online platform that duplicates their offline content, they may specialize in either online or offline provision, or they may refrain from entering the online market altogether. This allows us to draw conclusions about how the future landscape of online and offline platforms might look like.

First, we show that not all of these strategies increase media outlets' profits in comparison to the status quo without online platforms. The reason is that integrated media outlets cannot capitalize on the technology dimension of consumer preferences. Second, when specializing in one platform each, we show that media outlets may polarize in technologies and style of coverage by providing maximally differentiated content on platforms of different types. A possible outcome would be that online platforms focus on tabloid-style “soft” content while “hard” news coverage is published on offline platforms. Providers of hard news follow a traditional style of journalism with in-depth coverage and a rather neutral and sober tone in their articles. Topic-wise, they lean towards covering a recent Congress debate rather than a crime story. Providers of soft news, on the contrary, write more informally and cover more sensational news stories.² In the type dimension, we account for the fact that online and offline platforms cater to different needs of consumers as indicated in Table 1. While offline platforms apparently offer a rather agreeable reading experience, online platforms are strong in items related to

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¹ Note that 90% of the interviewees “generally agree” to this statement. This shows that the vast majority of individuals place value on receiving the news in their preferred type of medium.

² For print media, the term “broadsheet” (originally referring to the size of the paper the newspaper is printed on) is often used for newspapers with hard news coverage. Correspondingly, newspapers with predominantly soft news are referred to as “tabloids” (providing shorter articles typically printed on smaller pages). For a detailed definition of hard and soft news see for instance (Lehman-Wilzig and Seletzky, 2010).

Table 1

User preferences for online and offline platforms.

	Print	Online
Is a relaxing way for me to read the news paper	66	42
Provides a satisfying reading experience for me	61	45
An easy way to get a complete view of the news	45	49
Easy format for sharing stories with others	32	61
Makes it easy to stay informed no matter where I go	30	61
Easy platform for using search for further information	20	64

Note: Interviewees were asked how well the statements describe printed or online newspapers. Results show percentage of interviewees strongly agreeing to the respective statement (5–6 rating on a 1–6 agreement scale). Base: 3376 individuals were surveyed. Data source: (Newspaper Association of America, 2012).

mobility and interactivity. The relevance consumers place on each of these items is reflected in their type preference.

Our paper builds on three main assumptions: (i) gross substitutability between platforms, (ii) the demand for consumption of news coverage does not grow once online platforms are established, i.e. consumers continue to single-home, and (iii) media outlets offer content of the same style of coverage in their online and offline editions. Recent empirical work shows that online and offline platforms are substitutes in terms of crowding-out offline readership. Supporting (i), [Simon and Kadiyali \(2007\)](#) show for the US consumer magazine market that providing an online platform results in an average audience loss of 3–4%. [Kaiser \(2006\)](#) obtains a similar reduction of around 4% in offline readership when studying the market for German magazines. [Fig. 1](#) depicts how the use of online and offline news platforms has evolved in the US. The figure suggests a high degree of substitutability as the increase in online consumption has been compensated largely by a decrease in newspaper consumption. In line with (ii), the time individuals spend on news consumption has remained rather stable between 1994 – a year in which online news platforms were yet to fully emerge – and 2010. A possible explanation for the substitution between online and offline platforms is that approximately two thirds of the most successful online news platforms in terms of traffic and loyalty are owned and run by “legacy media”, i.e. their offline counterparts ([Waldman, 2011](#)). This makes it less appealing for consumers to seek out the offline counterpart since the contents are (almost completely) identical. As outlined in (iii), we focus on cases where media outlets that use both technology types operate the platforms under the same brand name and thus offer contents of the same style – take for instance the *New York Times* and *nytimes.com* (for hard news coverage), or the *New York Post* and *nypost.com* (for soft news coverage).

Our main results predict that profits of media outlets that offer both an online as well as an offline platform are reduced compared to the situation without online platforms, and that polarization often occurs once media outlets specialize in offering one platform each. Some observations in the data could appear consistent with these outcomes. Using US data, the Federal Communications Commission shows that aggregate profits online were unable to offset the decrease in profits offline; more accurately, comparing media outlets' profits in 2005 and 2010, each dollar in offline profits was replaced by around 4 cents online ([Waldman, 2011](#)). Other sources quote a 1:7 relation between the gains in the online newspaper market and the losses in the print market offline ([Pew Project for Excellence in Journalism, 2011](#)). The drop in profits may have also been triggered by outside options for readers and advertisers not captured in our model. Readers may choose news aggregator platforms over online newspapers, and advertisers may place their ad with providers like Google Ads and Craigslist. We are explicitly focusing on *online newspapers* that publish original content rather than news aggregator platforms (like Yahoo.com or News.Google.com).³ As for

polarization in the type and style dimensions, US newspaper data provide supportive evidence: Between 2007 and 2010, 246 newspapers closed down their offline edition while 18 of them continued to offer an online platform (specialization in types). About 73% of these online news platforms fulfil the characteristics of tabloids and soft news which is in line with our findings.⁴ Furthermore, [Fenton \(2009\)](#) conducts interviews with media professionals from traditional as well as new media sources and finds that online news platforms lean towards providing more soft news than offline platforms.

The paper is organized as follows. In the next section, we relate to the existing literature on media markets and in particular online media. In the subsequent section we introduce our general analytical framework before we focus on the integration scenario in [Section 4](#). [Section 4.1](#) derives the conditions for media outlets to offer an online platform in addition to their offline platform and illustrates the prisoner's dilemma media outlets may face in an uncoordinated equilibrium. In [Section 5](#) we analyze equilibria where firms decide to specialize on one platform each. [Section 6](#) concludes with a summary of our main findings.

2. Literature

Following the seminal work by [Anderson and Coate \(2005\)](#) numerous studies have focused on the interaction between two sides of the media market namely the consumers and the advertisers (see for instance [Anderson and Gabszewicz, 2006](#); [Dukes and Gal-Or, 2003](#); [Reisinger, 2012](#)).⁵ Yet, the development of an additional source of differentiation in the form of online and offline technologies has been largely ignored in the theoretical discussion of media markets. We fill this gap by extending the conventional two-sided market framework to a model that features two-dimensional spatial competition along the *style* and the technological *type* of media content. Our model builds on the framework introduced by [Anderson and Coate \(2005\)](#) where two media outlets compete on the consumer and on the advertising market. While consumers choose only one platform, i.e. they single-home, advertisers may place their messages on multiple platforms. Similar to [Armstrong \(2006\)](#) and [Peitz and Valletti \(2008\)](#) we allow media outlets to charge direct prices to consumers.

The analysis of two-dimensional spatial competition goes back to [Tabuchi \(1994\)](#) who established the so-called *principle of maximum–minimum differentiation*: Firms aim at relaxing price competition while preferring a central location at the same time. Therefore, it is generally optimal to maximally differentiate in one dimension – which suffices to relax price competition, and minimally differentiate in the other dimension – which has the advantage of better market access. [Irmen and Thisse \(1998\)](#) and [Ansari et al. \(1998\)](#) extend this setup to multiple horizontal dimensions and allow for heterogeneity in preferences for the respective attributes. We deviate from Tabuchi's model with respect to three key characteristics of the media market: First, our type dimension is a discrete form of product differentiation which implies that only maximum or minimum differentiation can occur. This is a decisive feature of media markets because outlets can choose between two distinct technologies, online and offline platforms. Second, we allow for different distance costs in the style and type dimensions. Third, media outlets compete in a two-sided market environment with potentially asymmetric advertising markets. In contrast to previous findings, we show that a polarized provision of media i.e. maximal differentiation in both dimensions may represent a Nash equilibrium.

⁴ See ([Waldman, 2011](#)). 7 out of the 18 either focus exclusively on local news or on sports and are therefore excluded from the analysis.

⁵ For more general contributions on two-sided markets see ([Rochet and Tirole, 2003](#); [Rochet and Tirole, 2006](#)), ([Rysman, 2009](#)), ([Caillaud and Jullien, 2001](#); [Caillaud and Jullien, 2003](#)) for two-sided markets and the internet, ([Kind et al., 2008](#)) for two-sided markets and public policy.

³ Although news aggregator platforms represent powerful alternatives to the platforms in our model, we focus on the response of traditional media to the advent of online platforms assuming that it is not possible for them to become an aggregator platform.

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