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How effective are advertising bans? On the demand for quality in two-sided media markets

Tanja Greiner[a], Marco Sahm[b,c,*]

[a] Ludwig-Maximilians-Universität München, Akademiestr. 1/II, Munich 80799, Germany
[b] University of Bamberg, Feldkirchenstraße 21, Bamberg D-96047, Germany
[c] CESifo, Poschingerstraße 5, Munich D-81679, Germany

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ABSTRACT

We study a two-sided markets model of two competing television broadcasters that offer content of differentiated quality to ad-averse consumers and advertising space to firms. As all consumers prefer high over low quality content, competition for viewers is vertical. By contrast, competition for advertisers is horizontal, taking into account the firms' targeted advertising motive. Analyzing the impact of an advertising ban on the high quality medium, we derive the following results: (i) total advertising volumes decrease; (ii) the viewer market share of the high-quality broadcaster and thus the equilibrium reception of high quality content decreases; (iii) welfare decreases; (iv) the low-quality broadcaster's profits will increase if and only if ad nuisance is small compared to ad effectiveness.

1. Introduction

Advertising in the media and especially on television is subject to various regulations some of which include an advertising ban. The reasons to ban advertisements from the media are as diverse as the regulatory tools at hand: advertising for some products may be restricted (product restrictions),[1] the restrictions may be binding within a special time period during the day (time restrictions), or may apply to special types of media (type restrictions). Time and type restrictions are often imposed simultaneously such that public service broadcasters are not allowed to carry advertisements during a certain time of day.[2]

A combination of time and type restrictions is currently in place in Germany. German public service prime-time television is ad-free from 8pm. In January 2009, France installed the same regime as in Germany, forbidding their public service broadcasters to carry advertisements from 8pm through 6am. This resulted in a loss of advertising revenues of 187.6 million Euro in 2009.[3] Plans to install a day and night advertising ban, which were under debate in 2012 and would have turned the French system into a pure type restriction regime, have not been realized. In the summer of 2009, the Spanish parliament followed the French example and approved a law banning all advertisements from the public broadcaster (RTVE).

* Corresponding author at: University of Bamberg, Feldkirchenstraße 21, Bamberg D-96047, Germany.
E-mail addresses: tanja.greiner1@gmail.com (T. Greiner), marco.sahm@uni-bamberg.de (M. Sahm).

[1] Since the 1980s, many OECD countries imposed advertising bans for instance on tobacco as well as on (some or all) alcoholic beverages, or even on junk food (UK, South Korea). The aim of this policy instrument is to reduce consumption of unhealthy goods but its effectiveness is discussed controversially in the literature. While some authors find little or no negative effects of advertising bans on consumption (Frank, 2008; Nelson, 1999; Seldon et al., 2000; Stewart, 1993), other authors find that there are circumstances under which an advertisement ban may reduce consumption (Saffer and Chaloupka, 2000; Blecher, 2008).

[2] See Anderson (2007) for a comprehensive survey of advertising regulations in different countries.

[3] See "Le rapport financier du groupe", the annual report of the French public service broadcasters France Télévisions, available through www.francetelevisions.fr.

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Several studies discuss the necessity of public service broadcasting (see, e.g., Armstrong and Weeds, 2007; Aigner et al., 2017). One common argument in favor of public TV builds on the governmental duty of guaranteeing basic provision of information and education that meets a certain quality standard. The positive externalities from information and education may explain that one of the goals of media policy is a wide reach of public service broadcasting. In this regard, (time) restrictions on advertising in public broadcasting may (temporarily) eliminate the nuisance from advertising and thus make quality content more attractive to the audience. Hence, one might expect that such a policy leads to higher market shares for the public service broadcaster, i.e., increasing reception of quality content.

However, the model developed in this paper shows that such reasoning is misleading on a two-sided media market where broadcasters compete for viewers and advertisers. Since the number of viewers exerts a positive externality on advertisers, competition for advertisers intensifies competition for viewers. An advertising ban on one type of broadcaster, though, asymmetrically eliminates this type's additional motive for attracting viewers. In equilibrium, the ban leads to a reduction of the restricted type's share in the viewer market. Consequently, if the type restriction applies to high quality media, the ban will reduce the reception of high quality content.

More formally, we consider a model of a two-sided media market where two television channels compete in prices for viewers and for advertisers. The number of viewers exerts a positive externality on the profits of advertisers and is expressed by a likelihood parameter of consumers buying the advertised product (*ad effectiveness*). The number of advertisements exerts a negative externality on viewer utility and is captured by a parameter measuring *ad nuisance*.

We assume that the content the broadcasters offer to viewers is differentiated with respect to quality. Viewers differ in their valuation for the quality of content. But since all viewers ceteris paribus prefer high quality over low quality content, competition on the viewer market is vertical. In line with the major part of the literature, we assume a positive exogenous degree of differentiation of broadcasters and single-homing of viewers.[4] This implies sorting on the viewer market such that viewers with strong (weak) preferences for quality only watch the high (low) quality program. The assumption of vertical differentiation on the viewer market is a distinguishing feature of our model. In contrast to models of horizontal differentiation of program content (Bourreau and Grece, 2011; Stühmeier and Wenzel, 2012; González-Maestre and Martínez-Sánchez, 2015), it allows us to meaningfully interpret one of the two channels (the high quality program) as a public broadcaster and explicitly study the impact of advertising regulation on this broadcaster's market share.

The viewers' preferences for program quality are often correlated with characteristics, such as income or age (Filistrucchi et al., 2012), which also guide their consumption behavior on vertically differentiated product markets. The producers of vertically differentiated goods may, therefore, want to make use of the sorting on the viewer market and target their advertising: producers of high (low) quality goods may prefer to advertise exclusively on the high (low) quality channel, while producers of intermediate quality may want to either advertise on both channels or not at all. Taking this targeted advertising motive into account thus suggests that different advertisers have different preferences for program quality. Consequently, we assume that competition for advertisers is horizontal and allow for multi-homing as well as for market abstention.

We first analyze the market equilibrium for two scenarios: a symmetric one in which both broadcasters are allowed to sell advertising space, and an asymmetric scenario with an advertising ban on the high quality medium. We find that the standard result of models with vertical product differentiation in one sided markets still holds in our two-sided market framework and is stable across scenarios: selling high quality content is an advantage that allows for higher prices on both, the viewer side and, where applicable, the advertiser side of the market, and thus leads to higher profits.

We then evaluate the effectiveness of an advertising ban on the high quality medium comparing the equilibrium outcomes under the symmetric and asymmetric scenarios. We obtain the following results: Preventing the high quality medium from entering the advertising market reduces total advertising volumes. However, it leads to less consumers watching the high quality program, and to lower welfare. Moreover, the private broadcaster's profits will increase if and only if ad nuisance is small compared to ad effectiveness.

The result that the advertising ban reduces the reception of high quality content may seem surprising. In order to get an intuition, notice that the broadcasters' incentives to attract viewers on an unregulated two-sided market are twofold: more viewers directly increase subscription volume on the one side and indirectly increase advertisers' demand on the other side. This second motive, however, ceases to exist for the high quality broadcaster when she faces an advertising ban. In equilibrium, she thus attracts less viewers with than without the advertising ban.

Our theoretical results are in line with empirical observations by Filistrucchi et al. (2012) who find that the advertising ban on French public TV in 2009 did neither increase the public broadcasters' share of the viewer market nor favor private TV at the expense of public TV.

Besides these findings, which are relevant for political decisions on the use of type restrictions for advertising in two-sided media markets, the paper also offers a methodological contribution. Considering a product characteristic – like the quality of content in our model – which is perceived as a feature of vertical differentiation on one side and a feature of horizontal differentiation on the other side of a two sided market, is new to the literature.[5] It allows to capture an additional form of strategic interdependence between the two sides of the market – like the targeted advertising motive in our model – that goes beyond purely quantitative network effects.[6]

The remainder of the paper is organized as follows: Section 2 provides an overview of the related literature. Section 3 describes the formal model and the basic assumptions. In Section 4, we identify the equilibria that arise under the symmetric and asymmetric advertising regime. Comparing the two regimes in Section 5, we examine the impact of an asymmetric advertising ban on the high quality broadcaster. Section 6 discusses the robustness of our results under alternative assumptions. Section 7 concludes. Appendix A contains the comparative statics

[4] One-sided market models of both, horizontal and vertical differentiation, suggest that oligopolistic firms will indeed differentiate their products in equilibrium under reasonable assumptions (Tirole, 1988). Anderson and Jullien (2016) provide a comprehensive discussion of the assumptions of single-homing versus multi-homing viewers.

[5] An exception is Kotsogiannis and Serfes (2010) who combine vertical and horizontal differentiation in a tax competition framework.

[6] In order to determine how variations of these indirect network effects affect the outcome in our extended modeling framework, Appendix A provides comparative statics with respect to the parameters capturing ad nuisance and ad effectiveness. We find that an increase in the nuisance parameter raises the broadcasters' profits (cf. Reisinger, 2012, Proposition 2) and lowers welfare. Surprisingly, an increase in ad effectiveness may also reduce welfare. The reason is that the higher profits of advertisers and broadcasters may be overcompensated by the fact that viewers suffer in three ways: from higher viewer prices, more advertisements, and lower average quality of content.