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**The television industry as
a market of attention**

**by
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The television industry as a market of attention¹

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Summary. In this article, I view the TV industry as a two-sided market, with advertisers on one side benefiting from the presence of TV viewers and on the other side TV viewers having a dislike for advertising on TV. I use this framework to discuss the likely future development of pay TV, in particular how a future increase in competition in the TV industry will affect the prevalence of pay TV over advertising-financed TV.

1. Introduction

TV stations share a crucial feature with most other media firms – they serve two distinct groups of clients: on the one hand content consumers (*i.e.*, TV viewers) who demand information and/or entertainment, and on the other hand advertisers who want the attention of potential customers. The two groups affect each other's well being, in that TV viewers dislike advertising, whereas advertisers like viewers' attention.²

¹This article is based on a presentation at the conference “The cultural economy's new frontiers”, Paris, 3 October 2008. I am indebted to Hans Jarle Kind and Lars Sjørgard for collaboration on several media-economics projects in recent years and for helpful comments on an early draft, and to Åshild Auglænd Johnsen for research assistance. Financial support from the Research Council of Norway's VERDIKT program through SNF – the Institute for Research in Economics and Business Administration is gratefully acknowledged.

²Several pieces of evidence exist corroborating the premise that TV viewers dislike advertising. Wilbur (2008), for example, econometrically estimates a structural model of TV-market competition and finds that viewers' loss from advertising is significant, while Danaher (1995) documents how TV viewers try to avoid advertising breaks. Also on the Internet, advertising seems to be annoying to many content consumers; see, for example, results from a user survey carried out in Norway recently and reported by Bakken (2008). In other media, the

This means that, in the TV industry, we have a case of *two-way externalities*. In economics, markets with such a feature are called *two-sided markets*.³ A prominent example outside media is the credit-card industry, with merchants and card users being the two groups in question. Sometimes, the firms in a two-sided market are called *platforms*, to catch the role they play between the two user groups. Thus, the phrase *platform competition* is another name for what goes on in a two-sided market.

A difference between the TV industry and many other two-sided markets is that the externalities in this particular industry go in opposite directions. While the two groups in the credit card industry both benefit from the presence of the other group (merchants' benefits from joining a credit card company increase with the number of card users involved, and card users' benefits increase with the number of merchants available), viewers would prefer fewer rather than more advertisers in TV.

Another special feature in many TV markets in Europe is that there are a fairly limited number of TV firms operating; or, at least, the big majority of viewers are concentrated on a rather limited number of TV channels.⁴ Thus, we have a combination of imperfect competition and two-way externalities. The question to ask is then: how does a market with those two features work?

2. Digitalization and pay TV

It is not possible to cover all aspects of this question in a short article. I will therefore focus on providing some comments on the role of pay TV in this industry. Pay TV means that TV firms give viewers access to their program content only if payment is received. This, of course, brings up questions on how to exclude non-payers from receiving TV signals. Until recently, the pay-TV segment was basically limited to cable TV, with cables bringing

picture is more mixed. In particular, many magazines are consumed in part for their advertising; see, for example, Depken and Wilson (2004).

³For overviews of the literature on two-sided markets, see, for example, Rochet and Tirole (2006) and Evans and Schmalensee (2007).

⁴ According to the EU Monitoring and Advocacy Program (2005), the four major TV channels' share of all viewers in European countries are quite high, ranging from 55% in Germany through 67% in the UK and 70% in Italy to 80% in France. (Numbers are from 2003 or 2004).

restricted TV signals out to paying households. However, recent technological advances have opened up for new ways of running pay TV. First, it is now possible to obtain payment from consumers without stretching cables, through satellites and digital terrestrial TV.⁵ Secondly, the TV industry can – and some TV firms already do – interact with the internet industry to obtain ways of getting viewer payment.⁶

Below, I will be exploring some consequences of this development. On the one hand, we may expect to see TV firms introducing pay TV operations where before there was only advertising-financed TV. What can we expect from the increased prevalence of pay TV in terms of program content? On the other hand, digital terrestrial TV in particular means that a greater number of TV channels are brought out to viewers through over-the-air transmission. This implies potentially an increase in competition in the TV industry, and so the question is what effects we can expect from this increased competition when it comes to the role of pay TV.

3. Pay TV and program content

Consider first the effect of pay TV on program content. How competition affects the characteristics of products offered in the marketplace has been an issue in economics since the work of Hotelling (1929). The starting point for the discussion is that consumers – in our case, TV viewers – differ in terms of their preferences for these product characteristics. To be specific, think about possible TV programs as being somewhere between sports and movies, as in Figure 1, with “sports” indicating a program schedule containing sport events only and “movies” indicating one with movies only. Of course, this is an abstraction from reality, since TV programs vary in many dimensions.⁷ But as with many models in economics, it is a useful

⁵ See Galperin (2004) and García Leiva, *et al.* (2006) for discussions of the digital-TV transition in a number of countries.

⁶ One example is the Norwegian TV channel TV2, which offers premium content based on consumer payments through its Internet service *TV2 Sumo*, where one can subscribe either weekly, monthly, or annually, or simply pay for watching one particular program; see <http://webtv.tv2.no/webtv/>.

⁷ One way that TV programs can vary, which is somewhat characteristic for this industry, is by scheduling. See Nilssen and Sjørgard (1998) for a discussion of competition between TV channels through the scheduling of their news programs. Another important aspect is program quality. As argued by Motta and Polo (1997), TV channels competing in quality may lead to a state of natural oligopoly, in which an increase in demand does not increase

abstraction. Viewers come in many shapes, and we can think of them as distributed along the line in Figure 1 according to what their ideal program mixes are: Viewers to the very left prefer a sports-only TV channel, viewers to the very right prefer a movies-only TV channel, while viewers in-between prefer some mix of sports and movies.

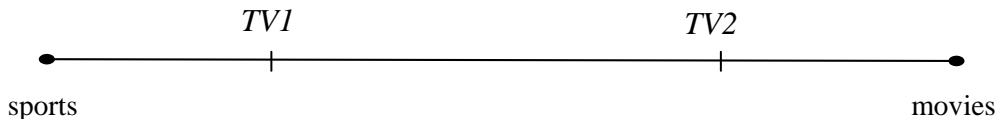


FIGURE 1: Competition in program content

Suppose we have before us a duopoly, as indicated in the figure, with the two TV firms located on the line according to the program mixes they carry: The further to the left in the figure a TV firm is located, the more sports, and the less movies, there is in the firm's program mix. If the TV firms are both exclusively financed by advertising, then the single concern for each of them is to maximize the number of viewers: Advertisers do not care about program content, only about how many viewers a TV channel has, and the more viewers, the more advertisers are willing to pay for an ad on that channel. The implication is that a TV channel financed solely by advertising revenues profits from stealing viewers from its rival channel.

In Figure 1, the more sports oriented TV channel *TV1* would increase its viewer clientele by increasing the share of movies in its program mix, this way getting more similar to *TV2* and gaining some of the viewers with preferences currently in-between the two channels without losing any sports addicts at the far left. A similar reasoning leads *TV2* to choose a program mix close to that of *TV1*. The upshot is that the two advertising-financed TV channels end up with almost identical program mixes, as depicted in Figure 2. This outcome might be fine for viewers with balanced preferences. However, niche viewers with interests not shared by everybody are not well served. On balance, the verdict in terms of social welfare is that program mixes are too similar.⁸

the number of TV channels. Both scheduling competition and quality competition are left out of the present discussion.

⁸ The earliest statement of this argument – that TV channels solely focused on maximizing the number of viewers tend to have too similar content – dates back to Steiner (1952). His analysis was subsequently extended, notably by Beebe (1977). See Owen and Wildman (1992) for a detailed and accessible presentation of the analyses by Steiner and Beebe.

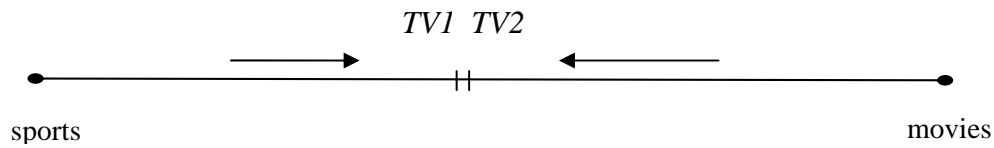


FIGURE 2: Advertising-financed TV

Consider, alternatively, a case of pay TV, where TV firms are financed not only by advertising but also by payments from viewers. Now, viewers care about both the program mix and the price of a TV channel. A TV firm faces a trade-off when determining its program mix. As above, getting more similar to the rival TV firm steals viewers from the other channel, which in isolation is still a good thing. But now there is a new effect: the more different one TV channel's program mix is from that of the other channel, the more emphasis a viewer places on the TV channels' contents, and correspondingly less emphasis will be placed on the channels' viewer prices, when choosing which TV channel to watch. This means that a TV channel that stands out as different from its rival will be able to charge higher prices from its viewers. The trade-off for a TV firm in the pay-TV case is thus that having a content similar to the competition means that the number of viewers is at its highest, which is good for the TV firm's chances on the advertising market, but it also means that the viewer price is at its lowest. In the simple model of Figure 1, the outcome easily becomes the opposite of that of the case of advertising-financed TV, with TV channels now providing pure niche programming, as illustrated in Figure 3. This means that TV channels now provide a too differentiated program mix, with too much adherence to the needs of viewers with special interests and too little to that of viewers with balanced interests.⁹

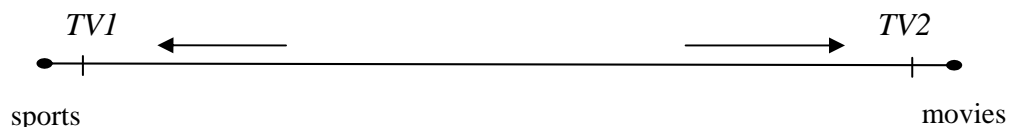


FIGURE 3: Pay TV

⁹ With consumers uniformly distributed along the line in Figure 1, the social optimum would have each of the two TV channels halfway between the midpoint and one of the extreme positions. I.e., if the possible program mixes belong to the line segment $[0, 1]$, with pure sports at 0 and pure movies at 1, the social optimum locates the two channels at $\frac{1}{4}$ and $\frac{3}{4}$.

More generally, however, one might think that pay-TV firms choose some kind of middle ground, with program mixes that differ from each other, without being total niche providers. If that is the case, then the implication is that pay TV provides us with a more balanced mix of program content than does advertising-financed TV.

4. Pay TV and increased competition

As discussed above, the introduction of digital terrestrial TV (DTTV) makes room for an increase in the number of firms, since DTTV allows more TV channels than before to access viewers who only receive over-the-air transmission. In order to analyze the effects of this increased competition on the performance of the TV industry, we need a different take from that which we presented above. Unfortunately, the above analysis is not very suitable for discussing effects of an increase in the number of firms. Also, it may be argued that with many TV channels present, the plurality of program content is no longer a major issue. Let us therefore address the TV industry from another angle: Suppose viewers' main concern, when it comes to program content, is *variation*.¹⁰ Moreover, let us distinguish between two effects

¹⁰ Modelling TV viewers' preferences in terms of variation dates back to Spence and Owen (1977). Their approach was extended, taking into account viewers' disutility from advertising, by Wildman and Owen (1985). However, both these contributions picture the TV industry as one of monopolistic competition, which essentially implies assuming an infinite number of firms in the industry. This makes it impossible to discuss implications of an increase in the number of firms. What is needed is, first, a model of a TV oligopoly, and secondly, a specification of viewer preferences that allows us to distinguish between the pure effect of an increase in the number of firms and the effect of increased similarity between them.

Such an analysis is found in Kind, *et al.* (2007), where viewers' preferences are modeled through a representative viewer endowed with a utility from watching TV given by a version of the so-called Shubik-Levitan utility function, originally formulated by Shubik and Levitan (1980):

$$U = \sum_{i=1}^m V_i - \frac{1}{2} \left[m(1-s) \sum_{i=1}^m (V_i^2) + s \left(\sum_{i=1}^m V_i \right)^2 \right],$$

where U is the representative viewer's utility, V_i is the quantity of TV watching consumed by the representative viewer at TV channel i , m is the number of TV channels, and s is a measure of similarity of program content, with $s = 1$ implying that program contents are identical, whereas $s = 0$ is the opposite extreme with program content being so different that demand for content from various TV channels is independent.

The analysis in Kind, *et al.* (2007) is based on the presumption that TV firms are totally advertising financed and does therefore not allow for a discussion of pay TV, which is the focus of our present concern. The necessary extension is, however, presented in Kind, *et al.* (2008), on which the present discussion is based.

A related discussion of viewer vs advertising revenues for the TV industry is found in Godes, *et al.* (2008). But their set-up does not allow the same disentangling of the effects of an increase competition as does that of Kind, *et al.* (2008).

of more TV channels coming into the industry. First we have the mere effect of an increase in the number of firms competing in the market. But there is another effect: more TV channels also mean an increase in similarity between TV channels' content, as long as new channels, at least in part, aim for mainstream viewers. Interestingly, the effect of increased similarity does not work in the same way as the effect of an increase in the number of firms.

Suppose now that TV firms can receive revenues both from viewers' payments and from advertising. The question is how an increase in competition affects their relative interest in the two sources of revenue. This can tell us something about whether, with increased competition in the TV industry, we can expect pay TV to be on the rise – or the opposite, with advertising being the main source of revenue.

Increased competition can come about in two ways: by an increase in the number of firms in an industry, and by the firms' products becoming more similar and therefore closer substitutes in terms of consumers' preferences. By isolating the two effects in a discussion of the effects of increased competition in the TV industry, we will be able to see how the two effects work in different directions. When a new TV station enters a market, both effects are most likely present: there is an increase in the number of firms, *and* TV stations become more similar by this new TV station's entry. Disentangling the two effects will facilitate a better understanding of the forces behind the final outcome.

As stressed above, the TV industry is a two-sided market with firms addressing both viewers and advertisers. But the two markets behave differently, essentially because viewers dislike the presence of advertisers while advertisers still want to have viewers around. First, take a look at the market for viewers. TV firms' prices to viewers are *strategic complements*, meaning that, as one firm increases its price, other firms respond by also raising their prices. Correspondingly, a price decrease at one firm will also lead to price decreases at the other firms in the industry. We might say that viewer prices move *in step*. This is a regular feature that is found in textbook presentations of price competition. Essentially, a price reduction by one firm decreases the marginal profit from a price increase for each of the other firms, so that their best responses will be to lower prices.¹¹

¹¹ See, for example, Vives (1999). The term *strategic complements* and its twin, *strategic substitutes*, were coined by Bulow *et al.* (1985).

However, prices in the advertising market are different, basically because of viewers' dislike of advertising. To see this, suppose that one TV station lowers its price of advertising. This will increase the demand for advertising at that TV station, and therefore increase the quantity of advertising carried. This in turn makes viewers go elsewhere to TV stations with less advertising. With such an inflow of viewers, these other TV stations will observe an increased demand from advertisers, to which they will respond by setting higher prices of advertising. This means that a lower advertising price at one TV firm leads to *higher* advertising prices at other TV firms. This means that advertising prices are *strategic substitutes*, or that they move *out of step*.¹²

Suppose now that the TV channels' program contents get more similar, without there being any change in the number of firms.¹³ This causes the competition for viewers to become fiercer and, in line with viewer prices moving in step, viewer prices to become lower. However, quite the opposite happens in the market for advertising. Now, advertisers are not particularly concerned about program content. But they do mind the effect of a TV station lowering its viewer price, which creates an inflow of viewers to the TV stations. Therefore, since an increase in program contents' similarity makes a TV station lower its viewer price and therefore attract more viewers, the demand from advertisers will increase for that TV station. The outcome of all this is that all TV stations set lower viewer prices and higher advertising prices as program content becomes more similar. Put differently, advertising's share of TV firms' total revenues is increasing in content similarity.

Suppose next that there is an increase in the number of firms without there being any change in content similarity.¹⁴ As shown by Kind, *et al.* (2008), an increase in the number of firms simply dilutes a firm's market power in both the viewer market and the advertising market, but more so in the advertising market. Essentially, as long as there is *some* difference in content among TV stations, solely increasing the number of firms cannot take away all of a

¹² This distinction between price competition in the viewer market and price competition in the advertising market is a quite robust result that also shows up in other models of media competition than the one in Kind, *et al.* (2008) that I focus on here; see, for example, Gabszewicz, *et al.* (2004).

¹³ In terms of the utility function in footnote 10, we analyze the effect of increasing s , keeping m fixed.

¹⁴ This is a bit of a mind stretcher. But think of all TV stations' program mixes belonging to a big bag, and as a new TV station enters, the bag just becomes bigger without seeming any more crowded. In terms of the utility function in footnote 10, we now analyze the effect of increasing m , keeping s fixed.

firm's market power in the viewer market, whereas a similar effect is not present in the advertising market. The outcome is therefore that advertising's share of TV firms' total revenues is decreasing in the number of TV firms competing with each other.

The picture that emerges from this is similar to that of many exercises of economic analysis: What is the effect of increased competition on the prevalence of pay TV? – *It all depends*. If increased competition first and foremost means more similar content and not so much an increase in the number of firms, then we should expect advertising to be the main source of revenue and pay TV to play a minor role, even with technological developments like DTTV. However, if increased competition means an increase in the number of firms with a minor impact on content similarity, then we can expect pay TV to rise in prominence.

5. Concluding remarks

As my discussion here shows, simple answers on the future of pay TV as digitalization continues are not easily available. Should I volunteer an opinion, though, I believe that, in the future, we will see an increased role for pay TV as competition increases, implying, with reference to the previous section, that I believe the number effect of increased competition to be greater than the similarity effect. This is what would happen if, for example, most new TV channels entering the industry are niche channels aiming at TV viewers with special program interests. But here, as in so many other circumstances, we need to call for the attention of further research in order to be able to predict more carefully in which direction the TV industry will move.

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