

# **BANNING ADS FROM PUBLIC TV: LESSONS FROM FRANCE**

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Preliminary and Incomplete

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## **Abstract<sup>d</sup>**

We analyse the effects of the advertising ban on French public television, which came into effect on the 5<sup>th</sup> of January 2009. The ban forbid commercial advertising on public TV in the time slot 20.00-6.00.

We focus our analysis on the advertising market, using a difference in difference approach. Preliminary evidence suggests that advertising which was previously broadcasted on public TV in the time slot 20.00-6.00 did not switch to private channels in the same time slot (nor did the price in that time slot on private channels rise). Rather advertising partly switched to public TV in the time slot 6.00-20.00 and only slowly migrated towards digital TV channels. The common expectation that the ban would favour private TV channels at the expense of public ones was therefore wrong. Interestingly, the relative audience of public to private TV did not tilt in favour of public TV. Possible explanations for the findings are explored.

**JEL Classification:** L82, D18, M7.

**Keywords:** two-sided markets, media markets, advertising caps. advertising ban, public television

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## 1. Introduction

Whether public TV should be financed by licence fees and public transfers only or also by commercial advertising is a long lasting debate in many countries. Supporters of a public TV financed only by licence fees and public transfers claim that this would guarantee a higher quality of the programs by freeing public TV stations from the interests of advertisers. It would also allow public TV stations to pursue a different and nobler objective than audience maximization, as for instance education. Those against claim on the contrary that the resulting loss in advertising revenues will lower the ability of TV stations to invest in quality and thus lead to programs of lower quality. Moreover, a complete dependence on public funding would facilitate political control of media.

Whereas the BBC is a well-known and successful example of a public TV financed only by licence fees and public transfers, whose quality is often taken as an example of success, in most other European countries commercial advertising revenues constitute a substantial part of the budget of public TVs. Another exception has however been Germany, where advertising on public TV after 20.00 has been forbidden since 1991.<sup>1</sup>

We do not address here the debate of whether public TV should or should not be financed by advertising. We focus instead on the impact of a regulatory intervention banning ads on public TV starting from a situation where public TV was financing itself also and therefore potentially competing with private commercial TV not only on the audience side but also on the advertising side of the market.

Following the earlier German example, the French government decided to ban commercial advertisements on State controlled TV stations starting from January 5, 2009. The ban initially applies to programs broadcasted between 20.00 and 6.00 and it is planned that it will be gradually extended to all broadcasting time.<sup>2</sup>

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<sup>1</sup> The ban was confirmed also in 2010. See Rundfunkstaatsvertrag, 1991, and Rundfunkstaatsvertrag, 2010. Note however that it is still allowed to sponsor programs broadcasted after 20h. Recently proposals have been put forward to ban also sponsoring after 20h on public TV stations except for sport events, and to ban advertising from public TV stations even before 20h.

<sup>2</sup> Ministère de la culture et de la communication, 2009

The ban, announced by President Sarkozy in a press conference held on 8 January 2008, came completely as a surprise to both the French government and the management of French public TV<sup>3</sup> and the general perception was that President Sarkozy was doing a favour to private TV channels at the expense of public ones. For example the Economist stated “the new plan was unexpectedly proposed by President Nicolas Sarkozy”. The Economist also raised the question of who would gain from the ban: “If the beneficiaries of the ban on advertising are not necessarily the viewers, who gains? Unsurprisingly, France's commercial channels are delighted at the prospect of extra ad revenue coming their way.” “TF1's biggest shareholder is Bouygues, a conglomerate, whose boss, Martin Bouygues, just happens to be a close friend of Mr Sarkozy's and godfather to one of his sons.” “Another bigwig who will benefit is Vincent Bolloré, a media magnate who launched a television channel, Direct 8, in 2005. Mr Sarkozy has borrowed Mr Bolloré's yacht and private jet for two holidays since his election last May.” “His opponents grumble that his new plan will mainly benefit his friends.” (all citations from The Economist, *A fuzzy picture*, February 21, 2008).

The Guardian shared the Economist's opinion by stating that “Sarkozy, who moves in a circle of wealthy television owners and press barons and counts "Téléprésident" among his numerous nicknames, surprised even his own culture minister this week when he announced that adverts should be eliminated from France's five state TV stations”. According to the Guardian, “[s]crapping adverts from state TV would mean €800m (£600m) in advertising revenues immediately transferring to private stations” and “[t]he Socialist party fumed that the immediate beneficiaries of the shift in advertising would be Sarkozy's own media tycoon friends.” (all citations from The Guardian, Sarkozy to ban advertizing from state television, January 10, 2008).

The current paper will use this “natural experiment” to estimate the impact of the regulatory change on the advertising market, by analysing how quantity, price and advertising revenues have changed on both public and private TV channels. The first

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<sup>3</sup> According to Le Monde Diplomatique (2008), the announcement of President Sarkozy was completely unexpected. Neither the prime minister Francois Fillon, Mrs Christine Albanel (ministre de l'audiovisuel public) nor Patrick de Carolis (president of France Télévisions) knew anything about this decision. According to the article only Henri Guaino (who apparently writes the TV speeches for Sarkozy) and Alain Minc (consultant of the industrialist Vincent Bolloré) were informed about Sarkozy's plans. The last one is supposed to be involved in the development of Sarkozy's plan. Also according to Le Canard enchaîné (2008) and The Economist (2008) the announcement of the advertising ban on public television was unexpected. According to the Guardian (2008) states the announcement was unexpected and even the culture minister did not know anything about the plan.

objective is to analyse the impact of such an advertising ban on competition between public and private TV channels. Since theoretically the impact of such a regulatory intervention is likely to depend on the features of competition in the market, the analysis is also likely to shed some light also on these features. As such it might provide some guidance on the most appropriate methods of financing the vanishing of advertising revenues for State-controlled channels. More generally, it might have policy implications for regulatory interventions on the media market which aim at setting limits to advertising concentration in a given media product (e.g. the EU Audiovisual Media services directive) or aim at defending pluralism by setting limits to concentration in the advertising market.

The regulation of the maximum amount of advertising during television programming in the EU is decided by the European Commission through the Directive “Television without Frontiers”, implemented by each Member State. The Directive<sup>4</sup> imposes advertising floors of 12 minutes per hour and 3 hours per day.<sup>5</sup> However, single Member States are free to adopt stricter rules. In this context, even before President Sarkozy’s decision, France had one of the most restrictive legislations in Europe. Probably in order to prepare the advertising ban on public TV stations, the decree approved on December 19<sup>th</sup>, 2008 and coming into force on the 1<sup>st</sup> of January 2009, established the extension of the average daily length of advertising from 6 to 9 minutes per hour for the most important private channels TF1 and M6 (however, the rule regarded also cable, satellite and DTT stations).<sup>6</sup> As of 1<sup>st</sup> of January 2009, the average length of advertising decreased from 8 to 6 minutes per hour for the public television channels (France 2, France 3, France 5).<sup>7</sup> Furthermore, the decree established the shift from the “glissante” to the “exact” hour as the reference to calculate the maximum advertising time permitted in an hour, which remained at 12 minutes.<sup>8</sup> These new constraints conformed to the new European Directive, “Audiovisual Media Services”<sup>9</sup>, which had partially modified the previous one. It abolished in particular the daily limit

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<sup>4</sup> See [http://ec.europa.eu/avpolicy/reg/tvwf/index\\_en.htm](http://ec.europa.eu/avpolicy/reg/tvwf/index_en.htm)

<sup>5</sup> Ministère de la culture et de la communication, 2008

<sup>6</sup> Légifrance, 2010

<sup>7</sup> SNPTV, 2010

<sup>8</sup> SNPTV, 2010

<sup>9</sup> See [http://eur-lex.europa.eu/LexUriServ/site/fr/oj/2007/l\\_332/l\\_33220071218fr00270045.pdf](http://eur-lex.europa.eu/LexUriServ/site/fr/oj/2007/l_332/l_33220071218fr00270045.pdf)

of 3 hours of advertising but kept the established hourly limit of 12 minutes for advertising and teleshopping spots.<sup>10</sup>

As already mentioned above, the first step of the reform consisted of banning commercial advertisements on public French TV stations (France 2, France 3, France 4, France 5 and others, all controlled by France Télévisions) between 20pm and 6am starting from January 5<sup>th</sup>, 2009.<sup>11</sup> The very same reform includes setting at zero the advertising in all time slots of France Télévisions by the end of 2011.

Also the Spanish government decided to follow the German and French examples announcing a drastic reduction in advertising on public TV (RTVE) on April 14, 2009 and on May 8 proposing the complete ban of advertising. The law banning ads from public TV on all time slots was approved by the Spanish parliament on July 29 of 2009. This law came into effect as of September 1, 2009 but allowed Spanish public TV to broadcast until the end of 2009 the advertising contracted before this date. As from the first of January of 2010, advertising is banned, except for self-promotion advertising, corporate communications campaigns and informational campaigns with social purposes. Moreover, RTVE is not allowed to charge for these exceptional ads. To finance its operations, the public corporation would continue receiving state subsidies, in addition to proceeds from new specific taxes to private television stations and telecommunications companies, and an important percentage of the revenues from the fee on airwaves usage.

The modalities of the gradual phase out of advertising on France Télévisions are laid out in the new law on the reform of French public television adopted in March 2009.<sup>12</sup>

From a strictly arithmetical viewpoint and considering only the daily average duration of advertising interruptions, private stations (TF1 and M6) could take up completely the advertisers' demand in the 20pm-6am time slot, because of the increase of advertising time from 6 to 9 minutes per hour as mentioned above<sup>13</sup>. However, taking into account the advertising time across different slots, the slots 12am-14pm and 19pm-22pm show

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<sup>10</sup> European Commission, 2008

<sup>11</sup> SNPTV, 2010

<sup>12</sup> Ministère de la culture et de la communication, 2009 and Journal Officiel de la République Française, 2009

<sup>13</sup> Conseil Supérieur de l'Audiovisuel, 2009

that the advertising time on private stations was close to the maximum allowed (12 minutes), because of the consumption habits of French viewers.<sup>14</sup>

These informal observations can be combined with theoretical predictions based on previous analytical work on the theme. This will be done in Section 3, while the next section briefly reviews those studies that deal with advertising caps in media markets. Section 4 describes the data while Section 5 shows the results of the empirical analysis. Section 6 concludes discussing the policy implications of our main results.

## **2. Related literature**

Following the seminal works by Steiner (1952), Corden (1953) and Reddaway (1963), quite a rich theoretical literature developed on the media markets, e.g. Spence and Owen (1977) and Beebe (1977). These studies have in the recent years merged into the wider literature on two-sided markets, as first defined by Parker & Van Alstyne (2002), Rochet & Tirole (2003, 2006) and Armstrong (2006). As discussed in detail in Anderson and Gabszewicz (2005), in a two-sided market a media firm typically sells content to readers/viewers/listeners and advertising space to advertisers and it knows that the number (and possibly the characteristics) of viewers/readers/listeners influences the demand for advertising space/time while, on the other hand, the quantity (or concentration) of advertising slots affects the demand from readers/viewers/listeners. In other words, a media firm recognises and internalizes the existence of indirect network effects between the two-sides of the market as it knows that in such a market the viable business strategy requires bringing “both sides on board”. Whereas clearly the higher the number of readers/listeners/viewers the higher the demand for ads all else equal, vice versa it is not clearly established what is the attitude of readers/listeners/viewers towards advertising.

Most advanced countries regulate the maximum amount (e.g., minutes per hour of programming) of TV advertising. In addition, policy makers believe that some (de)merit goods must not be advertised and paternalistic considerations suggest advertising bans

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<sup>14</sup> Conseil Supérieur de l'Audiovisuel, 2009

on specific products. Rather surprisingly, economic scholars focused the second point, while the economic analysis on advertising ceilings is extremely thin<sup>15</sup>.

Anderson (2007) uses a two-sided market model to investigate the effects of advertising caps on social welfare. The disutility that consumers as readers or viewers derive from advertising may be particularly high with respect to the benefits accruing to advertisers. With high ad aversion the level of advertising in equilibrium may be excessive with respect to the social optimum. The opposite circumstance of over provision of advertising takes place if the advertising nuisance for consumers is lower than the return for advertisers. Therefore, an advertising cap is socially beneficial in the first case and harmful in the second. Anderson (2007) studies the advertising choice of a monopolist platform. With low advertising nuisance, the monopolist determines a level of advertising which is below the optimal level. Under this circumstance, the effect of an advertising cap is a further reduction of social welfare. If we consider the opposite scenario with high advertising nuisance, the level of advertising is over the social optimum. This means that an advertising cap will increase social welfare. However, the monopolist profits will fall as well, and this may reduce the incentives for other firms to enter the market and increase the variety of programming.

Although these results are quite reasonable, they refer to a monopolist platform/editor. In case of more than one firm in the market, strategic considerations play a major role in shaping the equilibrium outcome. In addition, the equilibrium changes according the assumptions on viewers' behaviour, profit functions of media outlets and advertising demand function. Anderson (2007) also studies the effects of advertising caps on the quality of programming and on the degree of diversity between competing platforms. The results in terms of content quality and variety are mixed and, once more, related to a monopoly market.

In Australia television advertising was deregulated in September 1987 (with the aim of reducing the rate of interruption to programs) by allowing stations more flexibility in their scheduling of ad time. Wright (1994) claims that deregulation caused an increase in the amount of non-program content. To explore this issue, Wright (1994) puts forward a duopoly model where commercial TV stations compete and shows that the

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<sup>15</sup> A correct and complete evaluation of the effects of advertising caps on producers, consumers and media should include a broad discussion about the role of advertising in modern economies. See Anderson (2007).

regulation of the number of advertisements per unit of time both below the joint profit maximizing level (for appropriate parameters) and below the Nash equilibrium level (for different appropriate parameters) can reduce program quality. Therefore, depending on the parameters of the model, fostering competition may be preferable to regulating the amount of advertisements per unit of time.

Finally, Stuhmeier and Wenzel (2010) analyse the effects of advertising bans. The main assumptions of their theoretical model are the following: two TV channels, horizontal program differentiation, a continuum of TV viewers. They assume that there is a continuum of advertisers with measure 1, with a utility function given by

$$U = A(a_1 + a_2) - \frac{1}{2}(a_1^2 + a_2^2 + 2ba_1a_2)$$

where  $A$  is the size of the advertising market and  $a_i$  is the demand of advertising on channel  $i$ . This assumption leads to an indirect demand of advertising given by

$$p_i = A - a_i - ba_j$$

where  $p_i$  is the price of an advertising unit and the parameter  $b$  measures the differentiation of the channels in the eyes of the advertisers. Stuhmeier and Wenzel (2010) stress that this approach allows for a correct description of “pecuniary externalities”, that is, the effect on the advertising price caused by the advertising decisions of each media outlet<sup>16</sup>. The main objective of Stuhmeier and Wenzel (2010) is to explore the effect of an asymmetric advertising cap, that is, an upper bound imposed only to the advertising time of a single broadcaster. The model of Stuhmeier and Wenzel (2010) predicts that an advertising cap will have the following effects: i) the unregulated channel will increase its advertising level if advertising is a strategic substitute and decrease its advertising level if advertising is a strategic complement; ii) strengthening the cap will make the price of advertising rise on both TV channels; iii) after the introduction of the advertising cap, the unregulated TV station gain higher profits if the degree of differentiation in the eye of advertisers is over a given level; otherwise, the profits of the unregulated private channel decrease; iv) for moderate levels of regulation, the profit of the regulated channel may increase after the introduction of advertising caps.

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<sup>16</sup> However, the utility of advertisers is not affected by the number or characteristics of each channel’s viewers; in other words, they abstract from indirect network effects that typically characterize two sided markets.



The theoretical approach of Stuhmeier and Wenzel (2010) is very close to the theme that this paper wants to investigate empirically. Thus, the next section will try to generalize the results of Stuhmeier and Wenzel (2010) and other authors in order to propose a theoretical background for the empirical analysis described in the fourth and fifth Section.

### 3. Theoretical background

Although this paper deals with two-sided markets, the theoretical and empirical analysis will focus on the advertising market. In fact, broadcasting televisions derive the bulk of their revenues from selling advertising time, given the nature of public good of TV programs on the viewers' side<sup>17</sup>. We first formalize a theoretical argument in general terms, then we apply the very same argument to the total suppression of advertising on a single TV station. In particular, we study the effects produced by a change of the level of advertising of a single TV station. In the rest of the section we assume a duopoly market, with a public station competing with a private station. In particular, we assume a public TV station which reduces its level of advertising because of an advertising cap; in other words, we have a "regulated" public station competing with an "unregulated" private station. The reduction of advertising of the public TV station will produce the following effects.

- 1) The first effect derives from cross network externalities. If we assume viewers adverse to advertising<sup>18</sup>, the audience of the public station raises and, *ceteris paribus*, the audience of the private station decreases. This effect increases the demand for advertising of the public station or, in other words, the willingness to pay of advertisers to advertise on the public TV increases.
- 2) The second effect is sometimes described "pecuniary externalities" (Reisinger et al., 2009) and goes in the opposite direction, at least partially: the reduction of

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<sup>17</sup> In many countries a possession fee is levied to finance the TV channels controlled by the State.

<sup>18</sup> Most contributions of media economics, for example Anderson (2005); Mangani (2003), Anderson and Coate (2005); Ambrus and Reisinger (2005); Choi (2006); Crampes et al. (2004); Gabszewicz et al. (2004); Kind et al. (2009); Kohlschein (2004); Kremhelmer and Zenger (2008); Peitz and Valetti (2008) assume that consumers dislike advertising. Exceptions are Hackner and Nyberg (2000), who assume that readers like advertising in print media, and Sonnac (2000), who considers feedbacks from advertising to circulation under the two alternative assumptions of consumer advertising aversion and advertising appreciation. Also Armstrong (2005), considers alternative scenarios, characterized by aversion, love or indifference towards advertising.

advertising on the public station determines a reduction of total supply of advertising. If we assume an inverse demand function for advertising taking the form of  $p_A=f(W)$  with  $f'<0$ , where  $p_A$  is the price per viewer-time and  $W$  is the total supply of viewers-time units, the price of advertising will increase after an advertising ban.<sup>19</sup>

There are two crucial points in the pecuniary externalities argument. First, the price of advertising needs to be unique. This contrasts with the causal observations of frequent price differentiation in the advertising market. Second, the economic rationale behind the argument may not hold when a TV station *decreases* its advertising level. Here, the competitor has no interest in stabilizing the increasing advertising price.

Broadly speaking, the reduction of advertising quantity determines ambiguous effects on the price of advertising. These effects depend on the structure of the market (namely, the number of broadcasting firms), the degree of product differentiation across media outlets (Reisinger et al., 2009), etc.

The relative importance of network and/or pecuniary effects affects the definition of advertising levels as strategic substitutes or strategic complements. Since advertising is an implicit price for viewers, the levels of advertising can be seen as strategic complements: when a TV station increases the advertising quantity, the other does the same, and the other way round. However, when we consider pecuniary externalities, the picture is more complex. In fact, when a (public) TV station increases the level of advertising, the price of advertising decreases. As a reaction, the competitor has an incentive to reduce its level of advertising to stabilize the price; from this perspective, the advertising levels may be seen as strategic substitutes.

The decision to ban advertising completely in a given time slot is an extreme case of this theoretical framework. In fact, when a broadcaster eliminates advertising in a given time slot it substantially exits the market, because the “effective” market of broadcasting television is on the side of advertisers. The competitor becomes a monopolist on the advertisers’ side, although it may find itself without a relevant

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<sup>19</sup> The “modern” studies on media markets focus on the first effect to highlight the importance of cross network externalities. Only Reisinger et al (2009) and Stuhmeier and Wenzel (2010) treat explicitly the pecuniary externalities. In reality, Masson et al. (1990) analyzed the second and direct effect of “advertising supply” on price, and then showed the importance of advertising aversion and network externalities for the market equilibrium.

audience that has shift to the station without advertising. Potentially, this circumstance creates a large inefficiency. The market outcome is therefore ambiguous. For example, if the degree of program differentiation is relatively large with respect to advertising aversion, the absence of advertising on a single TV station will not shift the audience from its competitor. If the pecuniary effect prevails upon the cross network effects, the private/monopolist/unregulated broadcaster keeps positive levels of advertising and increase its revenues. Conversely, if advertising aversion prevails upon program differentiation, viewers may abandon the private and unregulated TV channel which, although monopolist on the advertisers' side, cannot exploit its market power. Advertising aversion of TV viewers and product differentiation between media outlets are difficult to estimate directly. Therefore, the empirical analysis regarding the French experience has the objective to explore these issues by focusing on the consequences of the ban in the advertising market.

#### **4. Data**

The dataset contains data on quantity of advertising (number of spots and seconds) and advertising revenues per channel (aerial, satellite, cable and digital) for each week in the seasons 2007-2008 and 2008-2009 (excluding the summer months, i.e. July and August)<sup>20</sup>. We are therefore able to calculate the average price per spot and price per second, in addition to the length of a spot. As already mentioned, starting from the 6<sup>th</sup> of January 2009, advertising was banned on public aerial television (“hertziennes channels”) in the time period 20.00-6.00, which includes prime-time. We have data both before and after the ban in the season 2008-2009.

Figure 1 reports summary statistics. Note that we have data on 42 weeks for 2 time slots during the day for 2 seasons for 91 channels, which implies a maximum number of observations equal to 15288.

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<sup>20</sup> The data were obtained from TNS France.

**Table 1 – Descriptive statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Standard deviaton</b>
revenues	14165	807027.6	3574208
spots	14165	515.6939	522.1669
seconds	14165	10791.83	10608.26
night time	15288	0.5054945	0.4999862
bann	15288	0.297619	0.457226

In addition for the same time periods we have also data on shares of audience for the main channels, the smaller ones (cable, satellite, TNT)

Finally, we also added data on the stock market performance of the firms owning Tv channels in the periods above.

## **5. Empirical Analysis of the Advertising Market**

We use a difference in difference approach and compare for each channel and for each week between September and June the season 2008-2009, in which the ban was introduced, to the season to the season 2007-2008. We compare separately the slots 20.00-6.00 and 6.00-20.00 because we cannot rule out a priori that there is substitution between the two slots.

Thus we look at whether the difference between the two seasons changed significantly following the introduction of the ban.

As shown in Figure 1, advertising quantity dropped almost to zero in the slot 20.00-6.00 after the introduction of the ban, the reason for the remaining advertising being that advertising campaigns on social issues were still allowed.

**Figure 1**

**Ad Seconds Public 20.00-6.00**

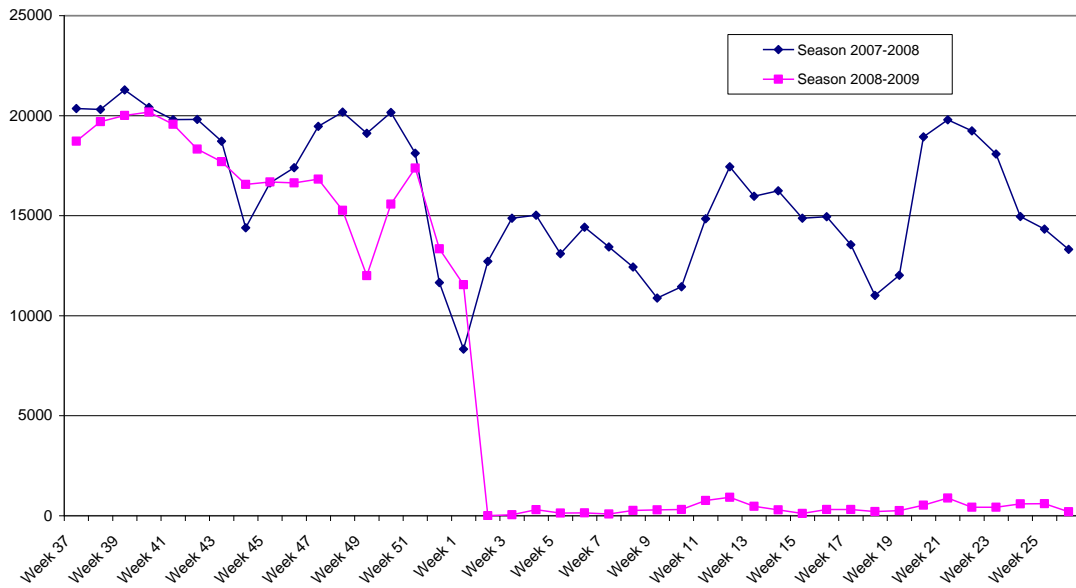
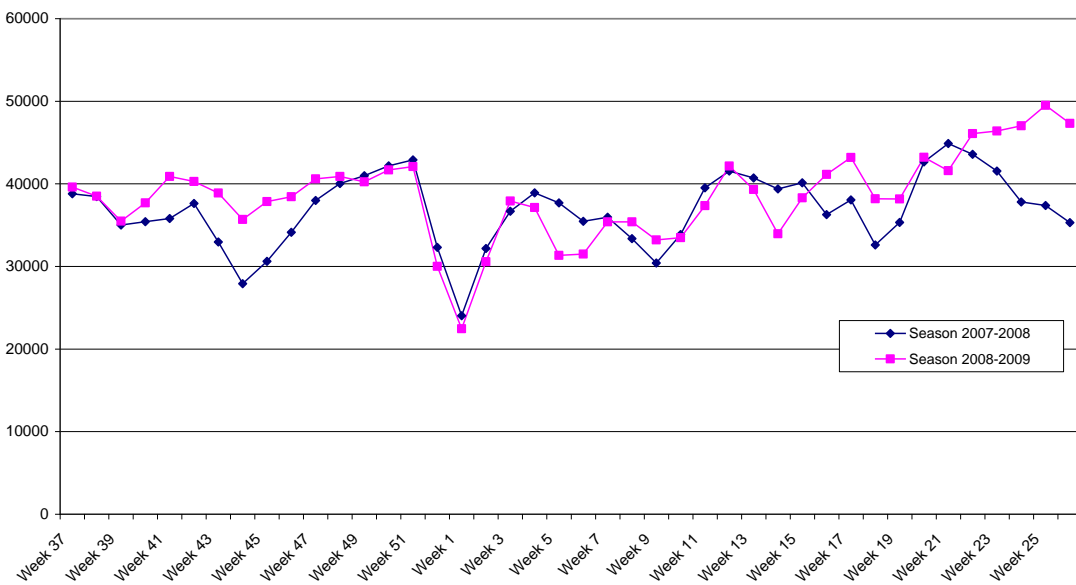


Figure 2 shows instead that advertising quantity on private TV channels in the slot 20.00-6.00 did not change significantly. Indeed, as shown in Table 2, a difference in difference approach estimates a non significant decline in the difference between the 2008-2009 season and the 2007-2008 season.

**Figure 2**

**Ad Seconds Private 20.00-6.00**



**Table 2 Difference in difference: seconds of advertising on private TV during the night (20:00-06:00)**

	Difference in difference seconds
bann	-107.4
	(358.2)
constant	672.5**
	(276.4)
Observations	126
R-squared	0.001

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

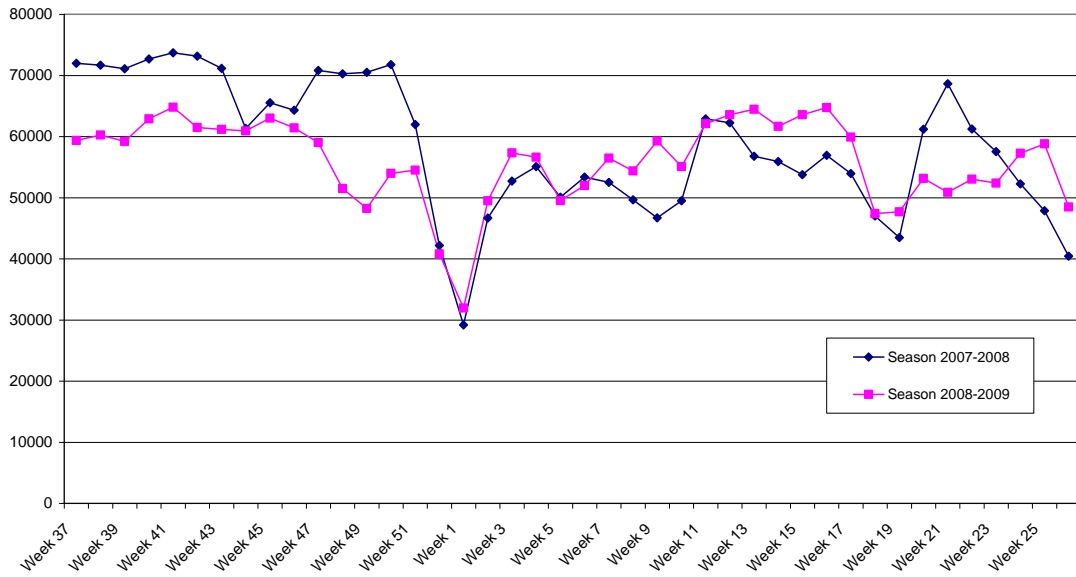
Between Week 37 and Week 52 in the Season 2008-2009 there were on average across channels 672 more seconds of advertising than in the same weeks in Season 2007-2008. Such a difference was instead lower and equal to 565 seconds between Week 1 and Week 26. The difference between the two seasons is significant but its difference between the pre ban and the post ban period is not significant as shown in Table 2.

Figure 3 shows instead that advertising quantity on public TV channels in the slot 6.00-20.00 did not change significantly. Indeed, as shown in Table 3, a difference in difference approach estimates a significant decline in the difference between the 2008-2009 season and the 2007-2008 season.

[insert comment to Table 3 here]

**Figure 3**

**Ad Seconds Public 6.00-20.00**

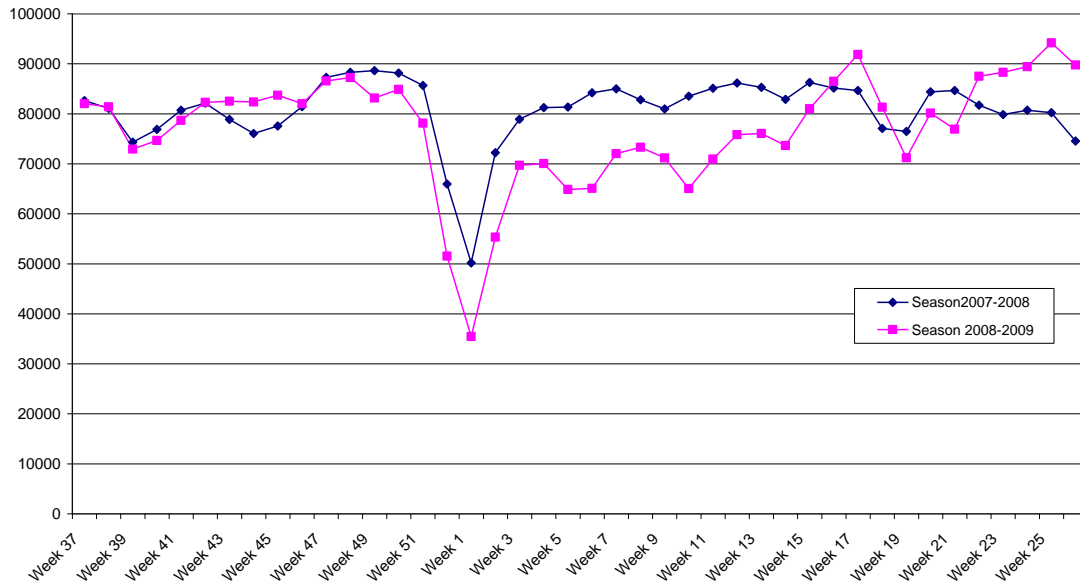


[insert Table 3 here]

Finally with regard to advertising on private TV channels in the time slot 6.00-20.00 Figure 4 shows, at least initially, a significant decline after the ban. Indeed, as shown in Table 4, a difference in difference approach estimates a significant decline in the difference between the 2008-2009 season and the 2007-2008 season.

Figure 4

Ad Private Seconds 6.00-20.00



[insert Table 4 and comment to table 4 here]

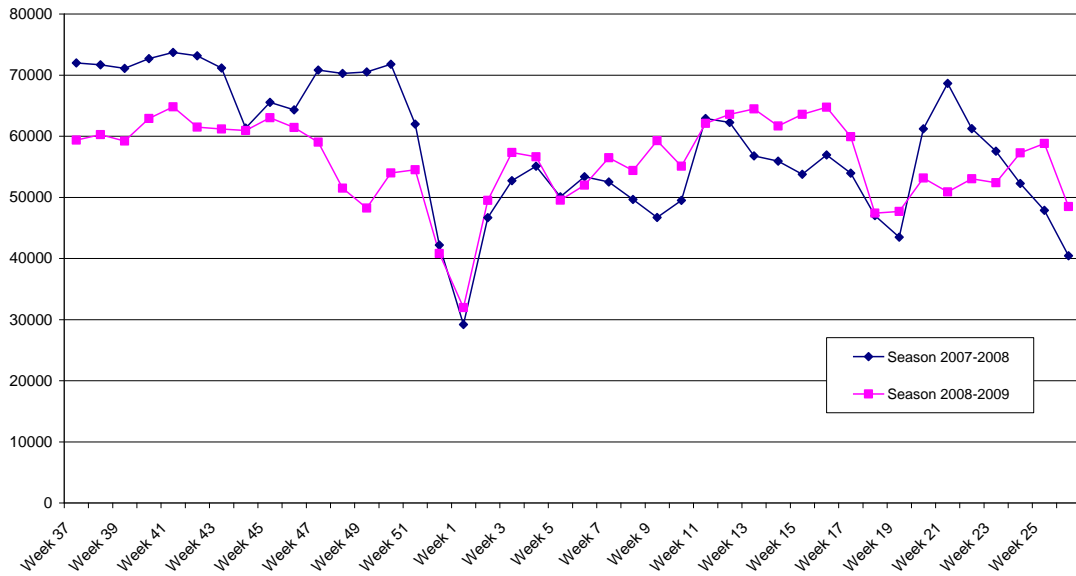
Finally with regard to advertising on public TV channels in the time slot 6.00-20.00 Figure 5 shows, at least initially, a significant increase after the ban. Indeed, as shown in Table 5, a difference in difference approach estimates a significant decline in the difference between the 2008-2009 season and the 2007-2008 season.

Table 5 can be read as follows: between Week 37 and Week 52 in the Season 2008-2009 there were on average across channels 2,336 fewer seconds of advertising than in the same weeks in Season 2007-2008. After the ban, i.e. in Week 1 to 26, there were instead on average 608 more seconds of ads. The difference between the two seasons is significant and such is also the difference between the pre ban and the post ban period.



**Figure 5**

**Ad Seconds Public 6.00-20.00**



**Table 5 Difference in difference: seconds of advertising on public TV during the day (06:00-20:00)**

	Difference in difference seconds
bann	2,944***
	(411.8)
constant	-2,336***
	(317.7)
Observations	168
R-squared	0.235

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

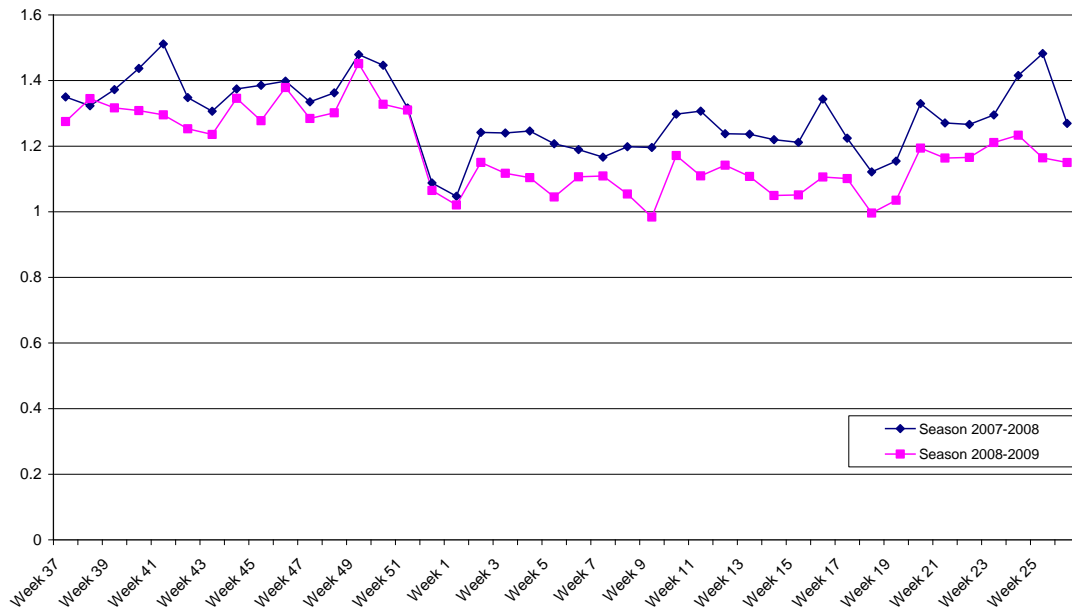
Having established that advertising quantity did not shift to private TV in the slot 20.00-6.00 nor in the slot 6.00-20.00 but rather partly shifted to public TV in the slot which was not subject to the ban, we now check whether this is due to an increase in the price of advertising on private TV.

Figure 6 shows that advertising price per second in the time slot 6.00-20.00 on private TV channels dropped after the ban. Indeed, as shown in Table 6, a difference in

difference approach estimates a significant decline in the difference between the 2008-2009 season and the 2007-2008 season.

**Figure 6**

**Price per Second Private 20.00-6.00**



**Table 6 Difference in difference: price per second of advertising on private TV during the night (20:00-06:00)**

	Difference in difference price per second
bann	-51.98**
	(25.55)
constant	-42.81**
	(19.71)
Observations	126
R-squared	0.032

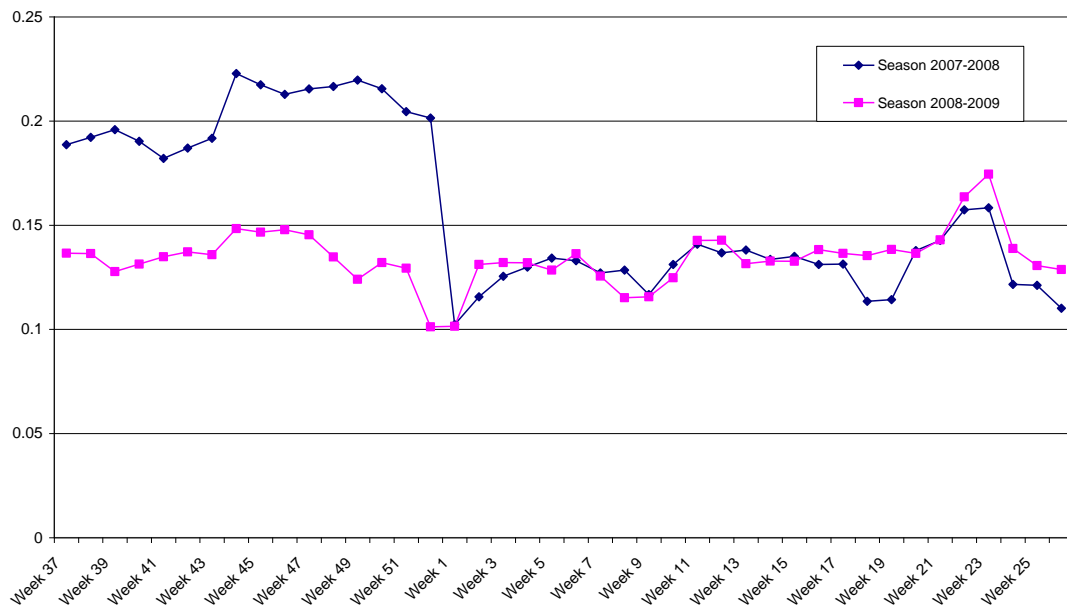
Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6 can be read as follows: between Week 37 and Week 52 in the Season 2008-2009 the price per second was 42 euros lower than in the same weeks in Season 2007-2008. After the ban, i.e. in Week 1 to 26, it was instead 95 euros lower. The difference between the prices in the two seasons is significant and so is also its difference between the pre ban and the post ban period.

Figure 7 shows that advertising price per second in the time slot 6.00-20.00 on public TV channels increased after the ban. Indeed, as shown in Table 6, a difference in difference approach estimates a significant increase in the difference between the 2008-2009 season and the 2007-2008 season.

**Figure 7**

**Price per Second Public 6.00-20.00**



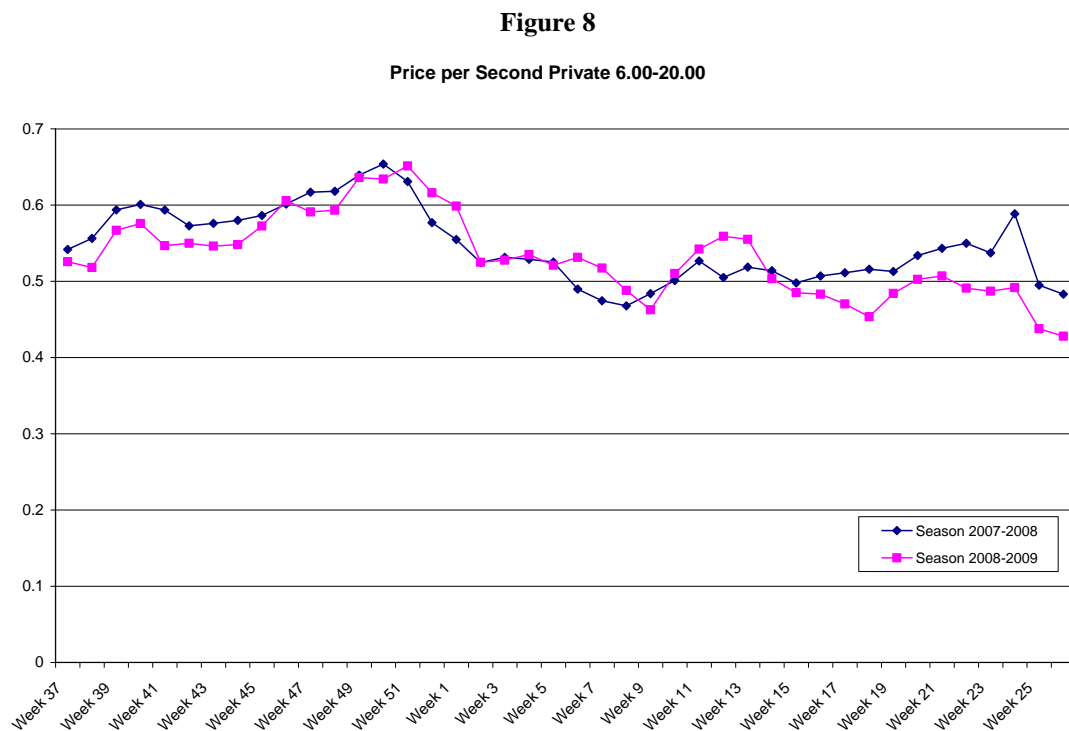
**Table 7 Difference in difference: price per second of advertising on public TV during the day (06:00-20:00)**

	Difference in difference price per second
bann	80.28***
	(6.510)
constant	-84.89***
	(5.023)
Observations	168
R-squared	0.478

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7 can be read as follows: between Week 37 and Week 52 in the Season 2008-2009 the price per second was 84 euros lower than in the same weeks in Season 2007-2008. After the ban, i.e. in Week 1 to 26, it was instead 4 euros higher. The difference between the prices in the two seasons is significant and so is also its difference between the pre ban and the post ban period. Note however that as of January 2008 (one year before the ban) public TV had changed the way it charged for advertising and advertising prices on public TV had de facto substantially dropped. After the reduction advertising prices on Public TV remained more or less stable.

Figure 8 shows that advertising price per second in the time slot 6.00-20.00 on private TV channels did not change substantially after the ban. Indeed, as shown in Table 8, a difference in difference approach estimates an insignificant increase in the difference between the 2008-2009 season and the 2007-2008 season.



**Table 8 Difference in difference: price per second of advertising on private TV during the day (06:00-20:00)**

	Difference in difference price per second
bann	7.471
	(12.95)
constant	-7.995
	(9.953)
Observations	127
R-squared	0.003

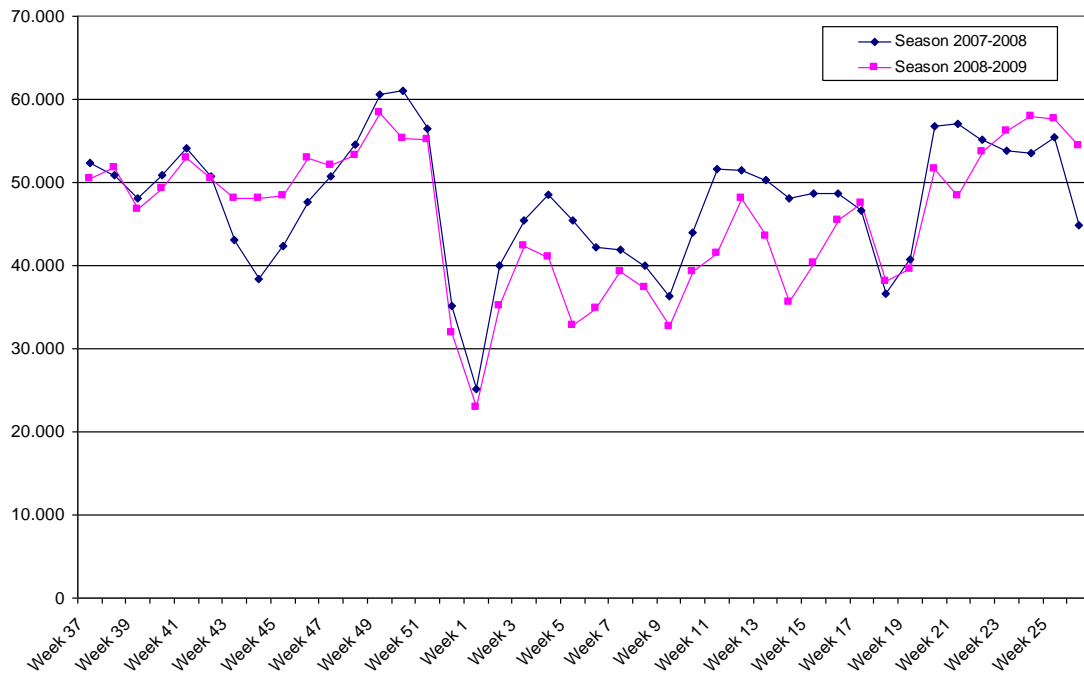
Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Indeed, looking at Table 8 one can see that: between Week 37 and Week 52 in the Season 2008-2009 the price per second was 8 euros lower than in the same weeks in Season 2007-2008. After the ban, i.e. in Week 1 to 26, it was instead only 0.5 euros higher. The difference between the prices in the two seasons is not significant and so is also its difference between the pre ban and the post ban period.

Having established that advertising nprices per second dropped on private TV channels in the slot 20.00-6.00 and di not change in the slot 6.00-20.00 while ad prices on public TV in the slot 6.00-20.00 might even have risen, the consequences for advertising revenues are easily derived.

Ad Revenues Private 20.00-6.00

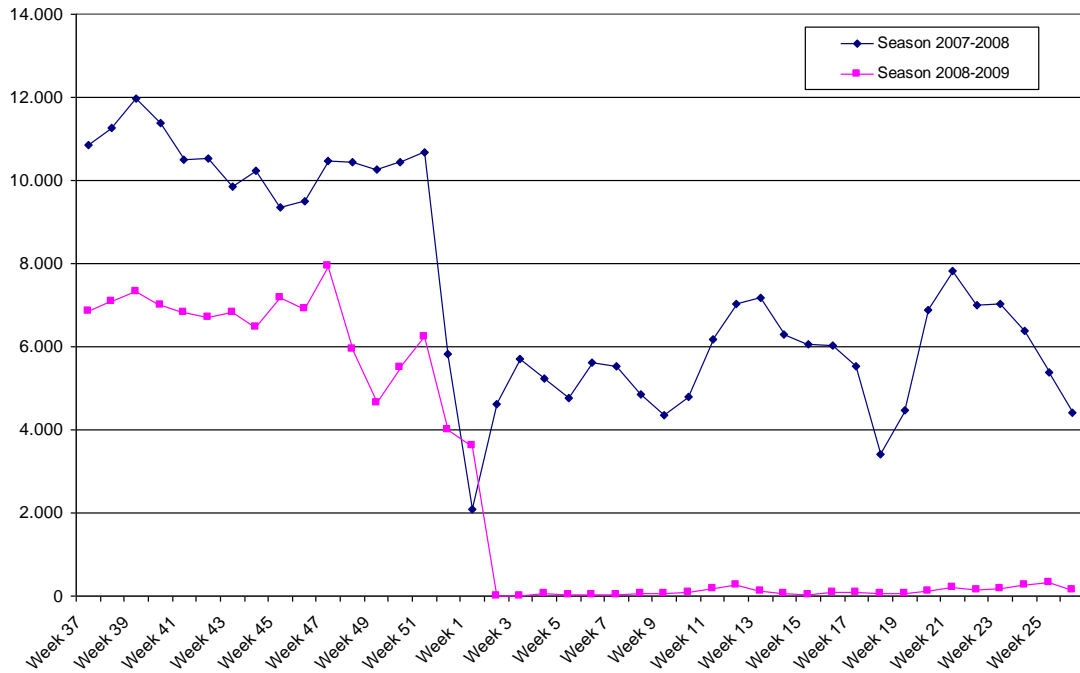


**Table 8 Difference in difference: advertising revenues on private TV during the night (20:00-06:00)**

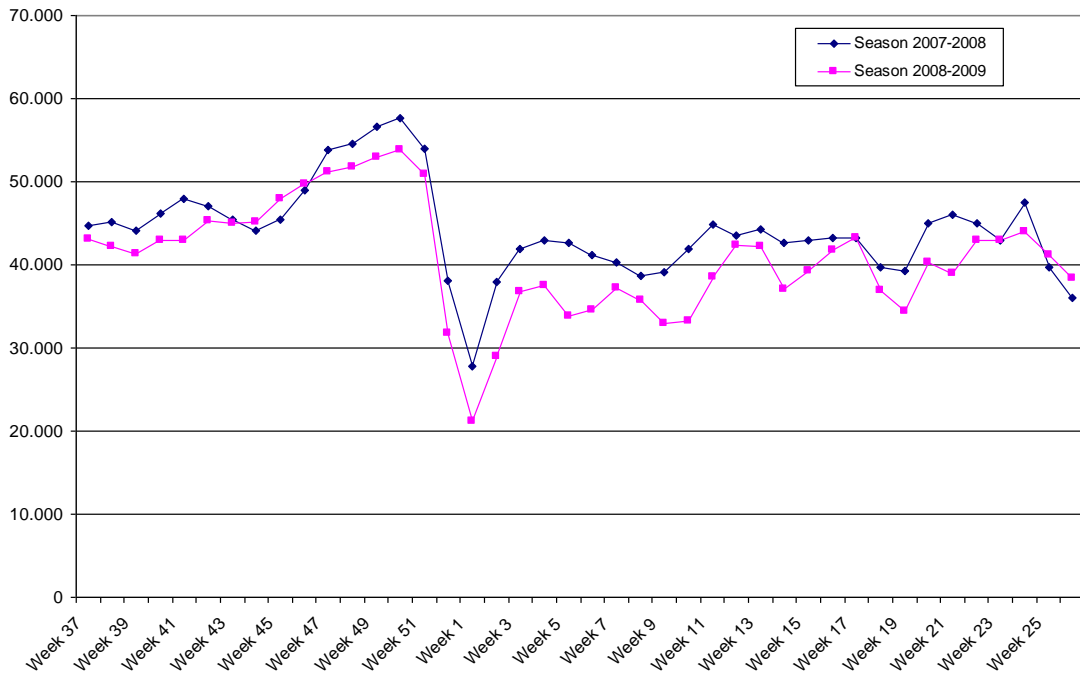
	Difference in difference ad revenues
bann	-1.265e+06**
	(505,675)
constant	123,015
	(390,137)
Observations	126
R-squared	0.048

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Ad Revenues Public 20.00-6.00**



**Ad Revenues Private 6.00-20.00**



**Table 9 Difference in difference: advertising revenues on private TV during the day (06:00-20:00)**

	Difference in difference ad revenues
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bann	-102,379
	(456,542)
constant	-941,914***
	(350,841)
Observations	127
R-squared	0.000

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues Public 6.00-20.00

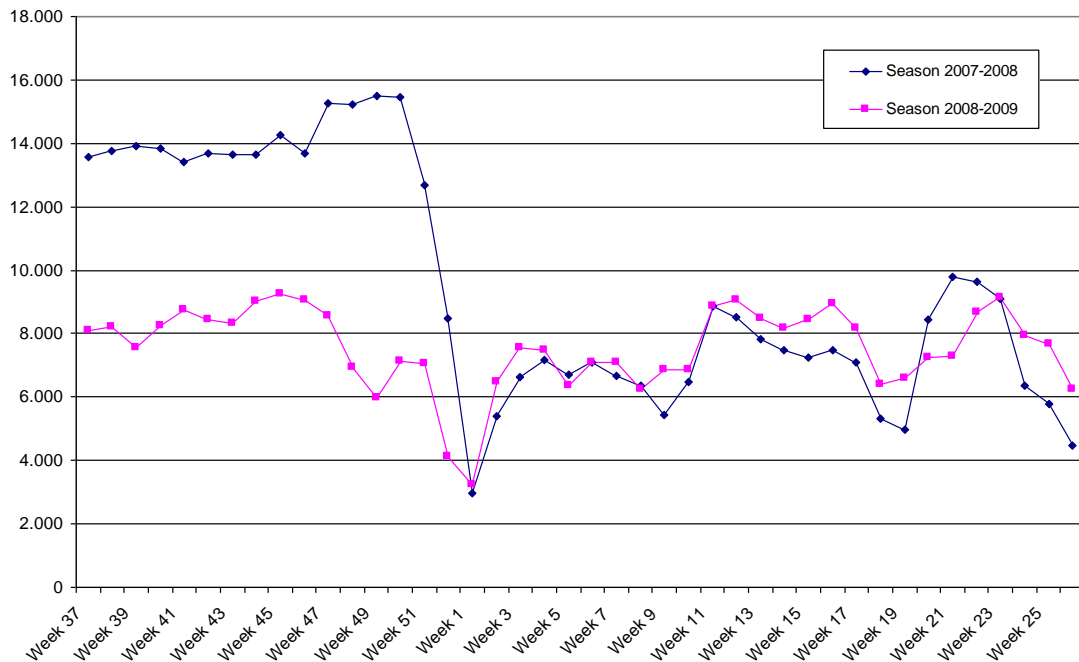


Table 10 Difference in difference: advertising revenues on public TV during the day (06:00-20:00)

	Difference in difference ad revenues
bann	1.528e+06***
	(117,494)
constant	-1.397e+06***
	(90,648)
Observations	168

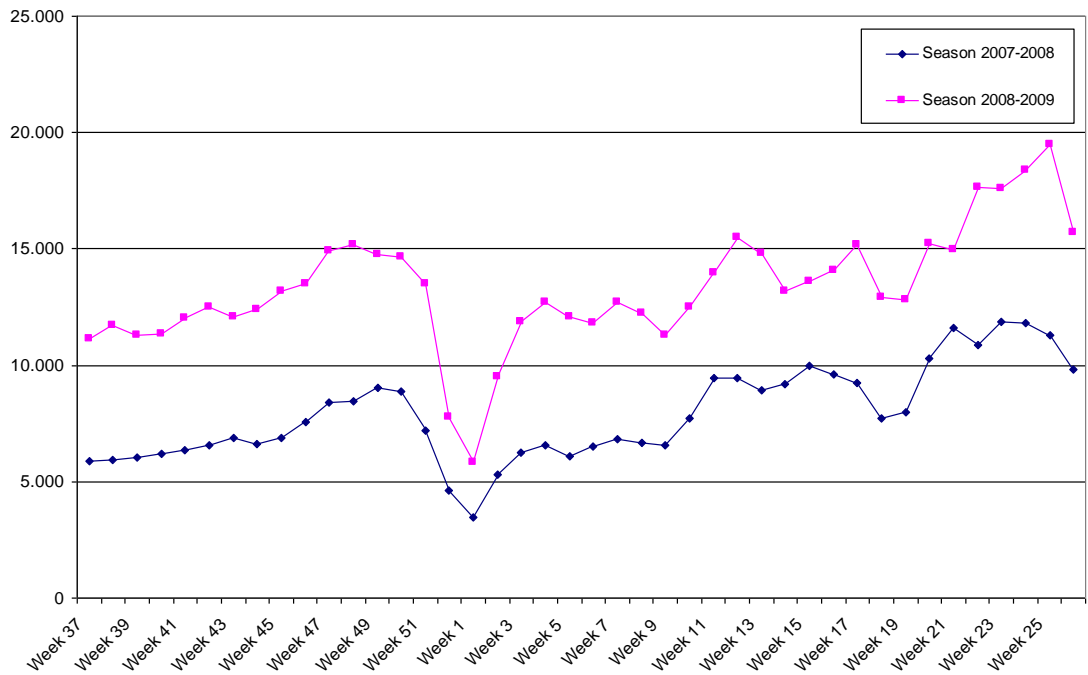


R-squared	0.505
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Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues Digital 20.00-6.00



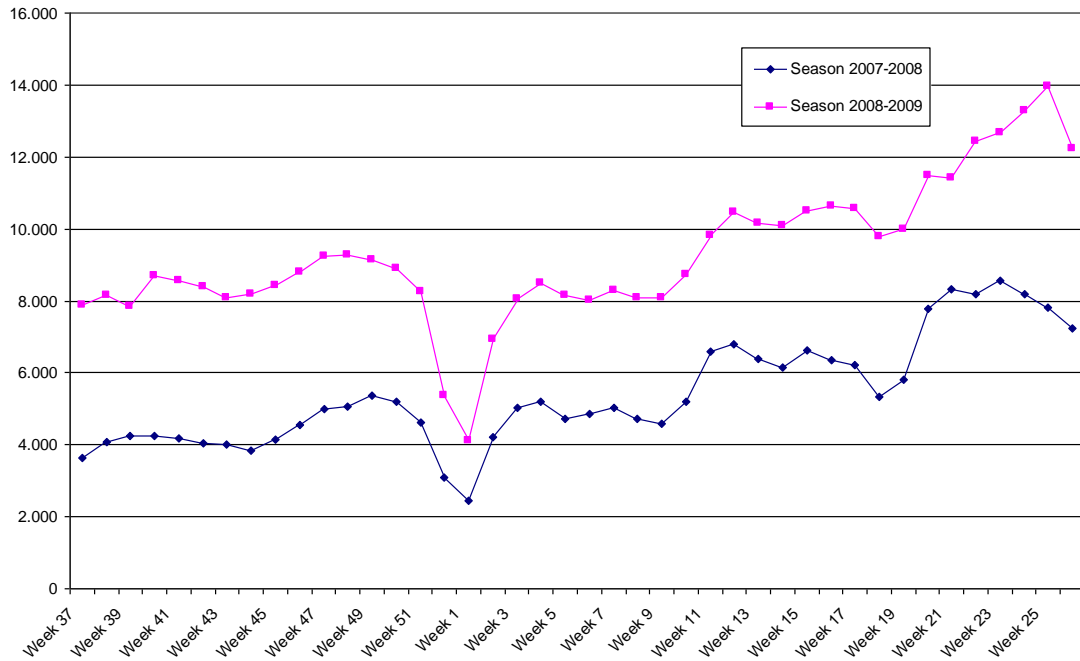
**Table 11 Difference in difference: advertising revenues on Digital during the night (20:00-06:00)**

	Difference in difference ad revenues
bann	16,503
	(34,208)
constant	361,569***
	(25,983)
Observations	442
R-squared	0.001

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Ad Revenues Digital 6.00-20.00**



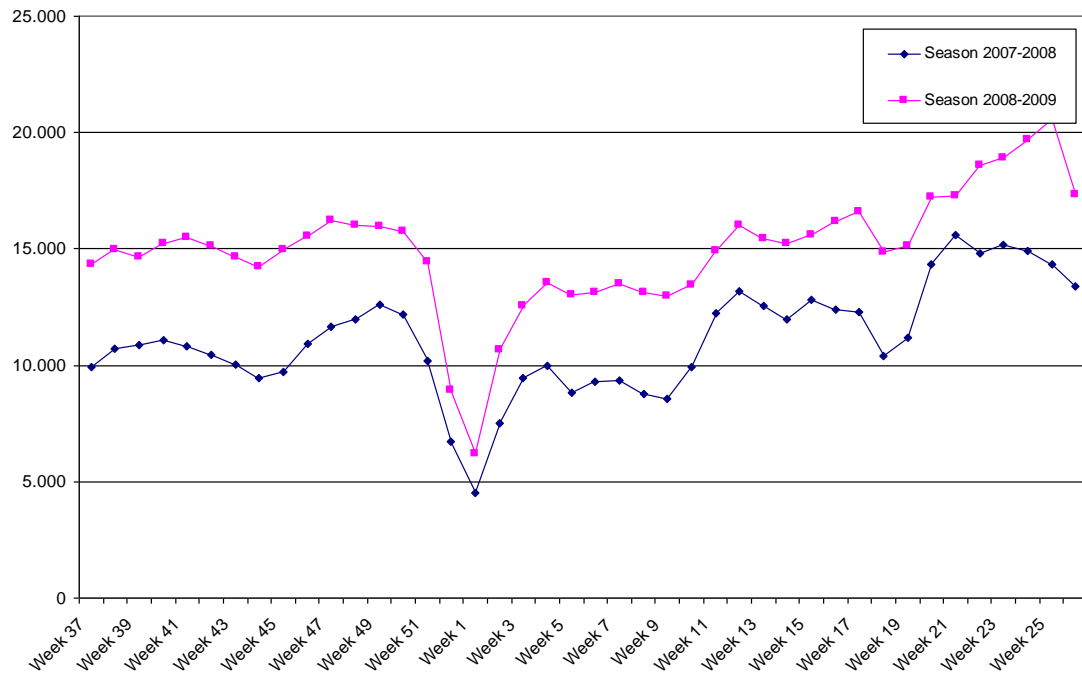
**Table 12 Difference in difference: advertising revenues on Digital during the day (06:00-20:00)**

	Difference in difference ad revenues
bann	17,710
	(36,799)
constant	531,651***
	(28,357)
Observations	421
R-squared	0.001

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues Digital + Cable & Satellite 20.00-6.00



**Table 13 Difference in difference: advertising revenues on Digital, Cable and Satellite during the night (20:00-06:00)**

	Difference in difference ad revenues
bann	-2,466
	(7,011)
constant	52,364***
	(5,394)
Observations	3,137
R-squared	0.000

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues Digital + Cable & Satellite 6.00-20.00

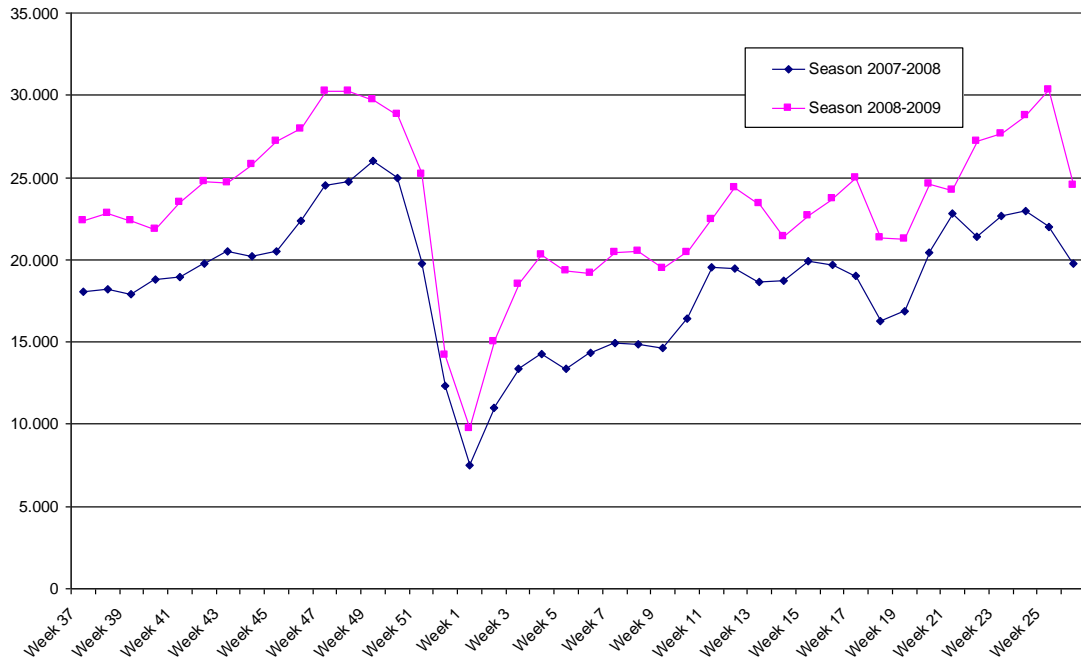


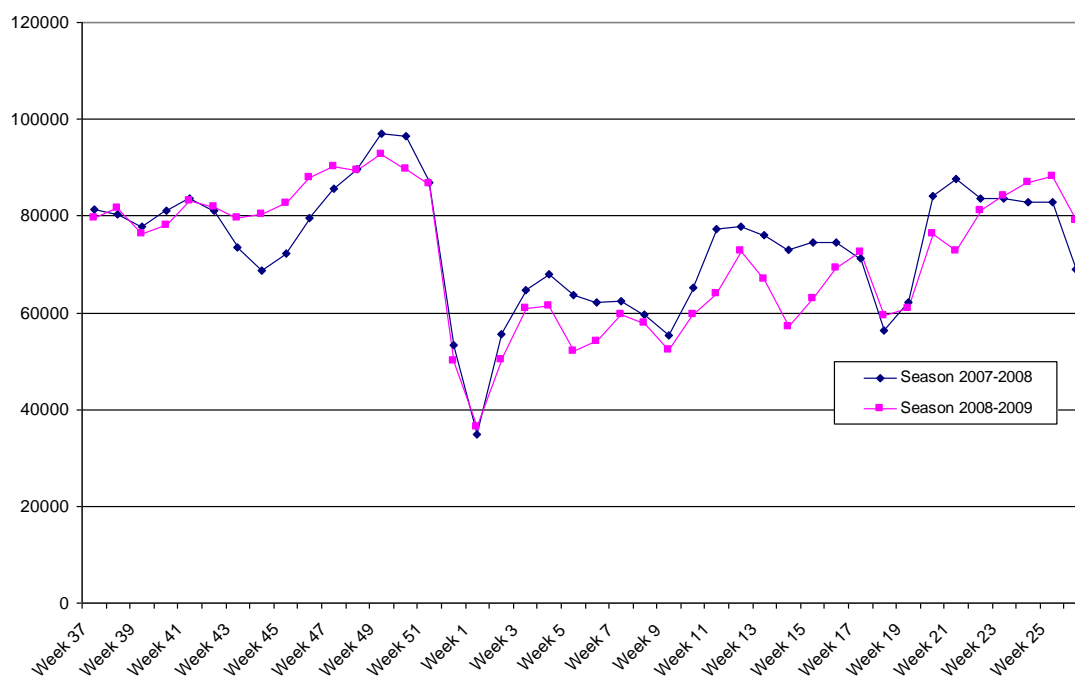
Table 14 Difference in difference: advertising revenues on Digital, Cable and Satellite during the day (06:00-20:00)

	Difference in difference ad revenues
bann	9,434
	(9,105)
constant	57,448***
	(7,024)
Observations	3,088
R-squared	0.000

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues 20.00-6.00



**Table 15 Difference in difference: market advertising revenues during the night (20:00-06:00)**

	Difference in difference ad revenues
bann	-75,471***
	(25,447)
constant	10,727
	(19,573)
Observations	3,347
R-squared	0.003

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Ad Revenues 6.00-20.00

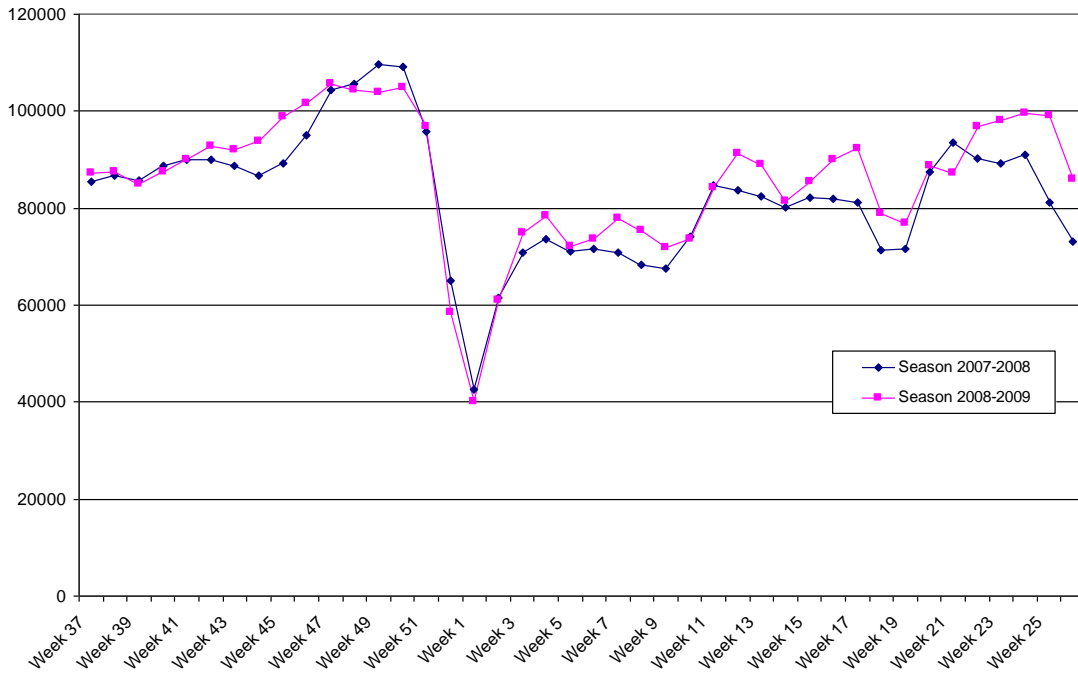
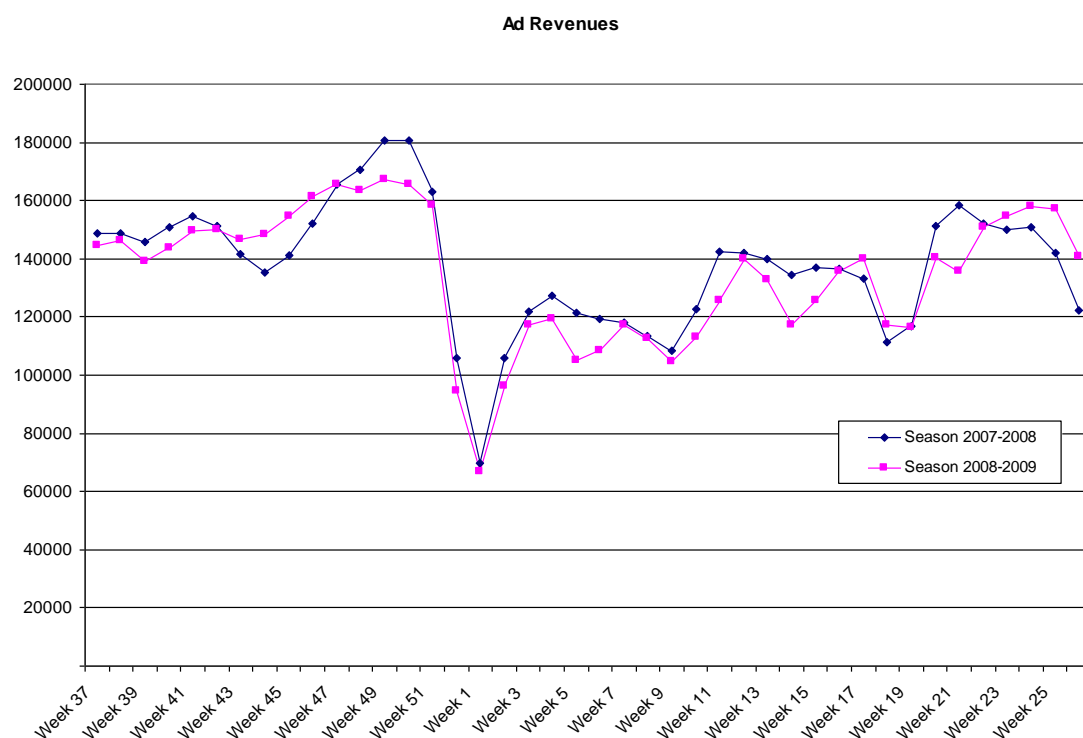


Table 16 Difference in difference: market advertising revenues during the day (06:00-20:00)

	Difference in difference ad revenues
bann	81,320***
	(22,151)
constant	-52,659***
	(17,087)
Observations	3,383
R-squared	0.004

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table 17 Difference in difference: market advertising revenues all 24 hours**

	Difference in difference ad revenues
bann	3,345
	(16,887)
constant	-21,001
	(13,007)
Observations	6,730
R-squared	0.000

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All this seems to suggest that advertising which was previously broadcasted on public TV in the time slot 20.00-6.00 did not switch to private channels in the same time slot (nor was the price in that time slot on private channels increased). Rather advertising switched to public TV in the time slot 6.00-20.00.

This might imply that from the point of view of advertisers viewers are more differentiated between public and private channels than they are across time slots: a

person watching public TV in the 6.00-20.00 time slot is a better substitute for one who watches public TV in the time slot 20-00-6.00 than one who watches TV on a private channel.

All in all, the preliminary evidence shown above would seem to suggest that the common expectation that the ban would favour private TV channels at the expense of public ones was not fulfilled.

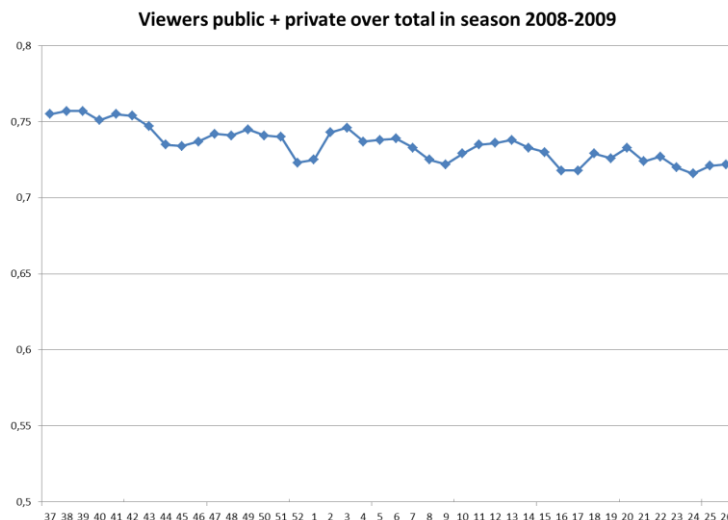
The empirical evidence above also seems to suggest that, while advertising on digital television is growing, its growth has not been affected by the ban coming into effect on January 6th. Similarly, advertising does not seem to have switched to cable and satellite.

It would thus seem justified to focus our attention on the competition between public and private aerial TV channels when approaching the other side of the two-sided market

## 6. Some empirical evidence on the audience market

We do not have yet absolute audience data nor do we have audience data divided by time slot. The audience of free-to-air channels appears to have been declining, while that of cable, satellite and digital TV channels has been increasing. This is shown in Figure 18 which reports the audience share of aerial TV over all TV audiences.

**Figure 18**



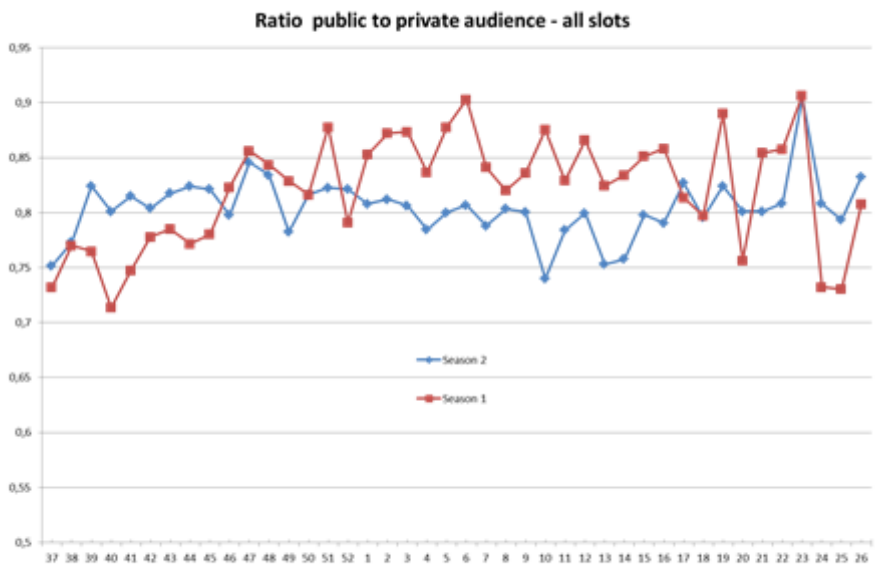


The presence of a linear trend is confirmed by the regression in Table 18.

[insert Table 18 here]

Figure 19 shows instead that surprisingly audience of public TV appears to have dropped with respect to that of private TV. This is confirmed by the difference in difference results in Table 19 below.

**Figure 19**



[insert Table 19 here]

It is not possible (for the moment) to calculate the advertising price per second per viewer and to test whether it changed following the ban using the same difference in difference approach used for the analysis of advertising.

However, it is possible to calculate the relative price per second per viewer on public TV with respect to private TV, by simply multiplying the ratio of prices per second with the reciprocal of the ratio of the audience shares.

Figure 20 shows that indeed the price per second per viewer has declined on private TV with respect to public TV.

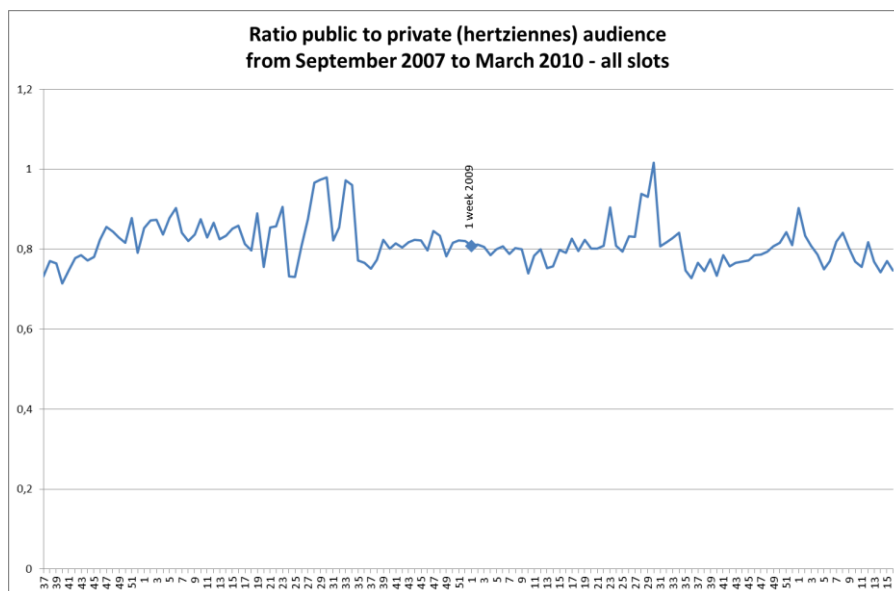
[insert Figure 20 here]

Table 20 tests the significance of such a decline.

[insert Table 20 here]

Note however, that if one takes a longer term perspective, the change in the relative audience is not extraordinary, i.e. larger relative audience changes have taken place before and after, for various reasons, including seasonality linked to the summer months, when public TV appears to increase substantially its audience compared to private aerial TV.

**Figure 21**



[audience analysis to be concluded here]

## 7. Conclusions

[to be added]

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