What the Newspapers industries decline after TV advertising

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Abstract

This article studies the impact of TV advertising on the newspaper industry from the advertising side and reader side. By analyzing the French data from 1960 to 1974, the difference in difference method results shows that, as a substitute, TV advertising will negatively impact the newspaper industry. The impact includes a decrease in revenue and a decrease in circulation, but an absolute increase in the subscription and individual purchase prices.

keywords: Difference in Difference, Newspapers, Advertising Revenues

Introduction

Nowadays, the popularity of newspaper advertising is far lower than that of TV and the Internet. The decline of the newspaper industry is inevitable, but when did the newspaper industry decline and from which aspects are the main research content of this article.

As the earliest media, the newspaper industry accounted for most of the advertising industry before 1960. However, with the permission of television advertising, the newspaper industry began to decline. The newspaper industry can be divided into national newspapers and local newspapers. Angelucci's article pointed out that TV advertising's popularity has a more significant impact on national newspapers than local newspapers. Angelucci analyzed the French data from 1960 to 1974, studied the influence of TV advertising on newspaper publishers and readers, and used the Difference in Difference method to fit the data with high research value. This article will then reproduce and analyze the main research results in the report.

The article is mainly divided into the following parts. First, the source and description of the data is given, then introduces the principle of the difference in difference method, and gives the response of publishers and readers to the impact of TV advertisements, and finally discusses and analyzes TV advertisements through the estimated model Brings a series of changes in the newspaper industry.

Data

The data set contains annual data on French local and national newspapers between 1960 and 1974, and detailed information about TV content. Data includes the advertising side and reader side output. Advertising side data mainly includes revenue, number of journalists, circulation, newspaper pages, and share of advertising, while reader side data includes newspaper price, the share of subscription, etc.

In 1967, the French government announced that it would relax the long-term ban on television advertising. This regulation has different effects on local newspapers and national newspapers, so we describe these variables separately. There are 1196 observations, 180 obs for national paper, 1015 obs for local paper. Table 1 shows the national newspaper industry data, and Table 2 shows the local newspaper data. Through comparison, we can find that there are more local newspapers than national newspapers. The revenue and circulation of national newspapers are higher than those of local newspapers.

To reflect the impact of TV advertising on the national and the local newspaper industry, the trend changes for publishers' side data are shown in Figure 1. The change of data from the reader's side is shown in Figure 2.

Table 1 –Summary statistics: National Daily Newspapers

	Mean	Median	SD	Min	Max	Observations
Price						
Unit buy price	3.6	3.5	1.3	2.4	9.3	152
Subscription price per issue	2.8	2.7	0.7	1.9	5.6	148
Display ad rate(listed price)	121.1	114.5	81.0	17.5	274.2	121
Revenues and journalists						
Total Revenues	425	271	403	19	1482	162
Revenues from advertising	228	103	258	7	864	161
Revenues from sales	199	145	181	12	657	162
Share of advertising in total revenues	47.4	51.1	21.3	8.0	81.0	162
Number of journalists	117	85	81	21	326	158
Circulation						
Total circulation	295210	181574	292838	16112	1143676	162
Share of subscribers	25.6	18.5	26.3	0.7	92.3	163
content						
Number of pages	19	17	7	8	38	138
Newshole (nonadvertising space)	13	13	4	6	25	138
Advertising space	5	4	4	0	16	138

Table 2 –Summary statistics: Local Daily Newspapers

	Mean	Median	SD	Min	Max	Observations
Price						
Unit buy price	3.2	3.3	0.8	0.8	5.7	911
Subscription price per issue	2.8	2.7	0.7	0.7	4.7	896
Display ad rate(listed price)	80.3	57.7	72.6	3.8	327.2	688
Revenues and journalists						
Total Revenues	146	65	176	1	1026	888
Revenues from advertising	67	30	79	1	416	891
Revenues from sales	79	36	102	0	751	884
Share of advertising in total revenues	46.5	45.9	8.3	7.1	70.4	878
Number of journalists	53	27	58	1	297	907
Circulation						
Total circulation	101487	50586	119774	1480	654992	908
Share of subscribers	27.5	23.3	22	1.0	100.1	909
content						
Number of pages	15	15	6	2	66	908
Newshole (nonadvertising space)	12	12	4	2	34	908
Advertising space	3	2	3	0	32	908

Model

The difference in difference regression equation is :

$$y_{n,t} = \alpha + \beta_t(D_{after} * D_{nationalnews}) + \lambda_n + \gamma_t + e_{n,t}$$

where $y_{n,t}$ is the outcome of interest D_{after} is the time dummy to indicator before and after 1967 $D_{nationalnews}$ is an indicator variable for national newspaper λ_n is the fixed effect for newspaper γ_t is the fixed effect for

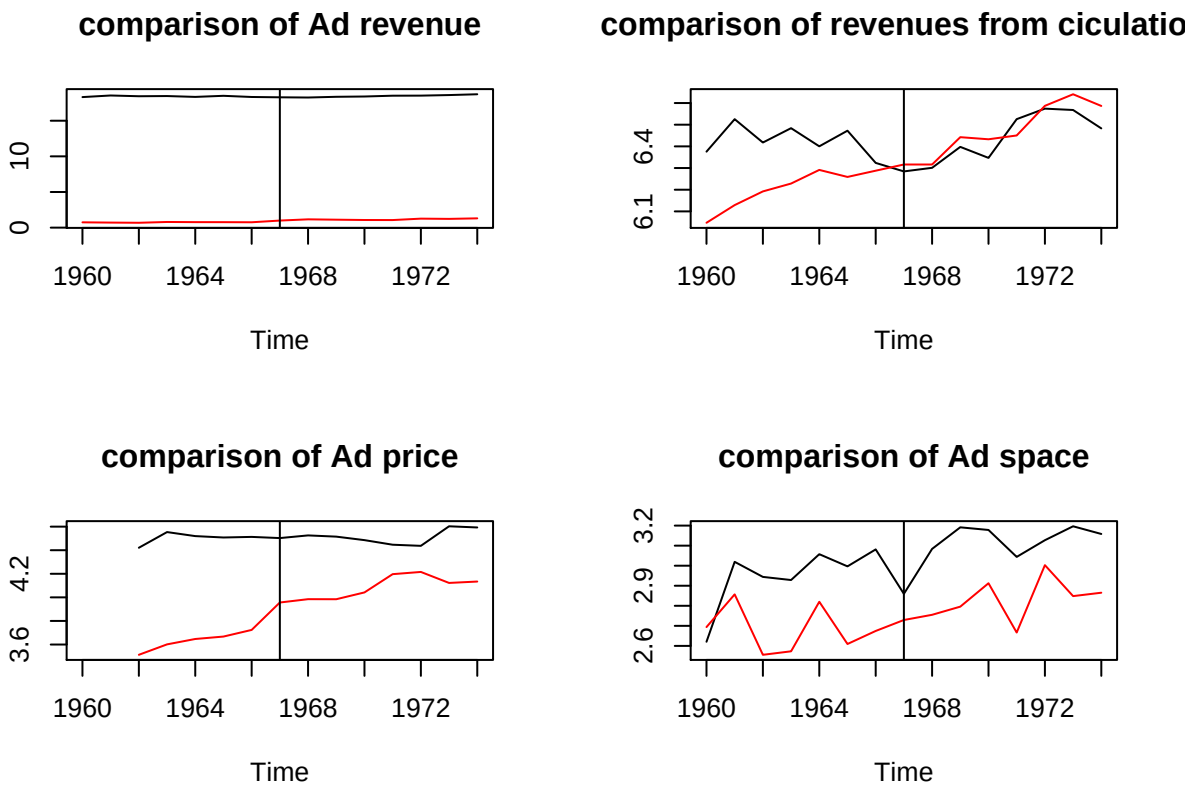

Figure 1: Trend of local and national advertising

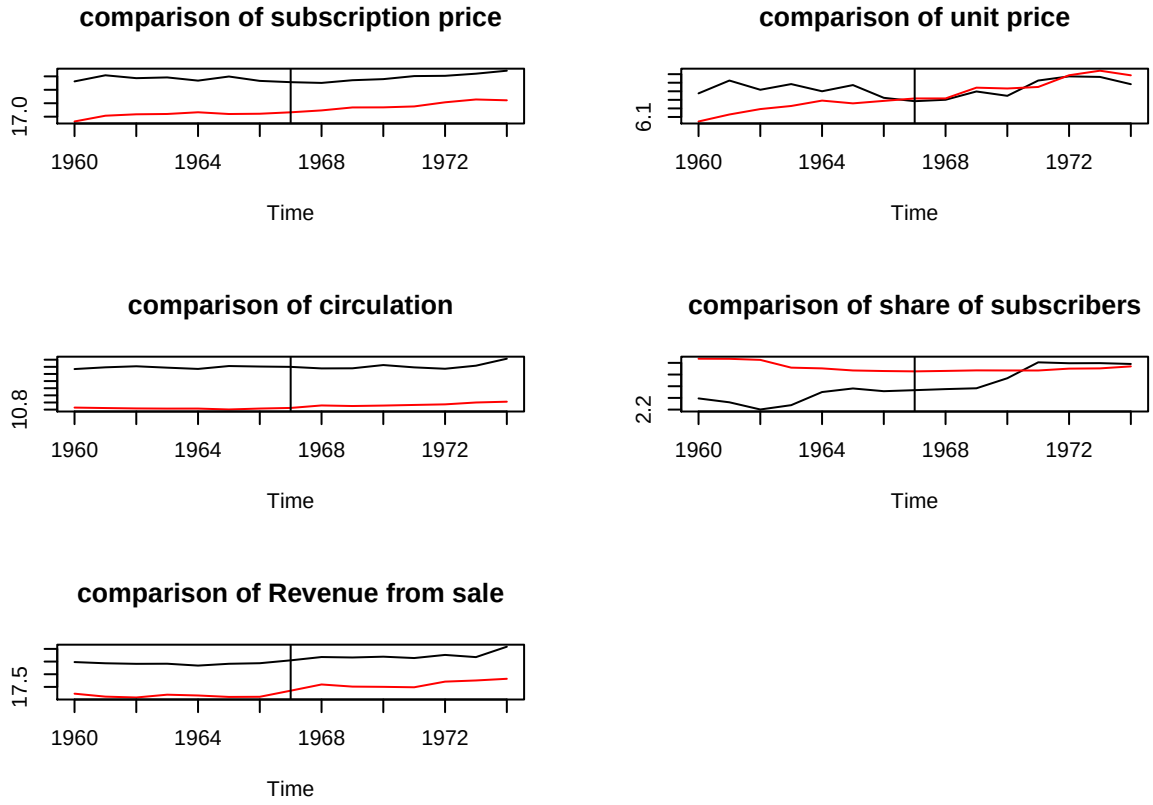

Figure 2: Trend of local and national advertising

time.

The outcome of interest includes these variables on the advertising side of the market and variables on the price of the reader side. The outcome of interest are all in the logrithms form. In order to use difference in difference to analyze, the data need to meet the parallel line assumption.

Results

The results of Model 1 show that TV advertising has a substitute effect on the newspaper industry. For example, the revenue and advertising prices of newspapers will have a significant drop. However, the impact of advertising space in newspapers is minimal. On the other hand, we have added the fixed effect of year, and the estimated beta value eliminates the influence of time on TV commercial effects. We can see that although the impact of television on the newspaper industry is negative, the newspaper industry still has an upward trend over time. This can also be reflected in Figure 1 above.

Secondly, the results of Model 2 show that after the emergence of TV advertisements, newspapers' subscription price has a certain downward trend, and the circulation of newspapers has also declined significantly. The income from newspaper sales has also declined. However, with the advent of TV ads, the unit price of individual sale has increased, and the proportion of people who subscribe were also increased.

Table 3 Advertising side

	Ad. rev.	Ad rev. div. circ.	Ad price	Ad space
after_national1	-0.23 ***	-0.15 ***	-0.31 ***	0.01
	(0.03)	(0.03)	(0.07)	(0.05)
year	0.05 ***	0.04 ***	0.04 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)
N	1052	1048	809	1046
R2	0.99	0.90	0.89	0.72
logLik	345.34	449.52	-277.71	-164.01
AIC	-526.68	-735.05	705.43	478.02

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Discussion

This article studies the impact of TV advertisements in the newspaper industry, from both the advertising side and reader side to analyze the effects. The results show that, as a new form of advertising, TV advertising presents a substitution effect. This shock caused the revenue and circulation of the newspaper industry to be negative. However, this does not represent a decline in the overall data of the newspaper industry. From the previous trend chart, we can still find that the overall newspaper industry still has an upward trend over time. By adding the fixed effect to the model, we can effectively eliminate the time factor's influence, thereby obtaining a more accurate estimate of the treatment effect.

Table 4 Reader side

	Subscription price	Unit price	Circulation	Share of sub	Revenue from sales
after_national1	-0.04 *	0.06 **	-0.06 **	0.19 ***	-0.06 *
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
year	0.05 ***	0.05 ***	0.01 ***	-0.01 ***	0.05 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	1044	1063	1070	1072	1046
R2	0.88	0.87	0.99	0.97	0.99
logLik	882.14	907.28	759.57	321.91	451.11
AIC	-1600.28	-1650.57	-1355.15	-477.81	-738.22

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Weaknesses

However, a serious problem in Charles Angelucci's paper is that the assumption of difference in difference regression method may not hold. His paper only check the price ratio satisfied the assumption. Through the analysis in the data section, it can be seen that the log data after entering the transformation do not meet the assumptions well. Therefore, the conclusion of Difference in Difference is not very reliable.

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