



Competition and commercial media bias

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ABSTRACT

This paper reviews the empirical evidence on commercial media bias (i.e., advertisers influence over media accuracy) and then introduces a simple model to summarize the main elements of the theoretical literature. The analysis provides three main policy insights for media regulators: (i) Media regulators should target their monitoring efforts towards news contents upon which advertisers are likely to share similar preferences. (ii) In advertising industries characterized by high correlation in products' qualities, an increase in the degree of competition may translate into a lower accuracy of news reports. (iii) A sufficiently high degree of competition in the market for news drives out commercial media bias.

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1. Introduction

Media outlets represent archetypal platforms of a two-sided market (Anderson & Gabszewicz, 2006; Armstrong, 2006). On one side, they offer entertainment and information to their viewers. On the other side, they allow advertisers to reach potential customers. For many types of media outlets, such as commercial TV, free online newspapers, blogs, radio, free-dailies, advertising represents the unique source of revenues. Moreover, even media outlets that are not purely advertising-funded (e.g., newspapers, magazine), greatly rely on advertising revenues to remain profitable. In the US, 50–80% of newspapers revenues come from advertising. In Europe this percentage goes from 30% to 80% (Baker, 1994; Ellman & Germano, 2009). The following graph shows, for OECD countries, the average percentage of ads and sales revenues of daily newspapers in 2008 (Fig. 1).

The fact that almost all media outlets need advertisers to survive has raised concerns on the possibility of advertisers creating distortions in media contents (Baker, 1994; Bagdikian, 2004; Hamilton, 2004). Indeed, there is a crucial feature that makes the relationship between media and advertisers go well beyond the simple sales of viewers eye-balls (Hamilton, 2004). That is, the value that an advertiser attaches to a media outlet may not simply consist of how many viewers it may reach through that outlet. Such a value depends also on the non-advertising contents provided by the media outlet. Advertisers typically care about the media contents since they value the characteristics of media viewers (e.g., demographics). In the context of target advertising (e.g., Bergemann & Bonatti, 2011; Gabszewicz, Laussel, & Sonnac, 2001, 2002; Gal-Or, et al. forthcoming, George & Waldfogel, 2003; Hamilton, 2004; Strömberg, 2004) this may create distortions since advertisers may want, for example, news contents to cover only issues preferred/relevant to large groups (Gabszewicz et al., 2001, 2002; Strömberg, 2004).¹ At the same time, since media information contents typically concern

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¹ See Wilbur (2008) for compelling empirical evidence on the distortion created by advertisers in the context of target advertising.

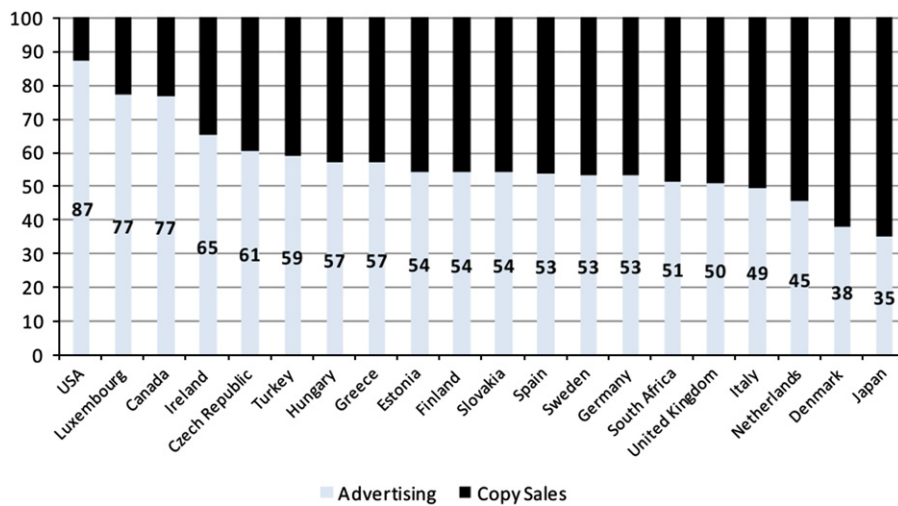


Fig. 1. Contribution of advertising and sales to daily newspapers revenues.
Source: OECD, 2010.

also consumer products, advertisers may value the information content of news media since this may influence the demand for their products. That is, advertisers may want media to produce favorable news reports (e.g., hide any negative information concerning their products). Thus, advertisers' pressure may create a bias in the information reported by media to their viewers and thus it may negatively affect media accuracy.²

The economic literature on media bias has been mainly focused on the bias in the informative contents of political news reports. Specifically, it has shown that there may be a supply driven political media bias deriving from the idiosyncratic preferences of journalists (Baron, 2006), owners (Anderson & McLaren, 2011; Djankov, McLiesh, Nenova, & Shleifer, 2003), governments (Besley & Prat, 2006) or lobbies (Petrova, 2011; Sobbrío, 2011a). Moreover, the endogenous demand of politically slanted news by viewers may result in a demand-driven bias in news reports (Chan & Suen, 2008; Gentzkow & Shapiro, 2006; Mullainathan & Shleifer, 2005; Sobbrío, 2011b). While the literature has been trying to address the sources and the welfare implications of political media bias, less attention has been devoted to analyze the advertisers-induced distortions in the informative contents of media outlets, that is, to commercial media bias (Ellman & Germano, 2009; Germano & Meier, 2010).

This paper provides a survey of the anecdotal evidence on the presence of commercial media bias within specific industries and of the empirical literature looking at the link between advertising and media accuracy. At the same time, the paper introduces a simple model to review and summarizes the main elements of the theoretical literature (Ellman & Germano, 2009; Germano & Meier, 2010; Blasco et al., 2011). The model provides insights on the main features of the link between competition in the market for products and commercial media bias. Moreover, the model also analyzes the role of competition in the market for news. The theoretical analysis leads to three main policy insights for media regulators. Specifically, the model suggests that:

1. Media regulators should target their monitoring efforts towards news contents/issues upon which advertisers are likely to share similar preferences.
2. In advertising industries characterized by highly correlated products qualities, an increase in the degree of competition may translate into a lower accuracy of news reports.
3. A sufficiently high degree of competition in the market for news drives out commercial media bias.

The paper is structured as follows. Section 2 presents the anecdotal and empirical evidence on the presence of commercial media bias within specific industries. Section 3 presents the empirical economic literature looking at the link between advertising and media accuracy. Section 4 introduces the theoretical framework. Section 5 analyzes the effects on media accuracy of the competition in the market for the advertisers' products and in the market for news. Section 6 provides three main policy insights for media regulators. Section 7 concludes.

² There are also other possible types of distortions related to advertising. Armstrong and Weeds (2007) show that, due to the disutility of advertising, the welfare associated with advertising-funded media is lower than the one arising in presence of other funding schemes (i.e., public broadcasting). Moreover, advertising may distort downward the quality chosen by media platforms (Roger, 2010).

2. Empirical evidence on commercial media bias

This section presents the anecdotal and empirical evidence within specific advertising industries where the presence of commercial media bias has been extensively documented. Then, next section reviews the empirical economic literature looking at the link between advertising and the accuracy of media reports.

2.1. *Big tobacco*

The most well known and documented case of commercial media bias is represented by the influence of tobacco companies over US media. In 1954, the American Cancer Society released a result of a study on 187,000 men. The study showed that cigarette smokers had a death rate from all diseases 75% higher than nonsmokers. The mortality rate related to lung cancer was sixteen times higher with respect to nonsmokers. Despite the overwhelming evidence on the dangerous effects of smoking available since 1954, US media did not disclose this information for decades. Overall, tobacco products have been causing more than 300,000 deaths per year in the US. That is, tobacco kills every year six times more people than car accidents (Bagdikian, 2004). The fact that tobacco companies have been major advertisers (“the tobacco industry spends 4\$ a year for every American man, woman or child.” Baker, 1994, p. 172) seems to have played a key role in this cover-up. By analyzing a sample of 99 US magazines over 25 years, Warner, Goldenhar, and McLaughlin (1992) show that magazines that did not carry cigarette advertising were more than 40% more likely to report news on the health consequences of smoking than those with cigarette advertising. This difference was much more striking for women’s magazines, that is, the magazines not carrying tobacco ads were 230% more likely to report news on the hazards of smoking. Kennedy and Bero (1999) performed a content analysis on newspapers and magazine coverage of research on passive smoking. They showed that acceptance of tobacco industry advertising was significantly associated with the conclusion that research on passive smoking was controversial.³ It is also worthwhile to notice that, while in 1965 the US congress passed a legislation that required cigarette packages to be accompanied by a warning label, the very same bill prohibited the Federal Trade Commission, state and local governments from regulating tobacco advertising (Michaels, 2008). Indeed, as noticed by a contemporary writer “The effect of the advertising regulation is what the cigarette industry most feared. [...] The National Association of Broadcasters submitted statements firmly opposing any advertising regulation” (Drew, 1965, p. 76). The history of tobacco advertisers’ influence on US media contains also retaliation episodes. In 1957, Reader’s Digest published an article disclosing medical evidence against tobacco. Following that article, the American Tobacco Company successfully pressured the Digest’s advertising agency to end its contractual relationship with the magazine. In 1980, after Mother Jones published an article on the link between tobacco and health risks, tobacco companies reacted by canceling their ads from the magazine (Baker, 1994). Overall, as stated by Bagdikian (2004, p. 168) the commercial media bias created by tobacco companies seems to represent “the most shameful money-induced censorship of American news media, a corruption of news that has contributed to millions of deaths”.

2.2. *Big pharma*

The commercial media bias that may arise from the influence of the pharmaceutical industry on the scientific evidence presented in medical journals represents a concern for the medical academic community. A peculiar characteristics of this specific type of media platforms is that four out of five of the most important North American medical journals (i.e., New England Journal of Medicine, Journal of the American Medical Association, Annals of Internal Medicine, American Family Physician) accept only advertisements related to medical products. This implies that “although no policy restricted advertising only to pharmaceuticals, in practice, drug ads dominate” (Fugh-Berman, Alladin, & Chow, 2006, p. 763). In 2010, Pharmaceutical Companies spent 326\$ millions for advertising in medical journals (IMS Health, 2010). In addition, drug companies finance medical journals by using sponsor subscriptions (also referred as controlled subscriptions). That is, drug companies pay medical journals to provide free-of-charge subscriptions to target populations. Finally, the pharmaceutical industry also contributes to medical journals’ profits through reprint orders (James, 2002). Therefore, this symbiotic relationship between medical journals and pharmaceutical companies seems to provide a very fertile ground for commercial media bias. Indeed, various scholars suggest that editorial decisions in medical journals have been, sometimes, influenced by advertisers’ concerns (Fletcher, 2003; Fugh-Berman et al., 2006). Wilkes and Kravitz (1995) provide a survey of North American journal editors showing that 12% of them noted conflicts between advertisers’ preferences and editorial decisions. As reported by Fugh-Berman et al. (2006), in 1992 many large pharmaceutical companies withdrew their ads from Annals of Medicine after that journal published a study criticizing the accuracy of advertisements in medical journals. As stated by Robert Fletcher “The pharmaceutical industry showed us that the advertising dollar could be a two-edged sword, a carrot or a stick. If you ever wonder whether they play hardball that was a pretty good demonstration that they do” (Tsai, 2003, p. 759). In a notorious case, the executive editor of Transplantation and Dialysis, despite favorable peer review, rejected a guest editorial questioning the efficacy of epoetin in end stage renal disease since, as he wrote to the author, “it went beyond what our marketing department was willing to accommodate”

³ See also Chaloupka and Warner (2000) for an extensive survey of the empirical literature on the economics of smoking.

(Dyer, 2004). Specifically, in his letter the editor told the author that his decision to publish the editorial was overruled by the marketing department. The article was also suggesting that the Medicare spending on this treatment was unjustified given the limited benefits on patients.⁴

2.3. The debate over anthropogenic global warming

The evidence that has been presented by US media on the sources of global warming seems to be largely unbalanced with respect to the consensus of the scientific community (Oreskes, 2004; Boykoff & Boykoff, 2004; Boykoff, 2007; Oreskes & Conway, 2010). That is, while since the mid 1990s the scientific community reached a consensus about the anthropogenic nature of global warming (Oreskes, 2004), media have been presenting this as a controversial issue. By analyzing the coverage on the causes of global warming by the major US newspapers (i.e., New York Times, Los Angeles Times, Washington Post and Wall Street Journal), Boykoff and Boykoff (2004) found that the 52.6% of articles were devoting the same space to the mainstream scientific view and to the deniers of anthropogenic global warming. A remaining 35.2% of the articles was giving more weight to the scientific consensus while still mentioning the presence of opposite views. The 6.1% of article was dominated by the skeptical view. Hence, only the 5.9% of articles was exclusively devoting space to the scientific consensus. In other words, as argued by the authors, these newspapers seem to have been using balance as bias. Boykoff (2007) compares the evidence on the causes of global warming presented between 2003 and 2006 by US and UK media. While the US newspapers coverage of this issue seemed to diverge from the scientific consensus, especially between 2003 and 2004, UK newspapers do not seem to exhibit this type of divergence. As pointed out by Ellman and Germano (2009), the conspicuous advertisements by car manufactures in the US is likely to have played an important role in inducing media to put a disproportional weight on views against anthropogenic global warming.⁵

3. Empirical literature on advertising and news accuracy

Over the last few years, a burgeoning empirical literature has been investigating how advertising expenditure influences the accuracy of media reports (Reuter & Zitzewitz, 2006; Rinallo & Basuroy, 2009; Reuter, 2009; Gambaro & Puglisi, 2010; Di Tella & Franceschelli, forthcoming). While this literature usually finds a positive correlation between advertising expenditure and favorable media coverage, the evidence is not always univocal. Specifically, the correlation between ads expenditure and favorable news becomes less significant, or even disappears, in contexts where the competition of advertisers over news contents is higher. For example, Reuter and Zitzewitz (2006) find a positive relation between mutual fund recommendation and advertising expenditures for personal finance media (i.e., Money Magazine, Kiplinger's Personal Finance and SmartMoney) while no correlation for national newspapers (i.e., the New York Times and the Wall Street Journal). Rinallo and Basuroy (2009) construct a dataset covering 291 Italian fashion firms and then analyze the relationship between their advertising expenditures and the coverage of their products in newspapers and magazines in Italy, France, Germany, the United Kingdom, and in the United States. The authors find that preferential coverage of the advertisers' products is weaker when the media outlet's advertising revenues are more diversified. Reuter (2009) finds weak evidence on the correlation between wines' ratings and advertising in Wine Spectator.

Similarly, the literature looking at the effect of advertising on media accuracy from a historical perspective shows that advertising may also play a positive role. Gentzkow, Glaeser, and Goldin (2006) investigate this issue by focusing on the US newspaper industry between the end of the 19th century and the beginning of the 20th century. Technological changes, such as a decreasing production costs, created significative economies of scale and then increased the competitiveness of the newspaper industry. As a consequence, these technological changes increased advertising revenues contributing to the creation of a politically independent press in the US. Petrova (forthcoming) looks at the US press in the 1880s and shows that a higher profitability of advertising in local markets was conducive to the presence of more independent newspapers. Poitras and Sutter (2009) empirically investigate the decline in muckraking by US magazines at the beginning of the 20th century. The authors show that there is no evidence in support of the hypothesis that such decline was the consequence of advertisers' boycott as a reaction for adverse news coverage.

4. Theoretical framework

The previous section presented anecdotal and empirical evidence on the presence of commercial media bias within specific industries. At the same time, it reviewed the mixed empirical evidence arising from the economic literature on the effects of advertising on media accuracy. This section presents a theoretical framework that allows to reconcile this mixed evidence. Specifically, it introduces a simple model which summarizes the main elements of the theoretical literature on commercial media bias (Ellman & Germano, 2009; Germano & Meier, 2010; Blasco et al., 2011).

⁴ Medicare spent over \$7.6 billions on epoetin between 1991 and 2002, (Dyer, 2004). Epotein is the main component of two similar drug products (i.e., Procrit and Epogen) produced by two different drug companies (Retrieved from: http://www.medicinenet.com/epoetin_alfa/article.htm)

⁵ In the US, Automotive advertising summed up to \$19.8 billions just in 2006 (Ellman & Germano, 2009).

There are two firms $i = g, b$ each producing a product at zero marginal costs. Without loss of generality, the analysis focuses on the relevant case where one firm has a bad quality product (e.g., a defective product) while the other is producing a good quality one. There is a unit mass of potential consumers and a media outlet. The two firms and the media outlet know the quality of the products while consumers do not. Specifically, consumers rely on the media outlet to gather information on products' qualities. Moreover, information is hard (it could be concealed but not forged). Thus the media outlet has to choose whether to reveal to consumers that firm b has a bad quality product or to conceal such information.⁶

There are two periods. In each period, the media outlet may reach a unit mass of readers. However, when it hides some information in the first period, the number of readers in the second period drops to $\theta < 1$. That is, in the second period readers perceive the media outlet as less informative. $\hat{\Pi}_i$ and $\hat{\psi}_i$ denote the profits of firm i and the ads fee paid by firm i , respectively, when the media outlet makes a truthful news report (i.e., discloses the bad news on firm b 's product). Instead, Π_i and ψ_i denote the profits of firm i and the ads fee paid by firm i , respectively, when the media outlet hides the bad news on firm b 's product. Hence, the profits of firm b when the media outlet conceals the negative news on its product are

$$\Pi_b = \underline{\pi} \cdot [\alpha(1 + \theta)] - \psi_b \quad (1)$$

where $\underline{\pi} > 0$ denotes the net revenue per consumer when both firms are active in the market and $\alpha \leq 1$ denotes the exogenous fraction of consumers out of the unit mass of readers. When bad news are revealed, no reader would buy the product of firm b and so its profits would simply be $\hat{\Pi}_b = 0$. Thus, firm b would never be willing to pay any positive ads fees when the media outlet discloses such bad news, that is, $\hat{\psi}_b = 0$. Hence, the maximum ads fee that firm b is willing to pay to the media outlet, in exchange of hiding the bad news on its products, is

$$\psi_b^{\max} = \underline{\pi} \cdot \alpha(1 + \theta) \quad (2)$$

Indeed, firm b would rather have the media outlet disclosing the bad news on its product, and then earn zero profits, rather than paying any $\psi_b > \psi_b^{\max}$.

On the other hand, firm g would never be willing to pay any ads fee when the media outlet hides the negative information on firm b 's product, that is, $\psi_g = 0$. Moreover, if the media outlet was to hide the bad news on firm b 's product, the profits of firm g would be:

$$\Pi_g = \underline{\pi} \cdot [\alpha(1 + \theta)] = \Pi_b + \psi_b \quad (3)$$

Instead, when the media outlet reveals the bad information on firm b 's product:

$$\hat{\Pi}_g = \bar{\pi} \cdot 2\alpha - \hat{\psi}_g \quad (4)$$

where $\bar{\pi} > \underline{\pi}$ denotes the net revenue per consumer that firm g could obtain when it is not facing the competition of firm b . This higher net revenue per consumer may simply reflect a higher mark-up and/or a higher demand for firm g 's product.⁷ Clearly, since $\bar{\pi} > \underline{\pi}$ and $\theta < 1$, the profits of firm g , gross of the ads fee, are always higher when the media outlet discloses the bad news to consumers. Hence, the maximum ads fee that firm g would be willing to pay to the media outlet in exchange of disclosing the bad news on its rival's product is $\hat{\psi}_g^{\max}$ such that $\hat{\Pi}_g = \Pi_g$. That is:

$$\hat{\psi}_g^{\max} = \alpha[\bar{\pi} \cdot 2 - \underline{\pi} \cdot (1 + \theta)]$$

The media outlet: Γ denotes the media outlet's profits when it hides the negative news on firm b 's product. That is:

$$\Gamma = s \cdot (1 + \theta) + \psi_b$$

where $s > 0$ represents the subscription fees obtained from the readers. That is, the media outlet acts as a platform of a two sided market. Its profits depend both on its revenues in the market for readers and the ones in the market for advertisers. On the other hand, the media outlet's profits when reporting the bad news on firm b 's product, are:

$$\hat{\Gamma} = s \cdot 2 + \hat{\psi}_g$$

Hence, if the media outlet were not to receive any payment (i.e., ads fee) from firm b , it would always prefer to produce truthful news reports (i.e., reputation effect). Now suppose that firm g and b compete to influence the media outlet's decision on whether to report the bad news on firm b 's product or not. Specifically, as discussed above, the maximum firm b may be willing to pay to the media outlet in order to hide the bad news on its product is ψ_b^{\max} . Hence, the good quality producer is always able to match firm b 's offer as long as $\hat{\psi}_g^{\max} \geq \psi_b^{\max}$. Specifically, the maximum willingness to pay of the good quality firm is higher than the one of the bad quality one, if and only if:

$$\bar{\pi} \geq \underline{\pi}(1 + \theta) \quad (5)$$

Thus, whenever $\bar{\pi} \geq 2\underline{\pi}$ the above condition is always verified. Moreover, from the media outlet perspective, it is always optimal to be paid by the good quality firm to disclose the bad news on firm b rather than being paid by the latter to hide

⁶ Analogously to Besley and Prat (2006), it is assumed that the signals observed by the media outlet and reported to consumers can only be bad. However, as in their model, the framework naturally extends to an environment where the media outlet may also receive good signals (as long as the probability of receiving a good signal is lower than the probability of receiving a bad one).

⁷ See Rysman (2004).

such bad news, if and only if:

$$s \cdot (1 - \theta) \geq \psi_b - \hat{\psi}_g$$

That is, a necessary and sufficient condition to ensure that the media outlet has an incentive to disclose the bad information on firm *b*'s product is

$$s \cdot (1 - \theta) \geq 2\alpha[\pi(1 + \theta) - \bar{\pi}] \quad (6)$$

where (5) is clearly a sufficient condition for the above being satisfied. That is, the media outlet is always willing to disclose its information to readers when the gain of firm *g* in the net revenues per consumer from driving out of the market its competitor is sufficiently large (i.e., profit maximization effect). Moreover, immediate comparative statics point out that the higher are the media outlet's profits in the market for readers (i.e., the higher are the subscription fees *s*), and the higher the reputation cost when not disclosing bad news (i.e., the lower is θ), the more likely that the media outlet ends up revealing all its information to consumers. Conversely, the higher is the fraction of readers who are also potential consumers (i.e., the higher is α), the higher the media outlet's incentives to hide information (when $\bar{\pi} < \pi(1 + \theta)$).

4.1. Discussion: assumptions and structure of the theoretical framework

This section discusses the intuition and robustness of the main assumptions of the above described theoretical framework. Since the main goal of the paper is to investigate the advertisers' influence on the accuracy of media reports, the model abstracts from the standard rationales for advertising (i.e., persuasive or informative advertising).⁸ Specifically, the focus and the results of the model are complementary but rather different from the ones of the traditional literature on informative advertising. Informative advertising may contain direct information regarding the product's existence, price, characteristics, store location (e.g., Butters, 1977; Grossman & Shapiro, 1984; Dukes, 2004). Advertising may also convey information indirectly by signaling product's quality, that is, money-burning (Nelson, 1974; Milgrom & Roberts, 1986). Instead, in this stylized model, advertising does not have any informative value per se. At the same time, advertising does not have any signaling value since consumers do not observe the advertising price (transfers) paid by firms.⁹ Moreover, while in models of informative advertising a higher level of ads is, typically, associated with a higher level of information on the firm's product, in the proposed model a higher level of advertising (i.e., higher transfers by the advertisers to the media outlet) may be associated with a higher or lower level of information of consumers on the firms' products (depending on whether ads are paid to reveal or to hide information). Hence, advertising per se does not convey or signal any information to consumers. On the other hand, advertising affects the media outlet's incentives to report accurate information and thus, indirectly, it influences the information on the quality of the firms' products that consumers receive. Specifically, the theoretical framework explicitly focuses on an environment where media offer their medium information content to media viewers and, at the same time, they sell a bundle to advertisers constituted by such viewers and the medium information content. Therefore, the advertisers willingness to pay depends both on how many consumers they may reach through the medium and on what kind of information the medium is reporting. As a consequence, the ads fee that advertisers are willing to pay upon not obtaining a favorable news report by the media outlet is normalized to zero.¹⁰ This normalization is without loss of generality since the bargaining process between advertisers and the media outlet does not involve the level of ads but only the price of ads. For the same reason, introducing in the model a nuisance parameter γ to capture the consumers' disutility from ads would not affect the results. Indeed, a higher ads fee paid by the advertisers does not correspond to a higher level of ads and, thus, it does not affect negatively the media outlet's readership.

5. The market for products and the market for news

5.1. Quality correlation and competition in the market for products

This section extends the theoretical framework described in the previous section by considering a situation where the quality of firms' products is correlated. Specifically, when the media outlet reports the bad news on firm *b*'s product, the fraction of readers buying firm *g*'s product (i.e., α) is reduced by a factor $(1 - \rho)$ with respect to the uncorrelated case. That is, ρ is a parameter capturing the degree of correlation between products. Hence, when the correlation is sufficiently high, firm *g* has no longer incentives to pay the media outlet to reveal the bad news on firm *b*'s product. Specifically, the correlation between products' qualities negatively affects the value of driving out of the market firm *b* since, from the readers perspective, bad news on firm *b*'s product are (partly) also bad news on firm *g*'s product.¹¹ Hence, the maximum

⁸ See Bagwell (2007) for an extensive review of the literature on advertising.

⁹ Indeed, the secrecy practices in the advertising industries are such that even competitors are unable to observe advertising agreements (see Dukes & Gal-Or, 2003).

¹⁰ That is, firm *b* pays a zero ads fee to the media outlet when it discloses the bad news on firm *b*'s product (i.e., $\hat{\psi}_b = 0$). Similarly, firm *g* pays a zero ads fee to the media outlet when it does not disclose the bad news on firm *b*'s product (i.e., $\psi_g = 0$).

¹¹ It is here implicitly assumed that the media outlet observes the quality of firm *b* while it gets only a noisy signal on firm *g*'s product (which is correlated with the quality of firm *b*'s product). Hence, the higher the correlation between products' qualities, the more bad news on product *b* are (relatively) also bad news on product *g*.

ads fee firm g is willing to pay to the media outlet becomes:

$$\hat{\psi}_g^{\max} = \alpha[\bar{\pi} \cdot 2(1-\rho) - \underline{\pi}(1+\theta)]$$

That is, when correlation increases $\hat{\psi}_g^{\max}$ decreases, up to the point where the above threshold becomes negative. Moreover, $\hat{\psi}_g^{\max}$ is always lower than the maximum willingness to pay of firm g discussed in the previous section. Therefore, in presence of correlation between products' qualities, the media outlet has less incentives to disclose the negative news on firm b 's product and it does so only when it could obtain sufficiently high subscription fees from its readers.¹² Indeed, when subscription fees are zero $s = 0$ (i.e., purely advertising funded media outlet), the media outlet discloses such bad news if and only if:

$$\rho \leq \bar{\rho} \equiv 1 - \frac{\pi}{\bar{\pi}} \cdot (1 + \theta) \quad (7)$$

That is, in advertising industries characterized by high correlation in products' qualities, firms end up sharing similar preferences over news content. Consequently, in this case, the media outlet is induced by advertisers to not produce accurate news reports. This is consistent with the empirical evidence reviewed in Section 3. Indeed, arguably, the correlation among products' qualities in the tobacco industry (i.e., the negative effects on consumers' health of different tobacco products) is very high. Thus, consistent with the evidence presented in Section 3, the proposed theoretical framework predicts that tobacco companies would collude to pay the media outlet to hide any possible negative information. Similarly, whenever different pharmaceutical advertisers produce drugs using a common main component, they are likely to end up sharing the same preferences over (avoiding) any new on the inefficacy and/or side-effects of any of these drug products. The same reasoning applies to car advertisers with respect to news on the effects of pollution on global warming.

Instead, when products' qualities are weakly correlated, firms have conflicting preferences over news reports. In this case, the media outlet is likely to have the proper incentives to deliver accurate news reports. Indeed, every day media disclose negative news on consumer products belonging to industries exhibiting a low degree of quality correlation. Recent examples include Toyota with its malfunctioning car accelerators, the iPhone 4 signal reception issues, Toshiba's episodes of over-heating and fire in some of its laptop series. Moreover, the above results suggest that, even within an industry, media are more likely to report accurate news on issues upon which potential advertisers have conflicting preferences than on issues where potential advertisers share the same preferences. For example, a car manufacturer is likely to benefit from bad news on the quality of its competitor's product (e.g., Toyota's competitors are likely to benefit from consumers observing news on the Toyota's malfunctioning car accelerators). However, the same manufacturer may instead be hurt from news regarding the (highly correlated) effects produced by cars' pollution on global warming. Consistent with this logic, media often report news on issues regarding a specific product of a single car manufacturer. At the same time, as discussed in Section 3, the accuracy of news involving the effects of pollution on global warming seems quite limited (Boykoff & Boykoff, 2004; Oreskes, 2004; Boykoff, 2007; Germano & Meier, 2010). That is, even within an industry, there may be some issues upon which potential advertisers have conflicting preferences and others where they have similar preferences.¹³

On the other hand, more competition in the market for products may be detrimental to the accuracy of the media outlet's reports. Indeed, when the products market becomes more competitive the gain in the net revenues per consumer from excluding one rival from the market, that is, $\bar{\pi} - \underline{\pi}$, decreases. Hence, the ratio $\underline{\pi}/\bar{\pi}$ increases. Therefore, a higher degree of competition in the market for products does not necessarily lead to a higher accuracy of the media outlet's reports. Moreover, the higher is the degree of correlation among products' qualities, the more likely it is that this competition effect is detrimental for accuracy. That is, the higher is ρ , the lower $\underline{\pi}/\bar{\pi}$ must be to ensure that the media outlet has an incentive to produce an accurate news report.

5.2. Competition in the market for news

This section extends the framework described in Section 4 to allow for the presence of two media outlets competing in the market for news. Specifically, there is an incumbent media outlet and an entrant one. The two media outlets are horizontally differentiated. Hence, readers can access the news reports from both media outlets but have to incur in a transportation cost to move from a media outlet to the other (as in Germano & Meier, 2010). Specifically, the presence of competition between the two media outlets and the presence of readers' transportation cost is captured as follows. First, the incumbent media outlet charges a subscription fee $s \leq c$ to the unit mass of readers. Moreover, upon not observing any news on firms' products, a fraction $1 - \epsilon > 0$ of readers decides to get also informed from the entrant media outlet. That is, $\epsilon \in (0, 1]$ represents a proxy of the transportation cost. Moreover, the entrant media outlet is assumed to be purely

¹² Notice that, it is here implicitly assumed that the media outlet's readership does not depend on the correlation between products' qualities. More generally, since this correlation affects the accuracy of the media outlet's news reports, readership would endogenously depend on it (see Blasco, Pin, & Sobbrío, 2011).

¹³ This also suggests that empirical studies aiming at testing the influence of advertisers of news accuracy should take into account the presence of issue-specific incentives.

subscription funded (i.e., advertisers cannot influence its news reports and thus it always discloses the bad news on firm *b*'s product).¹⁴ Thus, even if the entrant media outlet does not directly compete in the advertising market with the incumbent, it still negatively affects the advertising revenues of the incumbent media outlet by indirectly decreasing the value of its reports from the advertisers' perspective (i.e., the value of hiding/disclosing the bad news on firm *b*'s product). That is, when the incumbent media outlet conceals the negative news on firm *b*'s product, firm *b*'s profits are:

$$\Pi_b = \epsilon \cdot \alpha \cdot \underline{\pi}(1 + \theta) - \psi_b$$

Therefore, the maximum ads fee that firm *b* is willing to pay to the incumbent media outlet, in exchange of hiding the bad news on its products, becomes:

$$\psi_b^{\max} = \epsilon \cdot \alpha \cdot \underline{\pi}(1 + \theta) \quad (8)$$

Hence, ψ_b^{\max} is lower than the one derived in the single media outlet case, and it is increasing in the transportation costs ϵ .

As before, firm *g* would never be willing to pay any ads fee to the incumbent media outlet when it hides the negative information on firm *b*'s product, that is, $\psi_g = 0$. On the other hand, regardless of the news report of the incumbent media outlet, firm *g* knows that a fraction $\alpha(1 - \epsilon)$ of readers would anyway learn that firm *b*'s product is a bad quality one. That is, a fraction $\alpha(1 - \epsilon)$ of readers would always buy its products. Thus, firm *g* always earns a net revenue per reader $\bar{\pi}$ from at least a fraction $\alpha(1 - \epsilon)$ of readers.¹⁵ Hence, if the incumbent media outlet were to hide the bad news on firm *b*'s product, the profits of firm *g* would be:

$$\Pi_g = \epsilon[\underline{\pi} \cdot \alpha(1 + \theta)] + (1 - \epsilon)[\bar{\pi} \cdot 2\alpha] \quad (10)$$

Instead, when the media outlet reveals the bad information on firm *b*'s product:

$$\hat{\Pi}_g = [\bar{\pi} \cdot 2\alpha] - \hat{\psi}_g \quad (11)$$

hence:

$$\hat{\psi}_g^{\max} = \epsilon \cdot \alpha[2\bar{\pi} - \underline{\pi}(1 + \theta)] \quad (12)$$

Therefore, also $\hat{\psi}_g^{\max}$ is lower than the one derived in the single media outlet case and it is increasing in the transportation costs ϵ . Thus, denoting $\tilde{s} = \underline{s}/\epsilon$, the incumbent media outlet reports accurate information to its readers if and only if:

$$\tilde{s}(1 - \theta) \geq 2\alpha[\underline{\pi}(1 + \theta) - \bar{\pi}] \quad (13)$$

Thus, in order to compare whether the incumbent media outlet's incentives to produce accurate news reports increase or decrease when it faces the competition of the entrant, it is sufficient to compare \tilde{s} with s . It is immediate to verify that when all readers are willing to watch the entrant media outlet, upon not observing any bad news from the incumbent, that is, $\epsilon \rightarrow 0$, then the media outlet could not gain anything from advertisers. Hence, it would always report accurate information to consumers, that is, for every $\underline{s} \in (0, s]$. Instead, when only a small fraction of readers is willing to watch the entrant's news reports, the above condition is less likely to be satisfied. That is, when the readers' transportation cost is high, the decrease in the subscription fees due to the entrant competition may result in the incumbent media outlet being less likely to report accurate information. In other words, when the readers transportation cost is low, the presence of an additional media outlet is likely to be beneficial for readers. When the transportation cost is high, this may not be the case.

To make this point explicit, let us look at what happens if the transportation cost ϵ depends directly on the number of competing media outlets in the market. Suppose that there are n entrant media outlets. For simplicity, as before, it is assumed that these n media outlets do not directly compete in ads fees with the incumbent. Thus, the only direct effect of increasing competition in the market for news on the incumbent's profits is given by a decrease in the readers' transportation cost (which now depends on the number of entrants). Specifically, $\epsilon(n) \equiv \epsilon^n$. That is, transaction costs are strictly decreasing in the number of entrants (see [Germano & Meier, 2010](#)). Thus, by substituting this function into (13), it is possible to characterize a threshold in the number of media outlets competing in the market for news, above which the news reports of the incumbent are accurate (no commercial media bias).¹⁶ Specifically:

$$\bar{n} = \frac{\log(2\alpha) + \log(\underline{\pi}(1 + \theta) - \bar{\pi}) - \log(\underline{s}(1 - \theta))}{\log(\epsilon)} \quad (14)$$

¹⁴ The appendix shows that this assumption is without loss of generality. That is, the results and the conclusions of this benchmark case are robust to allowing the entrant media outlet to be also subject to the influence of advertisers.

¹⁵ Notice that, without loss of generality, it is here implicitly assumed that firm *g* can perfectly price discriminate between the $(1 - \epsilon)$ readers who learn from the entrant media outlet that firm *b* has a bad quality product, and the other ϵ readers who do not. Indeed, alternatively, Eq. (10) may be expressed as:

$$\Pi_g = \epsilon[\underline{\pi} \cdot \alpha(1 + \theta)] + (1 - \epsilon)[(\underline{\pi} + \eta) \cdot 2\alpha] \quad (9)$$

where $\eta \in [0, \bar{\pi} - \underline{\pi}]$ denotes different levels of price discrimination. That is, the case of perfect price discrimination is captured by $\eta = \bar{\pi} - \underline{\pi}$. Instead, when $\eta = 0$ firm *g* is not able to price discriminate. In this case, Eq. (12) would become:

$$\hat{\psi}_g^{\max} = \alpha[2\bar{\pi} - \underline{\pi}(2 - \epsilon(1 - \theta))]$$

¹⁶ This result is also consistent with the positive effect of media pluralism on the accuracy of political news pointed out by [Besley & Prat \(2006\)](#).

In other words, whenever $n > \bar{n}$, the transportation cost that each reader has to incur in order to watch one of the entrant media outlets is small enough to ensure that the incumbent media outlet has an incentive to produce accurate news reports.

6. Regulatory implications

This section discusses the implications for media regulators arising from the theoretical framework described in the previous section. Specifically, the results of the model imply that media regulators should look at three different aspects when trying to address commercial media bias: the degree of correlation in the qualities of firms' products within a given advertisers' industry, the degree of competition of firms in that industry, the degree of competition in the market for news. As discussed above, commercial media bias is more likely to arise in presence of advertisers belonging to industries exhibiting a high degree of correlation in products' qualities. Indeed, when the qualities of the advertisers' products are highly correlated they end up sharing the same preferences over news reports. That is, both the good quality (firm g) and bad quality (firm b) producers would prefer the media to hide any negative news on products' qualities (as in the case of tobacco companies). Instead, in industries where products' qualities are weakly correlated, potential advertisers have conflicting preferences over news reports. Hence, the competition between good and bad quality producers over news reports ends up creating the proper incentives for media to deliver accurate news reports. That is, the effect of products correlation on the accuracy of news reports leads to the first policy insight for media regulators.

Policy insight 1 Media regulators should target their monitoring efforts towards news contents/issues upon which advertisers are likely to share similar preferences.

Therefore, when potential advertisers have conflicting preferences over news reports, the virtuous effect of competition would prevent commercial media bias to arise in the first place. Instead, when potential advertisers share the same preferences over news reports, commercial media bias is likely to represent a serious concern. Hence, media regulators should allocate their monitoring efforts towards advertising industries where firms are more likely to have positively correlated preferences over news reports.

Moreover, when advertisers share similar preferences over news reports, an increase in the degree of products market competition may not be beneficial for the accuracy of news reports. This leads to the second policy insight for media regulators.

Policy insight 2 In industries characterized by highly correlated products qualities, an increase in the degree of competition in the market for products may translate into a lower accuracy of news reports.

Indeed, when $\rho = 0$, an increase in the competitiveness of the industry such that $\bar{\pi} \cong \pi \rightarrow 0$, translates in the media outlet always producing accurate news reports (condition (6) is always verified). Instead, the higher is ρ , the more likely that a higher degree of competition in the products market ends up weakening the media outlet's incentives to report accurate information (less likely that (7) is verified).

Finally, when advertisers have highly correlated preferences over news reports, a significant level of competition in the market for news may help counterbalancing the incentives to bias the news coverage in favor of advertisers. This represents the third policy insight for media regulators.

Policy insight 3 A sufficiently high degree of competition in the market for news drives out the commercial media bias that would otherwise arise in presence of news contents/issues upon which advertisers share similar preferences.

In conclusion, the present analysis suggests that the efforts and the policy instruments used by media regulators should vary according to the characteristics of the advertisers' industry.

7. Conclusions

As pointed out by [Ellman & Germano \(2009\)](#), there are two scholarly views regarding the role of advertising on the accuracy of media reports. On one side, the regulatory view emphasizes the danger of distortions arising from advertisers pressure over media to deliver favorable news reports (e.g., [Baker, 1994](#); [Bagdikian, 2004](#)). The anecdotal and empirical evidence on tobacco, pharmaceutical and automotive industries, reviewed in [Section 2](#), seems indeed to substantiate these concerns. On the other hand, the liberal view emphasizes the positive role of advertising in creating and maintaining a politically independent press (e.g., [Kaplan, 2002](#); [Gentzkow et al., 2006](#)). The historical evidence presented in [Section 3](#) seems, indeed, consistent with this alternative view. More generally, the recent empirical literature looking at the link between advertising and accuracy of media reports seems to provide mixed evidence on this issue (as pointed out in [Section 3](#)). This paper provided a theoretical framework which allows to reconcile this mixed evidence. Specifically, the paper provides a simple model summarizing the main features of the theoretical literature on commercial media bias

(Ellman & Germano, 2009; Germano & Meier, 2010; Blasco et al., 2011). The theoretical analysis emphasizes that the efforts and the policy instruments used by media regulators in addressing commercial media bias should vary according to the characteristics of the advertisers' industry. Specifically, the results of the model deliver three main policy insights for media regulators:

1. Media regulators should target their monitoring efforts towards news contents/issues upon which advertisers are likely to share similar preferences.
2. In advertising industries characterized by high correlation in products' qualities, an increase in the degree of competition may translate into a lower accuracy of news reports.
3. A sufficiently high degree of competition in the market for news drives out commercial media bias.

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Appendix

This appendix analyzes the case where there are two competing media outlets earning profits on both sides of the market for news (i.e., subscription fees and advertising fees). That is, differently from the setting analyzed in Section 5.2, it is considered here a framework where the entrant media outlet may be also subject to the influence of advertisers. That is, firms b and g may also compete in influencing the entrant media outlet.

The basic structure of the game is as follows. In the first period, the unit mass of readers observe the news report of the incumbent media outlet. As before, upon not observing any news on firms' products, a fraction $1-\epsilon > 0$ of readers decides to get also informed from the entrant media outlet. Both media outlet get a subscription fee \underline{s} from each reader. Moreover, whenever a media outlet hides some information in the first period the number of its readers in the second period drops to $\theta < 1$. The two firms, g and b may pay ads fees to the incumbent and/or to the entrant media outlet to induce them to disclose or not disclose the negative information on firm b 's product.

Three cases may arise: (1) Both media outlets hide the bad news on firm b 's product. (2) The incumbent media outlet hides the bad news on firm b 's product, while the entrant reveals them. (3) The incumbent media outlet reveals the bad news on firm b 's product (hence all readers learn this news by reading the incumbent media outlet).

The following notation is used to distinguish among these three cases. Π_i denotes the profits of firm i when both media outlets hide the bad news on firm b 's product. Similarly, ψ_g^1 (ψ_b^1) and ψ_g^2 (ψ_b^2) denote the ads fee paid by firm g (b) to the incumbent and the entrant media outlets, respectively, when they both hide the bad news. That is, the superscript 1 (2) refers to the ads fee paid by the advertisers to the incumbent (entrant) media outlet. $\tilde{\Pi}_i$ denotes the profits of firm i when only the entrant media outlet produces truthful news reports. Similarly, $\tilde{\psi}_g^1$ ($\tilde{\psi}_b^1$) and $\tilde{\psi}_g^2$ ($\tilde{\psi}_b^2$) denote the ads fee paid by firm g (b) to the incumbent and the entrant media outlets, respectively, when only the entrant media outlet produces truthful news reports. Finally, $\hat{\Pi}_i$ denotes the profits of firm i when the incumbent media outlet produces a truthful news report and, thus, all readers observe the bad news on firm b 's product. Similarly, $\hat{\psi}_g^1$ ($\hat{\psi}_b^1$) and $\hat{\psi}_g^2$ ($\hat{\psi}_b^2$) denote the ads fee paid by firm g (b) to the incumbent and the entrant media outlets, respectively, when the incumbent media outlet produces a truthful news report.

First, it is necessary to derive the equilibrium net profits of firm g and b for all these different cases. Then, the analysis characterizes the incumbent and the entrant media outlet incentives to disclose the bad news on firm b 's product.¹⁷

1. When both media outlets hide the bad news on firm b 's product, the overall net profits of firm g are

$$\Pi_g = \alpha \underline{\pi} (1 + \theta)$$

Instead, the overall net profits of firm b are

$$\Pi_b = \alpha \underline{\pi} (1 + \theta) - \psi_b^1 - \psi_b^2$$

2. When the incumbent media outlet hides the bad news on firm b 's product and the entrant reveals them, the overall net profits of firm g are:

$$\tilde{\Pi}_g = \alpha \epsilon \underline{\pi} (1 + \theta) + 2\alpha (1 - \epsilon) \bar{\pi} - \tilde{\psi}_g^2$$

¹⁷ It is immediate to verify that it is always the case that $\psi_g^1 = \psi_g^2 = 0$. At the same time, $\tilde{\psi}_g^1 = 0$ and $\tilde{\psi}_b^2 = 0$. Finally, $\psi_g^2 = 0$ and $\psi_b^1 = \psi_b^2 = 0$.

Instead, the overall net profits of firm b are:

$$\tilde{\Pi}_b = \alpha \epsilon \underline{\pi}(1 + \theta) - \tilde{\psi}_b^1$$

3. When the incumbent media outlet reveals the bad news on firm b 's product, the overall net profits of firm g are

$$\hat{\Pi}_g = 2\alpha \bar{\pi} - \hat{\psi}_g^1$$

Instead, the overall net profits of firm b are

$$\hat{\Pi}_b = 0$$

Let us start comparing case 1 and 2 and see under which conditions the entrant is willing to reveal the bad news on firm b 's product. The maximum ads fee that firm b is willing to pay the entrant media outlet to hide the bad news on its product is

$$\psi_b^{2\max} = \Pi_b - \tilde{\Pi}_b$$

moreover, since at this stage the ads fee paid to the incumbent media outlet are sunk (i.e., $\psi_b^1 = \tilde{\psi}_b^1$), then:

$$\psi_b^{2\max} = \Pi_b - \tilde{\Pi}_b = \alpha(1 - \epsilon)\underline{\pi}(1 + \theta)$$

On the other hand, the maximum ads fee that firm g is willing to pay the entrant media to reveal the bad news on firm b 's product is

$$\tilde{\psi}_g^{2\max} = \tilde{\Pi}_g - \Pi_g = \alpha(1 - \epsilon)[2\bar{\pi} - \underline{\pi}(1 + \theta)]$$

Hence a sufficient condition for the entrant media outlet revealing the bad news on firm b 's product is $\tilde{\psi}_g^{2\max} > \psi_b^{2\max}$. That is

$$\bar{\pi} > \underline{\pi}(1 + \theta)$$

More generally, the necessary and sufficient condition for the entrant media outlet being willing to reveal the bad news on firm b 's product is

$$\underline{s}(1 - \theta) \geq 2\alpha[\underline{\pi}(1 + \theta) - \bar{\pi}] \quad (15)$$

Let us now proceed backward and analyze the incentives of the incumbent media outlet to report truthful information. Specifically, there are two cases. The first one refers to the case where condition (15) is satisfied. The second one refers to the case when it is not.

1. When condition (15) is not satisfied, by construction, it must be the case that:

$$\underline{s}(1 - \epsilon)(1 - \theta) < \psi_b^2 - \tilde{\psi}_g^{2\max}$$

hence the minimum ads fee that firm b 's needs to pay to convince the entrant media outlet to not reveal the bad news on its product is

$$\psi_b^2 = (1 - \epsilon)(\underline{s}(1 - \theta) + \alpha[2\bar{\pi} - \underline{\pi}(1 + \theta)])$$

where instead given that the entrant media outlet does not reveal the bad news on firm b 's product $\tilde{\psi}_g^2 = 0$.

Let us now analyze the incumbent media outlet incentives to disclose the negative news on b 's product. The profits of firm g if the incumbent media outlet does not reveal the bad news on firm b 's product are

$$\Pi_g = \alpha \underline{\pi}(1 + \theta)$$

Instead, if firm g manages to convince the incumbent media outlet to reveal the bad news on firm b 's product, its profits would be

$$\hat{\Pi}_g = 2\alpha \bar{\pi} - \hat{\psi}_g^1$$

hence

$$\hat{\psi}_g^{1\max} = \hat{\Pi}_g - \Pi_g = \alpha[2\bar{\pi} - \underline{\pi}(1 + \theta)]$$

which is clearly equal to the one of the single media outlet case. On the other hand, from firm b 's perspective, the expected profits when the incumbent media outlet does not reveal the bad news on its product are

$$\Pi_b = \alpha \underline{\pi}(1 + \theta) - \psi_b^1 - \psi_b^2$$

while instead if the incumbent reveal such information $\hat{\Pi}_b = 0$. Hence:

$$\psi_b^{1 \max} = \alpha \underline{\pi}(1+\theta) - (1-\epsilon)[\underline{s}(1-\theta) + \alpha[2\bar{\pi} - \underline{\pi}(1+\theta)]]$$

Therefore, the necessary and sufficient condition for the incumbent media outlet revealing the bad news on firm b is

$$\underline{s}(1-\theta) \geq \psi_b^{1 \max} - \hat{\psi}_g^{1 \max}$$

that is:

$$\underline{s}(1-\theta) \geq 2\alpha[\underline{\pi}(1+\theta) - \bar{\pi}] - \alpha \underline{\pi}(1+\theta)(1-\epsilon) \quad (16)$$

hence it is immediate to verify that the RHS of (16) is lower than RHS of the analogous condition obtained in the single media outlet case, that is, condition (6). Moreover, the lower is the transportation cost ϵ , the higher the probability that the above condition is verified (intuition: the less costly is for readers to watch also the entrant media outlet, the lower the potential gain in advertising fees from hiding the bad news on firm b 's product). Clearly, for $\epsilon \rightarrow 0$ the above condition is always verified since $\underline{\pi}(1+\theta) - 2\bar{\pi} < 0$.

2. When condition (15) is satisfied, the minimum ads fee that firm g needs to pay to the entrant media outlet to reveal the bad news on firm b 's product is

$$\tilde{\psi}_g^2 = (1-\epsilon)[\alpha \underline{\pi}(1+\theta) - \underline{s}(1-\theta)]$$

Instead, given that the entrant media outlet discloses the bad news on firm b 's product $\psi_b^2 = 0$. Let us now focus on the incentives of the incumbent media outlet to disclose the bad news on firm b 's product. The profits of firm g if the incumbent media outlet does not reveal the bad news on firm b 's product are

$$\tilde{\Pi}_g = \alpha \epsilon \underline{\pi}(1+\theta) + 2\alpha(1-\epsilon)\bar{\pi} - \tilde{\psi}_g^2$$

that is:

$$\tilde{\Pi}_g = \alpha \underline{\pi}(1+\theta)(2\epsilon-1) + 2\alpha(1-\epsilon)\bar{\pi} + (1-\epsilon)(1-\theta)\underline{s}$$

Instead, when firm g manages to convince the incumbent media outlet to reveal the negative information on firm b 's product, its profits would be¹⁸:

$$\hat{\Pi}_g = 2\alpha \bar{\pi} - \hat{\psi}_g^1$$

Hence:

$$\hat{\psi}_g^{1 \max} = 2\alpha \bar{\pi} - \alpha \underline{\pi}(1+\theta)(2\epsilon-1) - (1-\epsilon)(1-\theta)\underline{s}$$

On the other hand, from firm b 's perspective, if the incumbent media outlet does not reveal the bad news on its products, its profits are

$$\tilde{\Pi}_b = \alpha \epsilon \underline{\pi}(1+\theta) - \tilde{\psi}_b^1$$

while if it does reveal them:

$$\hat{\Pi}_b = 0$$

hence

$$\tilde{\psi}_b^{1 \max} = \alpha \epsilon \underline{\pi}(1+\theta)$$

Thus, the incumbent media outlet will reveal the bad news on firm b 's product if and only if:

$$\underline{s}(1-\theta) \geq \tilde{\psi}_b^{1 \max} - \hat{\psi}_g^{1 \max}$$

that is

$$\underline{s}(1-\theta) \geq 2\alpha[\underline{\pi}(1+\theta) - \bar{\pi}] - \alpha \underline{\pi}(1+\theta) \frac{(1-\epsilon)}{\epsilon} \quad (17)$$

RHS of (17) is lower than RHS of the analogous condition obtained in the single media outlet case, that is, condition (6). Clearly, for $\epsilon \rightarrow 0$ the above condition is always verified. Conversely, for $\epsilon \rightarrow 1$ the above condition converges to the one of the single media outlet case.

Therefore, for a given level of s , it is always more likely that readers (or at least a $(1-\epsilon)$ fraction of them) observe the bad news on firm b 's product when the incumbent media outlet faces the competition of the entrant one. That is, the results

¹⁸ Notice that, in this case, firm g does not to pay any ads fee to the entrant since when the incumbent media outlet discloses the bad news on firm b 's product, every reader becomes aware of it.

and the conclusions of the benchmark case analyzed in Section 5.2 are robust to allowing the entrant media outlet to be also subject to the influence of advertisers. Therefore, the competition in the market for news is still beneficial when both media outlets are earning profits on both sides of the market (i.e., subscription fees and advertising fees).

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