

# SYMPOSIUM ON ADVERTISING AND DISCLOSURE

## INTRODUCTION

PATRICK LEGROS

THIS SPECIAL ISSUE reflects the large number of high quality submissions on the economics of advertising that we have received in the last two years. The editors of the Journal thought that it would be a good opportunity to create a symposium around these papers. All of the papers had already undergone the regular refereeing process when the decision to publish a symposium was taken.

The literature on advertising is extensive.<sup>1</sup> Yet, in spite of the sheer volume of papers on the topic, this symposium has its place, for three reasons. First, the literature on advertising has recently boot-strapped on theoretical advances in relation to two-sided markets, to the interplay between competition and incentives for firms to invest, and to information disclosure. Through this process, our understanding of the economics of advertising is becoming richer. Second, digital technologies allow, more easily than in the past, the acquisition of information about consumers' characteristics and choices; this makes the relationship between advertising — in particular targeted advertising — and pricing strategies of firms potentially more pertinent than in the past. Finally, as in many other fields of economics, new data sets have become available and have facilitated the investigation of some of the previous questions.

The papers in this symposium do not cover the whole spectrum of issues but are good indicators of the recent developments in the domain. One theme running through the papers is

---

<sup>1</sup> This is not the place for attempting a review of the literature; the reader can safely refer to the eight papers in this symposium for a bibliography.

the interplay between the nature and intensity of competition — in the product market or among advertising platforms — and the performance of the industry, with particular attention to welfare.

Beyond this commonality, the papers fit into three distinct categories, and they appear in the order corresponding to the narrative in this introduction.

- Crampes *et al.*, Reisinger *et al.* and Chandra analyze how a platform providing advertising services sets advertiser fees and subscription fees and how entry of platforms modifies these fees.
- George, Esteves and Simbanegavi focus on the interaction between advertising and price strategies by firms.
- Levin et al. and Board analyze how competition in the product market affects the quality of information disclosed by firms.

### ***Advertising as a Platform***

Like many other industries, advertising is provided by intermediaries that can best be viewed as platforms on a two-sided market. Newspapers and TV stations are two examples. The platform trades off advertising revenues against disutility for consumers from advertising. In particular, if consumers' willingness to pay decreases when advertising volume increases, we should expect a negative relationship between advertisers' fees and subscription prices. In general, the optimal structure of the fees paid by the advertisers and the consumers will reflect the properties of the willingness to pay of advertisers, that is, the properties of the marginal benefit of reaching larger audiences.

Crampes, Haritchabalet and Jullien offer a thorough analysis of the consequences of considering competing platforms and a general form for the advertisers' benefit function. They assume throughout that advertisers are 'single-homing,' that is, can advertise with only one

platform, and for most of the paper also that platforms offer viewer time to advertisers and subscription prices to viewers. With the standard assumption that the benefit per viewer is linear in the level of the audience, the marginal benefit of advertising per viewer is independent of the market share of the platform, implying that the level of advertising is independent of the number of platforms. It also follows that the equilibrium profits of platforms and the level of entry are the same with and without advertising (remember that the platform provides a service to consumers independently of advertising). By contrast, when the benefit function exhibits increasing or decreasing returns, the marginal benefit per viewer changes (in the obvious direction) with the market share of the platform, hence with the level of entry. There is, therefore, an inverse relationship between the returns to scale in the benefit function and the level of advertising, the equilibrium profit of a platform for a fixed number of platforms and the level of entry. The effect on consumer welfare is more ambiguous. The authors extend the model to price competition for advertisers and free service provided to consumers.

Reisinger, Ressler and Schmidtke allow advertisers to use more than one platform (multi-homing) and consider the case of a free service provided to consumers. As in the previous paper, they assume that the advertising technology can exhibit nonlinearities; in particular, the per-viewer-time-unit price is decreasing in the *total* supply of viewer-time units of advertising. As a platform increases its supply of viewer-time units, its viewers have lower utility and will tend to use other platforms, which will encourage additional advertising by these other platforms. Advertising is thus a strategic complement, which is well understood in the literature. The contribution of the authors is to highlight a pecuniary externality: as the total supply of viewer-time units by one platform increases, the willingness to pay of *all* advertisers decreases, creating a negative externality on other platforms. If this effect is strong enough, advertising becomes a strategic substitute. Multiple equilibria are possible and the authors show that entry of platforms may actually increase a platform's profit as well as the level of advertising.

Chandra analyzes the relationship between the degree of competition faced by newspapers in local markets and the levels of subscription and advertising prices they charge to consumers and advertisers. He shows that more competition yields lower subscription prices and higher advertising prices. The author argues that more competition facilitates segmentation of the readership and therefore increases the willingness to pay of advertisers. As Chandra documents, the positive effect of competition on advertising prices via the channel of an increased 'homogeneity' of consumers is large; for instance, going from a situation where demographics are perfectly correlated with circulation (segmentation) to one where there is no correlation (no segmentation), the advertising price per subscriber could be 30% greater in the first case.

### ***Advertising and Price Competition***

The next three papers analyze how a change in the cost of advertising or in the conduct of firms will lead to a readjustment of the levels of advertising and prices, and how consumers and firms are affected by the change.

Lisa George analyzes how a technological improvement (television penetration) in advertising impacts on market shares of local versus global brands. Because both global and local brands can advertise outside their natural market more cheaply than in the past, it is not obvious which brand will gain most from this 'market extension benefit' of TV penetration. Nevertheless, firms that tend to advertise most initially may be the ones that gain the most: they generally have a lower marginal cost of advertising and are therefore at a competitive advantage in reaping the benefits of the new technology. George shows that this was indeed the case in the market for beer in the period 1945-1960. She shows that the number, production and market shares of local breweries decreased in this period of increased TV penetration: for instance, a 10% increase in TV penetration reduced local production by at least 12%. This suggests that the

main winners of the new technology were global brands, and also that the technology of advertising may significantly affect the performance and concentration in the product market.

Esteves develops a dynamic model articulating the ability of advertisers to learn about consumers' characteristics endogenously. The first period is a standard informative advertising model. Two firms advertise and consumers become endogenously, for the two periods, one of four types: they can be aware of one product only, of both products or of no products. Their purchasing behavior in the first period reflects their types: if aware of one product, they buy this product; if aware of both products, they buy the cheaper. Esteves introduces the possibility for advertisers to obtain information on the purchasing behavior of the consumers they have reached through the advertising campaign. If the firm had initially the lowest price, all of the customers reached by its advertising will have bought its product. By contrast, in the case of the higher priced firm, a consumer who is aware of both products will not buy its product and, in this case, it is indeed 'revealed' that he bought the product of the other firm. There is therefore an informational advantage in having a high price: it facilitates identifying which consumers are not aware of the other brand, that is, those who are 'captive.' This allows the higher priced firm to discriminate in the second period by offering its non-captive customers a lower price and 'poach' them from its rival. Because the negative effect on demand in the first period from having a higher price can be compensated by price discrimination in the second period, price competition in the first period is softened, and as Esteves shows, customer welfare is lower than when price discrimination is not allowed.

Simbanegavi considers a model of informative advertising in which firms first set prices and then advertise their product and prices to consumers. He contrasts the case of collusion in advertising and competition in prices (semi-collusion on advertising) with the case of price collusion and competition in advertising (semi-collusion on prices). In the price collusion case, firms basically fight for demand shares, since the price is collusive and independent of the

market size. This generates excess investment in advertising and a high cost for the firms that may erode their collusive profits on the product market. With semi-collusion on advertising, firms restrict advertising in order to soften price competition, but while they avoid excessive advertising, they attract fewer consumers and also compete in prices. For these reasons, firms will 'prefer' advertising collusion when advertising costs are high, and price collusion when costs are low. Consumer surplus is always smaller under collusion on prices than under collusion on advertising: the gain in surplus from having more consumers in the market is eroded by the higher price. However, in terms of total welfare, price collusion is best when costs of advertising are low.

### ***Disclosure***

The main decisions made by advertisers in the previous papers are whether to advertise or not and on which platform. However, there is no discussion of the quality of the information transmitted to consumers, e.g., whether the consumption of the product could have negative or positive side effects for consumers.

The papers by Board and by Levin *et al.* analyze how the nature of competition in the product market affects the amount of disclosure by firms. They also highlight the fact that disclosure affects product market competition. Most of the literature on information disclosure indeed ignores the effect that the private decision to disclose information will have on the nature of competition in the product market. One main result in the literature is that a firm fully discloses when disclosure cost is zero. This is due to an unraveling effect: lack of disclosure is in fact informative since a firm with higher quality than the average quality expected by consumers should disclose, leading to a downward revision of beliefs by consumers, and further incentives to disclose. This effect has two consequences: in the first place, the limits to disclosure must be

found in the costs of information disclosure, and, in the second place, government intervention—such as mandatory disclosure laws--will have a limited impact since firms are already disclosing.

Levin, Peck and Ye compare the outcome when two firms compete as a duopoly in the product market to the point that the two firms are integrated into a single entity. In the first case, the firms have private information about their respective quality levels, and in the second case they share the information. When the disclosure cost is zero, there is full disclosure under both duopoly and cartel. When disclosure costs are high enough, there is no disclosure under either form of competition. For intermediate costs of disclosure, even those close to zero, duopolists tend to disclose 'less often' than a cartel because the informational benefit from disclosing is partially eroded through product market competition, something a cartel can avoid. When positive, the levels of advertising are above the first-best level. Since there is excessive disclosure, an increase in the cost of disclosure may serve as a disciplinary device for the firms. Levin *et al.* show that this is indeed the case and that the relationship between total surplus and cost of disclosure is U-shaped. Finally, because the duopoly discloses less often than a cartel, it will yield more total surplus only when costs of disclosure are high.

Board breaks with the unraveling result by noting that, with product market competition, disclosure by a firm may create a disincentive for a competitor to disclose information. (Board assumes that quality levels are known to the firms but not to the consumers.) Indeed, conditional on the higher quality firm's disclosing, the other firm trades off the informational benefit of revealing a quality greater than the average belief of the consumers, against the increased competition it would face after disclosure since there would be less differentiation in the market. Even if disclosing costs are zero, this tradeoff could lead the lowest quality firm not to disclose. Hence, there is no unraveling. The larger the cost of disclosure, the more likely the low quality

firm is not to disclose. Board identifies therefore a ‘puppy dog’ effect for disclosure.<sup>2</sup> His analysis suggests that there is a positive role for mandatory disclosure policies although there is no need for them, under low costs, if the unraveling effect is at play.

The other editors and I hope that you enjoy this symposium. I thank the authors for meeting the deadlines and the staff of the journal for keeping me on track.

---

<sup>2</sup> In reference to the Fudenberg and Tirole AER 1983 paper on investment to deter entry.