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Raising Awareness and Signaling Quality to Uninformed Consumers: A Price-Advertising Model

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Abstract

The objective of this paper is to investigate the firm's optimal advertising and pricing strategies when introducing a new product. We extend the existing signaling literature on advertising spending and price by constructing a model in which advertising is used both to raise awareness about the product and to signal its quality. By comparing the complete information game and the incomplete information game, we find that the high-quality firm will *reduce* advertising spending and increase price from their respective complete information levels. In the separating equilibrium, the high-quality firm will actually spend less on advertising than the low-quality firm, resulting in a *negative* correlation between product quality and advertising spending.

What sets our analysis apart from previous studies is that we consider advertising spending not only as a signaling device but also as an informational device. When advertising spending is just a signaling device, it is purely a dissipative expense. It can be an effective signal of quality because only the high-quality firm can afford it; thus, consumers can infer the product's quality by its advertising spending. In this case, advertising spending and product quality are positively correlated. However, when advertising also serves the purpose of raising awareness, it endogenizes the size of the market for the firm, so it is not just a dissipative expense any more.

Consider the low-quality firm's mimicking strategy in this case. When the low-quality firm is believed to be a high-quality one, it can charge a much higher price than if its true quality were known. Given that its marginal cost is lower

than the high-quality firm's, its profit margin will be much larger in mimicry than in revealing its true quality. Indeed, its profit margin will be even greater than the high-quality firm's. Therefore, the low-quality firm in mimicry has a strong incentive to increase its advertising spending from its optimal level when its true quality is known. To deter the low-quality firm's mimicking tendency, the high-quality firm should decrease its advertising spending so that mimicry is not as appealing to the low-quality firm as revealing its true quality. Indeed, the high-quality firm should reduce its advertising spending so much that it advertises less than the low-quality firm in equilibrium.

Many have interpreted signaling as "burning money" or "throwing money down the drain." In the case of advertising, the claim is that its purpose is simply to show consumers that the firm can afford to squander money on advertising to signal its quality. Hence, the advertising content need not be informative. However, our results show that simply "burning money" is not enough to signal quality. *How* the money is burned is also important. When advertising raises awareness as well as signals quality, "saving money" rather than "burning money" is the correct signaling approach, although ultimately the high-quality firm will sacrifice some profit by reducing its market size. The intuition behind this result is that when information is incomplete, the high-quality firm cannot fully exploit its advantages. Whenever its advantages in quality and/or marginal costs are lessened, a firm will want to spend less on advertising. (*New Products; Advertising Strategies; Pricing; Signaling Game; Separating Equilibrium*)