

# Measuring the Informative and Persuasive Roles of Detailing on Prescribing Decisions\*

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# Measuring the Informative and Persuasive Roles of Detailing on Prescribing Decisions

## Abstract

In the pharmaceutical industry, measuring the importance of informative and persuasive roles of detailing is crucial for both drug manufacturers and policy makers. However, little progress has been made in disentangling the informative and persuasive roles of detailing in empirical research. In this paper, we provide a new identification strategy to separately identify these two roles. Our key identification assumption is that the informative component of detailing is chemical specific while the persuasive component is brand specific. Our strategy is to focus on markets where some drug manufacturers engage in a co-marketing agreement. Under a co-marketing agreement, two companies market the same chemical using two different brand-names. With our identification assumption, the variations in the relative market share of these two brands, together with their brand specific detailing efforts, would allow us to measure the persuasive component of detailing. The variations in the market share of chemicals, and the detailing efforts summed across brands made of the same chemical, would allow us to measure the informative component of detailing. Using the data from the Canadian market for ACE-inhibitor with diuretic, we find evidence that our identification strategy could outperform the traditional way of identifying these two effects. We find that both the informative and persuasive components are strong in this market. We also find that patients could be worse off if the government bans detailing for ACE-inhibitor with diuretic.

**Keywords:** Detailing, Informative Role, Persuasive Role, Prescription Drugs, Decisions Under Uncertainty, Diffusion

# 1 Introduction

In the pharmaceutical industry, measuring the importance of informative and persuasive roles of detailing is crucial for both drug manufacturers and policy makers. Understanding the relative importance of these two roles could help drug manufacturers allocate resources to detailing more efficiently. If the persuasive role is important, firms could create artificial product differentiation by increasing their detailing efforts. On the contrary, if detailing is mainly informative and its persuasive role is weak, the effectiveness of detailing intensity will highly depend on the actual quality of drugs (i.e., side-effects and efficacy profiles). Among policy debates, many people believe that detailing is mainly persuasive and consumers will be better off if the industry reduces their detailing budget. Consequently, there are frequent calls for the industry to restrict detailing activities. However, if detailing is mainly informative in nature, putting restrictions on it might slow down the adoption rate of new innovative drugs. Consequently, this would not only hurt manufacturers' profits and their incentives to innovate, but also lower consumer welfare.

Despite its importance, little progress has been made in disentangling the informative and persuasive roles of detailing. The main difficulty is that both effects would likely have positive impacts on the demand for prescription drugs. If one only observes sales and detailing efforts over time, it is hard to disentangle these two roles. In this paper, we provide a new identification strategy to separately identify the persuasive and informative roles of detailing. Our key identification assumption is that the informative component of detailing is chemical specific while the persuasive component is brand specific. Our strategy is to focus on a market where some drug manufacturers engage in a co-marketing agreement. Under such an agreement, two companies market the same chemical under two different brand-names. With our identification assumption, the variation in the relative market share of these two brands, together with their brand specific detailing efforts, would allow us to measure the persuasive component of detailing. After controlling for the persuasive effect, the variation in the market share of chemicals, and the corresponding chemical specific detailing efforts summed across brands made of the same chemical, would allow us to measure the informative component of detailing. For instance, if detailing does not play any persuasive role at all, our assumptions would imply that the market shares

for two brand-name drugs made of the same chemical should be roughly the same over time even if the detailing efforts are different across these two brands (assuming other marketing-mix variables are about the same across brands).

More specifically, to model persuasive detailing, we follow the previous literature (e.g., Nerlove and Arrow 1962) and allow a brand specific persuasive detailing goodwill stock to enter physicians' utility functions. To model informative detailing, we consider two alternative models of informative detailing that have been used in the literature. The first model follows Ching and Ishihara (2010), which models informative detailing as a means to build/maintain the measure of physicians who know the most updated information about drugs. The second model follows Narayanan et al. (2005), in which detailing conveys noisy signals about the true quality of drugs to physicians.

Our identification strategy applies to both product level data and individual level data. As an application, we apply it to the product level data from the market of ACE-inhibitor with diuretic in Canada.<sup>1</sup> This market has three brand-name drugs: Vaseretic, Zestoretic, and Prinzide. Zestoretic and Prinzide are made of the same chemicals, but are co-marketed by two different companies. To demonstrate the usefulness of our identification strategy, in addition to estimating the full model with all three brands, we also estimate two versions with only two brands: Zestoretic and Prinzide, assuming that in one version, we treat the two brands as the same 1 chemical (i.e., we use our co-marketing identification argument), and in the other version, we treat the two brands as different two chemicals (i.e., we do not use the co-marketing identification argument). We argue that the identification of the informative and persuasive effects in the 2-chemical version relies more heavily on the functional form assumption. In particular, we find that the estimation results are counterintuitive in the 2-chemical version – the persuasive effect of detailing is negative and insignificant. On the contrary, the estimation results from the 1-chemical version are much more sensible – the persuasive effect is positive and significant, regardless of the way we model the informative detailing.

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<sup>1</sup>Although we use product level data to illustrate our identification strategy, it should be emphasized that the argument applies to individual level data as well. The basic identification ideas are the same except that we will need to set up individual level likelihood when estimating the parameters.

Based on the parameter estimates from the full model with three brands, we investigate the importance of informative and persuasive detailing by simulating our model in the case of ACE-inhibitor with diuretic. We find that both informative and persuasive components are important. In particular, the informative component is mainly responsible for the growth of the demand for chemicals, and the persuasive component mainly influences brand choice. Furthermore, to examine the overall impact of detailing on patient welfare, we use compensating variation to measure changes in the patient's welfare over time from banning detailing activities. Our simulation results suggest that banning detailing could cost a patient as large as \$160 per prescription during our sample period in the Canadian ACE-inhibitor with diuretic market.

The rest of the paper is organized as follows. Section 2 reviews the literature and discusses the background of the co-marketing agreement. Section 3 describes the demand models. Section 4 describes the data. Section 5 discusses the results. Section 6 is the conclusion.

## 2 Literature Review and Co-marketing Agreement

### 2.1 Previous Literature on Persuasive Detailing

How does detailing affect physicians' prescribing decisions? Leffler (1981) argues that detailing plays both informative and persuasive roles. He finds that newly introduced drugs tend to receive more detailing than older drugs, and interprets this as evidence that supports informative detailing. He argues that physicians are relatively unfamiliar with new drugs and hence if detailing provides information about drug's benefits and side-effects, drug manufacturers would spend more detailing efforts for newer drugs. However, he also finds that drug companies still spend significant amount of detailing efforts on old drugs and target older physicians. He interprets this as evidence for its persuasive role, assuming that older physicians have already known the older drugs' efficacy and side-effect profiles.

Hurwitz and Caves (1988) find that pre-patent expiration cumulative detailing efforts slow down the decline in post-patent expiry market shares of brand-name drugs. They interpret

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