



# Liability or labeling? Regulating product risks with costly consumer attention<sup>☆</sup>

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## ABSTRACT

This paper examines the liability and labeling approaches to regulating product safety. Stronger product liability increases producer care, which then has a negative “lulling effect” on consumer attention to warning labels. By contrast, more visible warning labels increase such consumer care, which then has a positive “vigilance effect” on producer care. Information campaigns educating consumers about product risks generate a similar vigilance effect. This happens because consumers view producer care and consumer care levels as strategic substitutes, while the firm views them as strategic complements. We argue that when a public policy is chosen, the endogeneity of consumer attention to warnings is not to be overlooked.

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## 1. Introduction

Every day, consumers decide whether to buy products that may present health risks. They shop for yogurt and pastries that may contain life-threatening allergens, purchase laundry detergents containing benzene, and combat a disease with medications that may have adverse side effects. Since safety information is costly to acquire, consumers are typically not fully informed of the risks they face. There is a general consensus that regulation or litigation efforts could correct the asymmetric awareness of buyers and sellers about a product’s safety level. The main debate concerns the design of the best policy.

We argue that an intervention policy must be chosen with caution. Although disclosure mandates can ensure that manufacturers provide information to consumers about the risk attributes of a product (for example, by using a warning label), the mandates do not guarantee that consumers pay attention to warnings. In this paper, we endogenize consumer attention

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to warning labels and treat it as a form of consumer care. The term “consumer attention” captures how hard consumers search for a warning label on a product, read and understand a confusing label, or do research on a product when product risk information is required to be posted online or available elsewhere.

It is important to design labeling regulation taking into account the amount of consumer attention the warnings generate. We use the term “visibility” of warning labels to capture how the display of risk information about the product affects the marginal returns to consumer attention. More visible warning labels make it easier for consumers to find them, and the higher marginal return to consumer attention incentivizes consumers to pay more attention. In contrast, stronger product liability compensates consumers for damages and discourages them from paying attention to warning labels. The main goal of this paper is to analyze the effects of changes in labeling regulation and product liability law on producer care and consumer care (i.e., consumer attention to warning labels), their payoffs, and the expected harm associated with products that have risk attributes.

Food allergen labeling regulation provides a fitting example to motivate our study because to date the most successful method of managing allergies is to avoid the food containing the allergens. It is, therefore, important for consumers to be informed about allergy-related health risks, and food allergen labeling plays a key role in the long-term management of the disease. The federal mandate for disclosing allergen information in packaged goods requires manufacturers to indicate the presence of an allergen. It also sets uniform criteria for positioning the warning labels and specifies the standards for warning label visibility.<sup>1</sup> In our model, we assume that the firm is subject to a mandatory disclosure regulation that prescribes a level of visibility for warning labels.

A comprehensive review of the papers on the theory and practice of quality disclosure is provided in [Dranove and Jin \(2010\)](#). Sellers fully disclose their quality if disclosure is costless (e.g., [Grossman, 1981](#)). However, if disclosure is costly or if not all consumers understand it, then a firm chooses to disclose only if its quality is above a certain threshold ([Fishman and Hagerty, 2003](#); [Jovanovic, 1982](#)). The lack of full disclosure can then provide a rationale for the use of disclosure mandates. But even if the firm discloses information about the safety of its product, it does not necessarily mean that consumers would pay attention to the message because it is costly. In our paper, a consumer's ability to discover that the product is unsafe depends on two complementary factors: the visibility of warning labels and the amount of consumer attention to them.<sup>2</sup>

In addition to regulation, litigation efforts could be an alternative way to manage product risks. In general, stronger liability increases the firm's liability costs and thus provides incentives for improving product quality ([Daughety and Reinganum, 2013](#); [Polinsky and Rogerson, 1983](#); [Viscusi and Moore, 1993](#)). [Shavell \(1984\)](#) and [Kolstad et al. \(1990\)](#) examine the joint effects of a safety standard (ex ante regulation) and liability (ex post litigation) in the context of unilateral accidents,<sup>3</sup> while we study mandatory disclosure and liability in the context of bilateral accidents – the situation that arises when both producer and consumer care decisions have an effect on the probability of harm.

We examine how labeling regulation and product liability affect both the consumers' incentives to pay attention to warning labels and the firm's incentives to invest in reducing product risks. In the model, the firm privately learns if its product is unsafe, in which case the firm is mandated to post a warning label. A representative consumer does not know the level of producer care or how safe the product is, and he may underestimate the true risk associated with the product. The consumer can exercise care by inspecting the product in search of a warning label and then update his beliefs about the product's risk based on the outcome of this investigation.

Quite intuitively, we find that consumer care depends on the level of harm, the strength of product liability, consumer risk perception, the visibility of warning labels, and the cost of paying attention to them. Importantly, consumer care is decreasing in producer care. That is, the consumer views producer and consumer care levels as strategic substitutes. Following [Viscusi \(1984\)](#), we call this a “lulling effect” – safety improvements may produce an unintended effect of reducing consumer effort aimed at avoiding an accident. In our model, the interactive effect of consumer and producer care on the expected harm reduction is negative because consumer care is less effective at reducing the expected harm when the producer invests more in product safety.

By contrast, for the firm, consumer and producer care levels are strategic complements. The reason for this is that the firm in our model primarily cares about the effect of consumer care on the demand (not the expected harm) and the levels

<sup>1</sup> The national standards for labeling food allergens are set by the U.S. Food and Drug Administration (FDA) in the “Food Allergen Labeling and Consumer Protection Act” of 2004 (FALCPA). FALCPA mandates labeling the eight most common allergens responsible for 90 percent of all food allergies – milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat, and soybeans. The mandate sets uniform standards for displaying the warning on food labels. First, FALCPA bans the use of Latin terminology and requires listing the major allergens “in plain and clear English.” Second, it bans fine print. Finally, it outlines the standards for positioning the warning. The allergen may be mentioned in parentheses immediately after the ingredient: “casein (milk).” Alternatively, the statement “contains (allergen source)” may immediately follow or be adjacent to the list of ingredients (e.g., “contains peanuts”). FALCPA regulation of the display of allergy information is aimed at promoting consumer attention to warning labels.

<sup>2</sup> There is a growing literature on consumer search and attention manipulation. For example, [Ellison and Wolitzky \(2012\)](#) study strategic incentives by firms to obfuscate consumer search for price information. In related studies, a larger number and an increasing sophistication of messages make it harder for consumers to become fully informed ([Anderson and Renault, 2006](#); [Anderson and De Palma, 2009](#); [Harbaugh et al., 2011](#)). [Persson \(2018\)](#) shows that firms can manipulate limited consumer attention, leading to information overload in a model that assumes complementarity in communication efforts by experts and a decision maker. In [Dahremöller and Fels \(2015\)](#), a multiproduct monopoly influences its consumers' attention through product design.

<sup>3</sup> In contrast to bilateral accidents, unilateral accidents are situations where one party (usually the firm) is solely responsible for accidents. [Shavell \(2007\)](#) provides a comprehensive classification of accident liability cases.

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