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# Product liability, entry incentives and market structure

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**Abstract**

The article characterizes the entry incentives provided by increases in product liability under various forms of competition. It is demonstrated that the entry of small, high-cost firms is likely to occur in imperfectly competitive markets when the average damage increases with industry output. Special cases are considered, including Cournot–Nash oligopoly and dominant firm-competitive fringe. 

## 1. Introduction

The impact of product liability rules on market equilibrium is a central question in the economics of law. Indeed, a great deal of debate has focused on the observed structural changes in hazardous product industries that undergo an increased exposure to liability. At the center of this question is the empirical finding that the average scale of firms in hazardous product industries declined and de novo entry of small firms occurred in the 1967–1980 period of rapid changes in liability law. In one significant article, Ringleb & Wiggins (1990) examined a wide range of hazardous industries and found that increases in potential liability are linked to substantial increases in the number of small firms operating in these sectors.

Our goal is to provide a simple, yet general, exposition of the market structure implications of increased producer exposure to liability. We characterize entry incentives in a variety of settings for the case where the extent of producer liability is determined by total industry

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output of a hazardous substance. This case encompasses some important real-life situations. One significant example is the case of liability for hazardous products such as cigarettes or pharmaceuticals (the synthetic estrogen diethylstilbestrol [DES] and the childhood diptheria-pertussis-tetanus [DPT] vaccine being prime examples), where it is difficult, if not impossible, to allocate responsibility for individual injuries among companies. Another good example is the case of environmental health risk, where public health is affected by the total amount of some toxic substance. In such instances, the courts have increasingly turned toward the use of proportional liability rules.[1]

The assumption of proportional liability is also related to the burden of traditional regulation. Firms with larger facilities bear proportionally higher costs of complying with environmental and safety regulations than smaller firms. For example, firms with larger facilities face higher potential costs when large sites are more difficult to inspect or when more reports are required to meet regulatory requirements. Pashigian (1984) shows that increased regulation in the early 1970s led to a decrease in the optimal size of manufacturing plants, a finding that closely parallels the results of Ringleb & Wiggins (1990) for increases in liability.

In this article, we characterize the marginal effects of an increase in product liability for several indicators of industry structure: output per firm (for various cost types), total industry output, small-firm entry, and incumbent market shares.[2] We base our observations on a generalized conjectural variations model with asymmetric costs, endogenous entry, and complete capitalization. To capture a wide range of oligopoly outcomes, including the case of dominant firm(s) with a competitive fringe, the model allows conjectures to differ across firms. For various parameter values of the industry demand and external damage functions, we demonstrate that an increase in producer liability stimulates small-firm entry. In particular, small-firm entry is likely to occur when the average damage function increases in the level of industry output of the hazardous product. The intuition for such an effect is straightforward. If the average damage function associated with an environmental contaminant increases with industry output, a producer liability rule shifts the marginal benefit schedule of each incumbent firm downward but also makes it more inelastic. Increased producer liability may, thus, increase equilibrium price–cost margins and create an incentive for small-firm entry.

Our analysis indicates that the entry incentives provided by liability rules are richer and more pervasive than previous analyses suggest. Ringleb & Wiggins (1990) and others hypothesize that the entry of small firms following increased liability exposure is the result of incomplete capitalization or latent risks that allow small firms to cease production before injury emerges. Such divestiture is liability reducing when the firms conducting the risky task have insufficient assets to pay damages and declare bankruptcy when suits are filed or, in the

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[1] Market share liability was first applied in the DES case, *Sindell v. Abbott Laboratories*, and has since been imposed for health risks resulting from asbestos, the DPT vaccine, and, most recently, from cigarette consumption.

[2] Sunding & Zilberman (1998) also consider the relationship between market structure and liability. Their analysis concerns the optimal apportionment of liability along the chain of production when a firm with some degree of market power produces a hazardous input.