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# Horizontal mergers and product innovation<sup>☆</sup>



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### ABSTRACT

We set up a stylized oligopoly model of uncertain product innovation to analyze the effects of a merger on innovation incentives and on consumer surplus. The model incorporates two competitive channels for merger effects: the “price coordination” channel and the internalization of the “innovation externality”. We solve the model numerically and find that price coordination between the two products of the merged firm tends to stimulate innovation, while internalization of the innovation externality depresses it. The latter effect is stronger in our simulations and, as a result, the merger leads to lower

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innovation incentives for the merged entity, absent cost efficiencies and knowledge spillovers. In our numerical analysis both overall innovation and consumer welfare fall after a merger.

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## 1. Introduction

The relationship between mergers and innovation is an important question in competition policy, as it is well-established that innovation is one of the main determinants of long-term growth and consumer welfare. Competition authorities typically maintain that horizontal mergers risk reducing innovation incentives. For example, the U.S. Horizontal Merger Guidelines state that “competition often spurs firms to innovate”. Similarly, the E.C. Horizontal Merger Guidelines maintain that effective competition benefits consumers by promoting innovation, and that a merger may deprive consumers of this benefit. The U.K. Merger Assessment Guidelines posit that rivalry between firms creates incentives to introduce new and better products.

The position that mergers risk reducing innovation incentive is not universally shared. Some commentators argue that horizontal mergers may rather raise innovation incentives even in the absence of cost efficiencies or knowledge spillovers by increasing the market power of the merging firms and thus raising the reward from innovation.<sup>1</sup>

In this paper we investigate how a horizontal merger may affect product innovation via its effects on market power.<sup>2</sup> We set out a stylized model which allows us to isolate and study two separate channels for the effects of a merger on innovation. We denote these two channels as the *price coordination* and the *innovation externality* channels. We employ the model to analyze numerically the interaction of these two channels and, ultimately, to assess the overall merger effect on innovation and consumer welfare.

The first channel we study—price coordination—relates to the elimination of price competition between the merging firms. The merger internalizes the negative pricing externality that the merging firms exert on each other in the absence of the merger. The reduction of price competition affects the profits of each merging firm both when it successfully innovates and when it does not. Therefore, the reduction of price competition affects the incremental profit of innovating and, with that, the incentive to innovate. While merger-induced price coordination harms consumers via higher prices for current and future products, its effect on innovation incentives is ambiguous. If the merger increases pre-innovation profits in the product market by more than it increases post-innovation profits, price coordination introduces a downward pressure on the merging

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<sup>1</sup> Shapiro (2012) summarizes this debate.

<sup>2</sup> We focus on product innovation, defined as innovation that increases the quality of existing products. We do not consider the case of cost-reducing innovation (i.e. process innovation).

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