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Vertical integration and product differentiation[☆]

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ABSTRACT

We study a new channel of downstream rent extraction through vertical integration: competition for integration. Innovative downstream firms create value and profit opportunities through product differentiation, which however affects an upstream monopolist's incentive to vertically integrate. By playing the downstream firms against each other for integration, the upstream firm can extract even more than the additional profits generated by the downstream firms' differentiation activities. To preempt rent extraction, the downstream firms may then reduce differentiation, which reduces social welfare. We show that this social cost of vertical integration is more likely to arise in innovative and competitive industries, and that the *competition for integration channel* of downstream rent extraction is robust to upstream competition.

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1. Introduction

The welfare consequences of vertical mergers are highly controversial in competition policy. A variety of pro-competitive efficiency gains, from the elimination of double marginalization to the solution of incentive problems caused by incomplete contracts, have traditionally been contrasted with a major anti-competitive concern, *vertical foreclosure*, whereby vertically integrated firms would gain market power by restricting supply (or demand) to downstream (upstream) competitors.[1]

Important merger and consolidation waves in high-tech industries (such as pharmaceutical, biotech, electronics, energy, ITC, software, smartphones) since the early 90s, have more recently turned the attention of antitrust authorities and scholars towards the effects of vertical mergers on firms' innovation activities.[2] For instance, discussing the case of *Silicon Graphics*' acquisition of *Alias and Wavefront,* Varney (1995)[3] points at product innovation, positioning and design as possible channels of anti-competitive effects of vertical mergers: "*[...] the combined entity would not need to bar other software developers completely, but could redirect them away from direct competition by, for example, encouraging the development of products that are complement to, rather than direct substitutes for, Alias and Wavefront software*". More generally, the 2008 EU Guidelines on the assessment of non-horizontal mergers treat reduction in innovation, quality and choice of goods and services as sufficient reasons to prevent mergers on equal footing with anti-competitive price increases and output restrictions.[4]

An interesting literature (discussed in detail in a separate section) has then arisen on the interplay between firms' vertical relations and innovation, contrasting the incentives to innovate of vertically integrated firms, their separated competitors, and their non-integrated counterparts, and investigating how innovation activities, in turn, affect firms' incentives for vertical integration.

This paper contributes to this literature in two important ways. First, we focus on independent firms' innovation activities, such as product design, development, and market positioning, which, while generating value to final consumers, are also likely to spill over profit opportunities to differentiated competitors, for instance by creating new

[1] Vertical foreclosure has been investigated by a vast literature in a variety of vertical integration models, e.g., Salinger (1988), Ordover et al. (1990), Hart and Tirole (1990), Riordan and Salop (1995), Riordan (1998), Choi and Yi (2000), Chen (2001), Riordan and Chen (2007). See Rey and Tirole (2007) and Riordan (2008) for excellent surveys of this literature.

[2] The US Department of Justice (DOJ) and Federal Trade Commission (FTC) have strengthened their focus on innovation since the mid-90s, formalizing the application of the antitrust laws to innovative markets. As for vertical mergers, the DOJ Antitrust Division underlined that, under certain conditions, vertical mergers may chill innovation (Sunshine, 1994). As reported in Gilbert (2016), since then the proportion of US merger challenges where the DOJ and FTC raised concerns about adverse effects on innovation has increased from 3% (in the period 1990–1994) to 18% (for the period 1995–1999) and 38% (for the period 2000–2003).

[3] General Attorney Assistant for the Antitrust Division of the US Department of Justice from February 2009 to August 2011.

[4] Adverse effects on innovation have consequently been investigated by the Commission in a number of recent cases of non-horizontal mergers, including *Intel/Mc Afee*, *Arm/Gieseke & Devrient/Gemalto Joint Venture*, and *Telefonica UK/Vodafone UK/Everything Everywhere Joint Venture* . For an interesting discussion of these cases, see *Competitionpolicy brief* (April 2016).