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## Cross ownership of wireline and wireless communications carriers: synergy or collusion?

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### Abstract

This paper examines whether the ‘cross ownership’ of wireline and wireless communications carriers is socially beneficial or harmful, and therefore should be allowed or regulated. We analyze a generic model of cross ownership of the firms which produce different but inter-related services. We show that, first, if both of the wireline and wireless industries are monopolistic, cross ownership results in social gains when the two services are complements, and social losses when they are substitutes. Secondly, if the wireless industry is sufficiently competitive, there’s little or no welfare loss from cross ownership. Finally, we briefly address the effect of network externality on the welfare consequences of cross ownership.

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### 1. Introduction

The central question of this paper is whether the ‘cross ownership’ of wireline and wireless communications carriers is socially beneficial or harmful, and

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therefore should be allowed or regulated.<sup>1</sup> It is widely observed in the telecommunications market that the wireline and wireless communications carriers own partial or full shares of each other's equity. One reason for this is that in many countries such as the US, Australia, China, Japan, and Korea, the governments awarded one of the commercial cellular licenses to the wireline incumbents or their subsidiaries from the late 1980s. Another reason is that there have been many attempts by the wireline and wireless carriers to acquire the control of each other in the era of digital convergence.

While the cross ownership of the firms producing substitutes is known to be socially harmful (Farrell and Shapiro, 1990; Malueg, 1992; Reitman, 1994; Reynolds and Snapp, 1986; Salant et al., 1983), what can be said on the cross ownership of the firms in different but inter-related industries, such as wireline and wireless communications industries?<sup>2</sup> To address the question, we focus on two factors; the substitutability of wireline and wireless services and the degree of competition in the industries.

Firstly, there exists mixed empirical evidence on whether wireline and wireless services are substitutes or complements (Gruber, 2001; Gruber and Verboven, 2001; Sung and Lee, 2002). Gruber and Verboven (2001) and Sung and Lee (2002) demonstrate with the data of European Union countries and Korea, respectively, that the wireless service is replacing the wireline service, so the two services are becoming substitutes. Gruber (2001), on the other hand, shows that in Central and Eastern Europe the increase in the demand of the wireless service is proportional to the size of the wireline network, so they are still complements.<sup>3</sup> In this paper, we consider both possibilities in the context of cross ownership.

Secondly, in many countries, the wireline communications industry remains as a *de facto* monopoly. And, the wireless industry is usually more competitive than the wireline one. Also, the degree of competition in the wireless market varies from a virtual monopoly (Korea, Japan, etc.) to competition (United States, England, Germany, Canada, Australia, etc). In this paper, we consider both monopolistic and competitive wireless industries.

With a generic model of cross ownership we derive some policy implications

<sup>1</sup> 'Cross ownership' refers to the situation where firms have some (equal or unequal) shares of each other's equity. Alternatively, 'partial ownership' is being used in the literature. See, for example, Alley (1997), Malueg (1992), and Reitman (1994).

<sup>2</sup> Ownership arrangements (cross ownership and integration) are attempted not only for pursuing market power but also for other reasons such as providing (and compensating) capital to risky ventures, solidifying buyer–seller relationships, and appropriating the returns to technology transfer (Reynolds and Snapp, 1986). In this paper, we confine our attention only to the market power rationale, so even if we show that an ownership arrangement might be socially undesirable, we are not arguing that it should be prevented at all costs.

<sup>3</sup> One possible explanation for these seemingly contradictory results would be that the two services might be substitutes in the countries where wireless service is highly deployed, and complements in other countries.

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