

Corrigendum

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Corrigendum to: Product Quality and Product Compatibility in Network Industries

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Abstract: Using an appropriate game-theoretic approach, this article develops a non-cooperative two-stage game in a Cournot duopolistic network industry in which firms strategically choose whether to produce compatible goods in the first decision-making stage. Quality differentiation affects the sub-game perfect Nash equilibrium (SPNE): (i) the network effect acts differently between low- and high-quality firms, depending on their compatibility choice; (ii) if the network externality is positive (resp. negative), to produce compatible (resp. incompatible) goods is the unique SPNE; however, this equilibrium configuration leads the high-quality firm to be worse off; (iii) there is room for a side payment from the high- to the low-quality firm to deviate toward incompatibility (resp. compatibility) under positive (resp. negative) network externality. This payment represents a Pareto improvement on the firm side but not from a societal perspective, as consumers would be worse off. The article also pinpoints the social welfare outcomes corresponding to the SPNE.

Keywords: network externality; product compatibility; Cournot duopoly; quality differential

JEL Classification: L1; L2; D4

In Appendix B we have actually assumed that if the dimension of products sold in the past matters, history also matters for the choice of compatible or incompatible goods, giving rise to the problem of the installed base.

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In this case, the network of firm i ($i, j = \{1, 2\}, i \neq j$) depends not only on the expected sales in the considered period, i.e. y_i and y_j but also on its installed base, which is defined as $I_i > 0$ for firm i , and possibly to the installed base of rival, firm j , which is defined as $I_j > 0$ (this hold if products were fully compatible between them in the past).

The installed base is the number of products sold to users in the past. Then, the only change with respect to the model discussed in the main text involves the inverse demand functions (2) and (3), which are respectively re-written in the following way:

$$p_i = a - q_i - q_j + n(I_i + y_i + k_j y_j), \quad (\text{B.1})$$

and

$$p_j = 1 - q_j - q_i + n(I_j + y_j + k_i y_i), \quad (\text{B.2})$$

where we will assume henceforth that product quality is homogeneous, that is $a = 1$. We note that the rival's installed base (I_j) does not affect demand for generic firm i and vice versa. This is because, for analytical tractability and simplicity, we are assuming that there was no compatibility in the past between the products of the two firms, whereas today's products may be compatible or incompatible with each other. The model developed in Appendix B follows this demand structure.