

The objective of this research project is to investigate the impact of the network effects occurring in some product or service markets on incentives for firms to invest in innovation. Network effects are external effects that are associated with the fact that the value of certain goods or services for a consumer depends not only on the intrinsic characteristics of the product, but also on the network of its users. Network effects are common in many important markets, such as telecommunications, e-commerce platform, aggregators of information, online games, media markets, credit cards, social networking, fashion, etc. These effects affect both consumer behavior and strategies of companies operating in these markets.

Economists have long been interested in understanding how technology adoption may depend on the existence of network effects in a particular market. However, while the existing economic literature refers to issues like technological lock-in due to the presence of network effects and problems of standardization and compatibility, there are still open questions about the incentives of companies to invest in research and development in the network industries, in particular the question of (1) private and social benefits of the research and development cooperation in the network industries and (2) possible practices aimed at restricting competition in network industries due to the functioning of their research and development cooperation.

The cooperation of companies at the stage of R & D investment can increase the effectiveness of research efforts and willingness to invest by improving the absorption of profit. However, it can also lead to anti-competitive behavior in the product market. There is a rich literature on these issues in the markets in which the network effect does not occur. This project aims to verify what is the role of network effects for the investment strategies of firms. We will check whether the presence of network effects has positive impact on firms' propensity to invest in research and development and on incentives to engage in research cooperation. We also want to assess the implications for consumers and for welfare of such cooperation: whether it can be beneficial, even if it leads to potential collusion restricting competition?

We also intend to examine issues related to the dynamics of the network effect. In some cases, we observe that consumers are backward-looking, so that the value of the network good depends on the accumulated network of past users (e.g. online reviewing systems). On the contrary, in other contexts, we observe that consumers are forward-looking in the sense that the value of the good or service depends on the number of future users (e.g. future applications made available for a certain operating system; subscription of a telecommunication plan or subscription to a social network). Our next objective is to establish how incentives to invest in innovation depend on what type of network effect on the market prevails. Finally, we plan to examine how firms' investment in research and development affect the evolution of the network itself, pricing strategies and the quality of the products offered by the firms.