

# INNOVATION DYNAMICS IN NETWORK MARKETS : PATENT COUNT MODEL WITH SELECTIVITY, ENDOGENOUS R&D AND NETWORK EFFECTS

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This paper will develop an econometric model that takes into account the dynamic, non-linear nature of the innovation process. Our application extends to estimate the system of interdependent equations for a count data variable, sample selection mechanism, endogenous R&D and the diffusion of innovations. We use firm-level data from 61 of the world's major telecommunications operators between the years 1991 and 1996 to empirically investigate the direction of causality and the presence of feedback mechanisms between network evolution and entrepreneurial innovation.

The results of our empirical exploration suggest that the diffusion of new technologies may have substantial implications for innovation creation on network markets. We do not, however, find any feedback effect from R&D to the diffusion of network technologies. In other words, the link between innovation creation and diffusion seems unidirectional: network externalities related to the demand for network technologies induce innovation on the supply side of network markets. This suggests that supporting the diffusion of new network technologies may also (indirectly) facilitate innovation creation. This empirical evidence favors a current technology policy trend among OECD countries shifting emphasis from direct support of R&D towards diffusion of technologies. Also, our data suggest that opening up telecommunications markets for competition promotes innovation: it has had a clear positive impact both on innovation creation and diffusion in the telecommunications sector.

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