Renegotiaions and the Diffusion of a Technology with Positive Externalities

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April 23, 2012

Abstract

We consider a problem of the technology transfer from one original holder to other agents through negotiation. We specifically treat a technology such that an adoption by an agent increases the other agents' payoffs, but the adoption of the technology may decrease the adopter's own payoff. These properties give agents the incentive to deviate from the negotiation and to free-ride on the benefit from the other agents' adoptions. Therefore, the full diffusion may be prevented even if the full diffusion attains the social optimum. We formulate this situation with a hybrid model where both the cooperative and the noncooperative behavior are incorporated, and investigate whether the full diffusion is possible. We show that full diffusion is always achieved in the initial negotiation when renegotiations are allowed, whereas the full diffusion may fail to be achieved if no renegotiation is possible.

Keywords: technology with positive externalities, theory of social situations, optimistic stable standard of behavior, renegotiation, full diffusion

JEL Classification: C71 · D62 · H87

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