

FITS AND MISFITS: PATENT RACES ON INNOVATION NETWORKS

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Abstract. This paper presents an economic model of R&D network formation through the creation of strategic alliances. Firms are randomly endowed with knowledge elements. They base their alliance decisions purely on the "technological fit" of potential partners, ignoring social capital considerations and indirect benefits on the network. This is sufficient to generate equilibrium networks with the small world properties of observed alliance networks, namely short pairwise distances and local clustering.

The equilibrium networks are more clustered than "comparable" random graphs, while they have similar characteristic path length. Two extreme regimes of competition are examined, to show that while the competition has a quantitative effect on the equilibrium networks (density is lower with stronger competition), the small world features of the equilibrium networks are preserved.

keywords: network formation, small worlds

JEL #: D85