

# Inventor Network and Knowledge Spillovers

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## Abstract

In the context of knowledge spillovers across firms, this study investigates the significance of inventor connections and the crucial partners for inventors to engage with. To quantify the strength of these connections among firms, I construct an inventor network based on co-invention relationships, using US patents from 1980 to 2003. I assign weight to each link in proportion to other firms' Research & Development (R&D) activities, aiming to estimate their impact on firm output. In the empirical analysis, I address concerns about the potential endogeneity of other firms' R&D activities and network formation using an instrumental variable (IV) strategy. The findings reveal that spillover effects from the top inventors surpass those from other inventors, and inventors who serve as bridges between various inventors play a particularly significant role. Additionally, it is crucial for small firms to establish connections with other firms, more so than for large firms. Lastly, this study shows that inventor connections also exert a meaningful influence on the number of patents, which is another measure of a firm's output.

**Keywords:** Co-invention networks, R&D spillovers, peer effects

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