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Information Spillover and Semi-Collaborative Networks in Insurer Fraud Detection

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Abstract

Information spillovers are benefits that a party obtains from the IT efforts of another party. Because these benefits arise from data and information sharing, they are best studied at a process level. Medical claims fraud detection is a prototypical data- and information-intensive process in insurance companies. Fraud detection efforts of one insurer can create spillover benefits through data and information sharing that occur from socialization between analysts and labor mobility between insurers. This paper theorizes three semicollaborative networks formed between state-level subsidiaries of insurers (regulation-bound network), between subsidiaries of an insurer parent company (sibling network), and between insurers and hospitals (risk-sharing), and hypothesizes that these networks convey information spillovers. Because benefits realized by another party can lead to the reduction of IT investments by that party, the paper also examines the impact of semi-collaborative networks on future IT-related investments. The empirical analysis was conducted using 2011–2013 data. A generalized linear model with a Tweedie distribution is used to correct for the finite mass of zeros for the dependent variables. The results reveal that the sibling network conveyed most of the spillover benefit, and the risk-sharing network did not contribute to fraud detection. The sibling network is also found to depress future spending on fraud detection.

Keywords: Information spillover, medical claims fraud, fraud detection, semicollaborative network, social embeddedness theory, hospital IT, generalized linear model, Tweedie distribution