Privacy protection and AI-based pharmaceutical innovation: Friends or foes?

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Abstract

We study private incentives to invest in a targeted treatment for an eligible patient group based on collected personal health data, and compare them with the social optimum. Patients must be compensated for sharing health data, since they incur privacy risks and can partially free ride on the public good nature of data-driven pharmaceutical innovation. As long as in equilibrium total costs of data collection are greater (lower) than aggregate privacy risks, the firm may underinvest (overinvest) in the targeted treatment. Privacy protection measures reducing patients' risks of sharing health data can align private investment incentives with social goals. If such measures are not effective, then a central (public) agency in charge of managing patients' health data should be cautious in providing sensitive data for medical research.