Buying Data from Consumers

The Impact of Monitoring Programs in U.S. Auto Insurance

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Abstract

This paper studies the economic impact of direct transactions of consumer data in the context of auto-insurance monitoring programs, in which insurers incentivize consumers to have their driving behavior monitored for a short period of time. We acquire proprietary datasets from a major U.S. auto insurer that offers a monitoring program. The data is matched with price menus of the firm's main competitors. We first develop a structural model of consumers' monitoring opt-in choice in relations to their insurance demand and the cost to insure them. Key parameters are estimated using rich data variation in insurance claims, prices, contract space, and monitoring status. We then conduct counterfactual simulations using a dynamic pricing model that endogenizes the firm's information set. We find three main results. (i) Data collection changes consumer behavior. Drivers become 30% safer when monitored, which boosts total surplus and alters the informativeness of the data. (ii) Safer drivers are more likely to opt in. But monitoring take-up is low due to both consumers' innate preference against being monitored and attractive outside options from other insurers. Nonetheless, introducing monitoring raises both consumer welfare and total surplus. (iii) Proprietary data facilitate higher markups but protect the firm's ex-ante incentives to produce the data. A counterfactual equilibrium in which the firm must share monitoring data with competitors harms both profit and consumer welfare. This is because the firm offers smaller upfront incentives for monitoring opt-in, so that fewer drivers are monitored in equilibrium.