Information Aggregation and Transmission in Strategic Networks

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Observing the increasingly important roles played by the creation and transmission of information and tacit knowledge, we construct an information-network model incorporating both information transmitters and information aggregators. Given information-processing roles in aggregation or transmission, we establish various general properties concerning the existence of a network equilibrium, its optimality and the patterns of equilibrium and optimal configuration. We then allow for endogenous choice of the information-processing roles. We prove the existence and show that, with sufficiently small link maintenance costs, the monocentric network with one aggregator connecting to all other agents as transmitters on a tree graph is the unique configuration. In general, a rich array of equilibrium configurations may emerge, including core-star, star-with-satellites and cycles. We further characterize an information-processing chain network with all information aggregators and transmitters linked along a chain and compute numerically the ranges of transmission decays and link costs within which a network equilibrium arises.

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