

# Competing with Big Data

Jens Prüfer, Tilburg University

## **Abstract:**

This paper studies competition in data-driven markets, that is, markets where the cost of quality production is decreasing in the amount of machine-generated data about user preferences or characteristics, which is an inseparable byproduct of using services offered in such markets. This gives rise to data-driven indirect network effects. We construct a dynamic model of R&D competition, where duopolists repeatedly determine their innovation investments, and show that such markets tip under very mild conditions, moving towards monopoly. In a tipped market, innovation incentives both for the dominant firm and for competitors are small. We also show under which conditions a dominant firm in one market can leverage its position to a connected market, thereby initiating a domino effect. We show that market tipping can be avoided if competitors share their user information.