

Market Structure Dynamics Caused by Consumer Behavior

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We study a simple model of market share dynamics with boundedly rational consumers and firms interacting with each other. Since the number of consumers is large, we employ a statistical description to represent firms' share distribution of consumers, which is characterized by a single parameter representing how 'rationally' the mass of consumers pursue higher utility. Since the boundedly rational firm does not know the shape of demand function it faces, it revises production and price so as to raise its profit with the aid of a simple reinforcement learning rule. Simulation results show that 1) three phases of market structure, i.e., the uniform-share phase, the oligopolistic phase and the monopolistic phase appear depending upon how 'rational' consumers are, 2) in an oligopolistic phase, the market-share distribution of firms follows Zipf's law and the growth-rate distribution of firms follows Gibrat's law, and 3) an oligopolistic phase is the best state of market in terms of consumers' utility while oligopoly brings the minimal profit to the firms because of severe competition based on the moderate 'rationality' of consumers.

Keywords

market share dynamics, agent-based model, bounded rationality, oligopoly,