Learning models in oligopoly with delays

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Linear n-firm oligopoly is considered when the firms are familiar with each other's technology, so they know their own cost functions as well as those of the competitors. However they are uncertain about the linear unit price function, which has two parameters, the maximum price and the slope of the function. We will concentrate on learning about the maximum price. At each time period each firm has a belief of this parameter, and based on its believed parameter value it is able to compute the believed best responses of all firms and therefore the believed equilibrium industry output as well as its own equilibrium output level. Therefore it is also able to determine its estimate of the equilibrium price. However each firm has its own believed price function with its own believed equilibrium output level, which will lead to the actual industry output that produces the actual market price based on the true unit price. Each firm then compares its believed price to the actual market price and modifies its estimate of the maximum price of the uncertain price function adaptively. A dynamic process is therefore develops, the asymptotical stability of which is examined to see the possibility of successful learning. Discrete and continuous time scales are considered without and with delays in the observed market price.