On the dynamics of Cournot–Puu oligopoly

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Cournot–Puu oligopoly is a market consisting on n firms producing the same, or perfect substitutes, goods with demand function $p = 1/Q$, where p is the price, $Q = q_1 + ... + q_n$ is the total output and q_i is the output of firm i. We consider constant marginal costs c_i for each firm i, which implies that cost functions are $C_i = c_i q_i$ for $i = 1, ..., n$. Under naive expectations, each firm will plan its production at time $t + 1$ as

$$q_i(t + 1) = f_i(Q_i(t)) = \max \left\{ 0, \sqrt{Q_i(t)/c_i} - Q_i(t) \right\},$$

where $Q_i = Q - q_i$ is the residual supply and f_i is the reaction function of each firm. In this talk we summarize the dynamics in duopoly case, that is, when $n = 2$ (see e.g. [2, 1]) and analyze some phenomena of interest from the point of view of economic dynamics like conditions which guarantees the disappearing of firms in the market.

References

[1] J. S. Cánovas, *On Cournot Puu duopoly*, in Advances in Discrete Dynamics, Ed. J. S. Cánovas. New York: Nova Publishers, 2012. 227–262.

[2] T. Puu, *Chaos on duopoly pricing*, Chaos, Solitons and Fractals **1** (1991), 573–581.