Should firms innovate or imitate new technologies?

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Dr Paolo Zeppini has published a new joint paper with Professor Cars Hommes (University of Amsterdam) that is entitled: *Innovate or imitate? Behavioural technological change* .

The article was published in the *Journal of Economic Dynamics and Control*. The journal concerns theoretical and empirical aspects of economic dynamics as well as the development of computational methods.

The article presents a model with evolutionary dynamics of innovation and imitation as strategies that are adopted by competing firms.

There is a minority game interplay of market price and firms' choices, such that one strategy is more attractive the less frequently it is adopted by other firms. The introduction of stickiness in firms' decisions reduces the amplitude of price fluctuations, but may lead to chaotic dynamics, with unpredictable long run outcomes.

When technological progress is introduced as the result of cumulative innovation decisions, different regimes are possible. In a market with inelastic demand, technological progress comes with a decreasing number of innovating firms. If the demand is elastic instead, technological progress goes with more innovators and less imitators.

The two regimes describe different phases of an industry life cycle: for instance model simulations are compared to data from the tyre industry

and the solar photovoltaic industry.

More information: Cars Hommes, Paolo Zeppini, "Innovate or Imitate? Behavioural technological change," *Journal of Economic Dynamics and Control*, Volume 48, November 2014, Pages 308-324, ISSN 0165-1889, dx.doi.org/10.1016/j.jedc.2014.08.005.

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