

A Simulation Study on the Firm-Level Impact of Business Incubation in an Innovation Ecosystem

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Business incubation programs offer a way for start-up companies to overcome the many hurdles along the path to a successful business. In the real world, it is hard to measure the true impact that incubation has on start-up firms, as you can never go back in time and ask "what if the company was not incubated?" In simulation, however, it is possible to answer this question.

We use agent-based simulation to reinforce the findings of an empirical study conducted by our colleagues and submitted in parallel to T2S 2013. We focus on the impact of business incubation within an innovation ecosystem. In our simulation (Hollander, et al. 2012, Garibay, et al. 2013), firms exist in an economic environment that contains characteristics that, in our view, capture the key components of innovation ecosystems: competition for survival, bounded rationality, non-linear interactions and feedback loops, Schumpeterian creative destruction, and new product creation (innovation).

We compare firm-level performance between incubated and non-incubated firms and attempt to answer the questions, "How long do incubated firms live compared to non-incubated firms in the same environment?" and "How much better off are incubated firms vs. non-incubated firms in the same environment with regard to personal wealth, total products sold and total profits?"

To ensure that incubated and non-incubated firms are comparable, we use common random numbers so that the only difference between experiments is the type of incubation and whether or not incubation occurs.

This work expands on our results from last year's T2S conference (Hollander, et al. 2013).

Hollander, C. D., Garibay, I., & O'Neal, T. (2012). Transformation Networks: A study of how technological complexity impacts economic performance. *8th Artificial Economics*. Castellon, Spain: Springer-Verlag.

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C. D. Hollander, I. Garibay, V. Lasrado, C. Ford, S. Sivo, T. O'Neal "A Comparative Simulation Study on the Benefits of Entrepreneurial Support Organization Membership," 2013 Technology Transfer Society Annual Conference (T2S), New York, New York, USA, Apr. 2013.