

# Uncertainty, Imperfect Information, and Expectation Formation over the Firm's Life Cycle\*

Cheng Chen      Tatsuro Senga      Chang Sun      Hongyong Zhang<sup>†</sup>

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## Abstract

Using a long-panel dataset of Japanese firms that contains firm-level sales forecasts, we provide evidence on firm-level uncertainty and imperfect information over their life cycle. We find that firms make non-negligible and positively correlated forecast errors. However, they make more precise forecasts and less correlated forecast errors when they become more experienced. We then build a model of heterogeneous firms with endogenous entry and exit where firms gradually learn about their demand by using a noisy signal. In our model, informational imperfections lead firms to enter the market without being fully informed. Moreover, young firms tend to wait long before entering or exiting the market faced with high uncertainty about their demand. The former learning effect, combined with the latter real-options effect, adversely affect firms' entry decisions and thus resource allocation. Our quantitative exercise substantiates the importance of accumulation of experience for firms' post-entry dynamics and aggregate productivity.

*Keywords.* firm expectations, forecast errors, uncertainty, learning, productivity

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<sup>†</sup>Chen: Clemson University, cchen9@clemson.edu. Senga: Queen Mary University of London, ESCoE, and RIETI, t.senga@qmul.ac.uk. Sun: University of Hong Kong, sunc@hku.hk. Zhang: Research Institute of Economy, Trade and Industry, zhang-hong-yong@rieti.go.jp.