

Discrete innovation, continuous improvement, and competitive pressure

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Does competitive pressure foster innovation? In addressing this important question, prior studies ignored a distinction between *discrete innovation* aiming at entirely new technology and *continuous improvement* consisting of numerous incremental improvements and modifications made upon the existing technology. This paper shows that distinguishing between these two types of innovation will lead to a much richer understanding of the interplay between firms' incentives to innovate and competitive pressure. In particular, our model predicts that, in contrast to previous theoretical findings, an increase in competitive pressure measured by product substitutability may *decrease* firms' incentives to conduct continuous improvement, and that an increase in the size of discrete innovation may decrease firms' incentives to conduct continuous improvement.

A unique feature of this paper is its exploration of the model's real-world relevance and usefulness through field research. Motivated by recent declines in levels of continuous improvement in Japanese manufacturing, we conducted extensive field research at two Japanese manufacturing firms. After presenting our findings, we demonstrate that our model guides us to focus on several key changes taking place at these two firms; discover their interconnectedness; and finally ascertain powerful underlying forces behind each firm's decision to weaken its investment in traditional continuous improvement activities.