Understanding How Complementary Innovations Affect Firm Performance: Evidence from Pakistan

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Abstract

In this study, we investigate the profound role of innovation in driving economic growth, focusing particularly on how different types and combinations of innovations influence firm performance. Our research, based on primary data from Pakistani firms, employs a modified version of the Crépon, Duguet, and Mairessec (1998) model to analyze the impact of technological, product, process, marketing, and business model innovations on various firm metrics. Initially, we assess the individual effects of each innovation type on firm revenue, production costs and product pricing. Our findings indicate that product and technological innovations yield significant improvements across these metrics when considered independently. Moving beyond single innovations, we explore how combinations of innovations affect firm outcomes. Specifically, firms adopting complementary innovations—such as process and technological innovations, product and technological innovations, marketing and technological innovations, and combinations involving business modeling—experience notably enhanced performance. This joint adoption proves particularly beneficial for younger, smaller, and exporting firms. Our study underscores the importance of strategic innovation management tailored to harness synergies among different types of innovations. By doing so, firms can effectively bolster their competitive edge and achieve substantial improvements in performance metrics critical to their sustained growth and success in dynamic markets.

Keywords: Innovation, Firm performance, CDM model, Pakistan
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