

FACULTY OF ENGINEERING
DEPARTMENT OF MANAGEMENT SCIENCE AND
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**From catch-up to frontier: The utility model as a learning device to
escape the middle-income trap**

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Conrad Rooms E7 (2317 + 2357)

Abstract: Escaping the middle-income trap requires a country to develop indigenous technological capabilities for high value-added innovation. This study examines the role of second-tier patent systems, known as utility models (UMs), in promoting such capability acquisition in less developed countries. UMs are designed to incentivize incremental and adaptive innovation through lower novelty standards than patents, but their long-term impact on the capability acquisition process remains underexplored. Using South Korea as a case study and drawing on the characteristics of technological regimes in catching-up economies, we present three key findings: First, the country's post-catch-up frontier technologies (U.S. patents) are more impactful (highly cited) when they build on Korean domestic UMs. This suggests that UM-based imitative and adaptive learning laid the foundation for the country's globally competitive capabilities. Second, the impact of UM-based learning diminishes as the country's economy develops. Third, frontier technologies rooted in UMs contribute more to the country's own specialization than to follow-on innovations by foreign actors, compared to technologies without UM linkages. We discuss how technological regimes and industrial policies in catching-up economies interact with the UM system to bridge the catching-up (imitation- and adaptation-based) and post-catching-up (specialization- and creativity-based) phases.

Bio: Su Jung is a Lecturer (Assistant Professor) at the Sheffield University Management School and an Associate Fellow at the INET Oxford. Her research focuses on innovation and intellectual property management, with a particular interest in the context of open innovation, industrial dynamics of AI, and sustainable development. She is also broadly interested in designing and developing frameworks and measures to support decision-making in relation to innovation management and policy, leveraging various analytics approaches including patent analytics, bibliometrics, and agent-based simulation. She received her BS and PhD degrees in Industrial Engineering (Specialty: Technology Management and Analytics) from Yonsei University, South Korea. She was an Assistant Professor at the Bradford School of Management (2022-23), a Visiting Fellow at the INET Oxford (2021) (funded as an Overseas Postdoctoral Research Fellow of the NRF of Korea), and a Visiting PhD student at the Science Policy Research Unit (SPRU), University of Sussex (2018).