

Technology Adoption and Late Industrialization*

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Abstract

We study how the adoption of foreign technology and its local spillovers contributed to late industrialization in developing countries during the postwar period. Using novel historical firm-level data for South Korea, we provide causal evidence of direct productivity gains to adopters, and local productivity spillovers of the adoption. Based on these empirical findings, we develop a dynamic spatial model with firms' technology adoption decisions and local productivity spillovers. The spillovers induce dynamic complementarity in firms' technology adoption decisions. Due to dynamic complementarity, the model potentially features multiple steady states. Temporary adoption subsidies can have permanent effects by moving an economy to a new transition path that converges to a higher-productivity steady state. We calibrate the model to the micro data and econometric estimates, and evaluate the impact of temporary adoption subsidies provided by the Korean government in the 1970s. Had no adoption subsidies been provided, Korea would have converged to an alternative less-industrialized steady state in which the heavy manufacturing GDP share and the aggregate welfare would be 15% and 10% lower than the steady state with successful industrialization. Thus, temporary subsidies to technology adoption had permanent effects.

Keywords: Technology Adoption, Industrialization, Knowledge Spillover, Path Dependence

JEL Codes: O14, O33, O53, R12

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