

Environmental provisions in trade agreements and Green Technology Spillovers: Heterogeneity across Technology Types*

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Abstract

This study examines how environmental provisions in trade agreements affect cross-border green technology spillovers and whether their effects vary across technology categories. Using U.S. patent citation data and the Trade and Environment (TREND) dataset, which covers 298 environmental provisions across 775 trade agreements, we estimate a structural gravity model of bilateral green patent citations. The results show that provisions related to enforcement and dispute settlement are particularly effective in promoting cross-border green technology spillovers. However, these effects are concentrated mainly in end-of-pipe technologies, which treat pollutants after they have been generated, while no comparable effect is found for several cleaner production technologies that prevent pollution at the source. These findings suggest that deeper environmental commitments in trade agreements do not uniformly promote the international diffusion of all green technologies. Their effectiveness depends on both the institutional design of environmental provisions and types of technology sector. This study provides policy implications for designing environmental provisions in trade agreements and multilateral environmental agreements so that their institutional structures are better aligned with specific environmental objectives and strategically targeted technology sectors.

Keywords: environmental provisions, trade agreements, green technology, spillovers, TREND data.

*We gratefully acknowledge financial support from the JSPS KAKENHI (Grant No. 23K22117).

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