

Climate change and labour-saving technologies: the twin transition via patent texts*

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Abstract

This paper provides a direct understanding of the twin transition from the innovative activity domain. It starts with a technological mapping of the technological innovations characterised by both climate change mitigation/adaptation (green) and labour-saving attributes. To accomplish the task, we draw on the universe of patent grants in the USPTO since 1976 to 2021 reporting the Y02-Y04S tagging scheme and we identify those patents embedding an explicit labour-saving heuristic via a dependency parsing algorithm. We characterise their technological, sectoral and time evolution. Finally, after constructing an index of sectoral penetration of LS and non-LS green patents, we explore its impact on employment share growth at state level in the US. Our evidence shows that employment shares in sectors characterised by a higher exposure to LS (non-LS) technologies present an overall negative (positive) growth dynamics.

Keywords: Climate change mitigation technologies, Labour-saving technologies, Search heuristics, Natural Language Processing, Labour markets

JEL classification: C38, J24, O33, Q55

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