

The climate issue in the technological and structural change: Evidence from OECD countries

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Policies by governments (i.e., environmental taxes and R&D subsidies) have long been directed at incentivising green innovation (GRI). GRI should help in reducing energy intensity (ENI), a key driver for the ecological transition and fundamental to decrease carbon dioxide emissions (CO₂). Such policy efforts have been taking place for decades in modern countries, at a time of major movements in the composition of the economy (or structural change, STC), which also cause an improvement (decline) in ENI. While it is undisputed that policies have an impact on GRI, the analysis of the link between GRI and ENI is more complex. Such a relationship, although debated in the literature, presents wide margins of investigation, mostly related to its bidirectionality and the mixed role played by policies and STC. Our purpose is to identify the reciprocal effects between GRI and ENI, disentangling public policies and STC, and introducing GDP per capita (GDP) as control for households' consumption behaviours and habits. We employ a panel vector autoregressive (PVAR) model in first differences for a panel of 34 OECD countries and a sub-panel of the 17 most performing countries in reducing CO₂ emissions, from 1994 to 2019.