Induced Technical Change in the Transportation Sector and Induced Mobility: Policy Implications for Mitigation

Renaud CRASSOUS, Jean-Charles HOURCADE, Olivier SASSI

Centre International de Recherche sur l'Environnement et le Développement (CIRED), Nogent-sur-Marne, FRANCE
Corresponding author: "Olivier Sassi" <sassi@centre-cired.fr>

Upward transportation trends appear as a major stumbling block to mitigate climate change. Assessing opportunities to reduce GHG emissions and their costs therefore requires to address the specific dynamics of transportation. This paper is a first attempt at seizing non-trivial mechanisms such as the induction of demand by infrastructures, inertia in consumption patterns, the role of the oil price in modal choice and mobility, the rebound effect due to energy efficiency improvements. The introduction of such dynamics in the recursive hybrid model IMACLIM-R deeply modifies the efficiency of a carbon tax to stabilize long-term concentrations, depending on assumptions regarding the infrastructure policy, the asymptote in the long-run energy efficiency of vehicles, and endogenous oil price dynamics.

Keywords:
transportation, rebound effect, mitigation