

A multi-sectoral macroeconomic model to measure the energy impacts of telework

Topic: Input-Output Analysis: Sustainable Production and Consumption policies (12)

Author: Fernando de la Torre Cuevas

Co-Authors: Kurt KRATENA

After the COVID-19 pandemic, it seems that telework will stick, at least to some extent. A number of pre- and post-pandemic public policy incentives for telework are argued on the basis of positive environmental impacts among other potential benefits. However, the uncertain environmental impacts may lead to non-optimal promotion of teleworking by business and/or governments. This paper explores an alternative way to model job-residential location choices as a mechanism through which telework may impact energy consumption. We link an extended multiregional input-output model with a job-residential location choice model. Shocks to final demand are the result of job-residential location choices by workers. Furthermore, we allow for interregional mobility of the labour force, again as a result of alternative

job-residential locations choices. Thus, regions in which the labour market is tight might meet additional demand by hiring workers from other regions, provided they are attractive enough for them to move into their local labour market. Our model replicates the Austrian multiregional economy and energy consumption in 2021, as its baseline. We shock our model by restricting telework and simulate an alternative set of job-residential location choices. The gap between the observed and alternative energy consumption is interpreted as a measure for the energy impacts of telework. The link between a job-residential location choice model and a multi-sectoral macroeconomic model can also be adapted for a Computable General Equilibrium setup.