Spatial microsimulation of carbon tax incidence: An application to Washington State

Abstract:

Understanding carbon tax incidence is critical, both in its own right and for the political viability of climate policy. However, standard approaches for calculating the incidence of subnational policies are prone to inaccuracy due to coarse aggregation. We evaluate an alternative approach: a spatial microsimulation (SMS) method that generates granular household-level incidence estimates. We demonstrate two critical advantages of SMS. First, it permits more accurate incidence estimates as a virtue of its granularity. Second, SMS provides unique and more nuanced insights into the distributional consequences of carbon taxes. We demonstrate this method for a recent carbon tax initiative in Washington State and counterfactual variations on this policy. Comparing across counterfactuals, we pinpoint how specific provisions will have disparate consequences for the progressivity/regressivity of the policy package and for the geographic distribution of incidence. Methodologically, we show the superiority of SMS to approaches that aggregate household characteristics over geographic areas.