

Tax Induced Emissions? Evidence of Unintended Consequences from Carbon Taxation in Wholesale Electricity Markets

Gordon Leslie

Abstract:

Corrective taxation of negative externalities is not unambiguously welfare improving in imperfectly competitive markets. I show that for carbon taxation in wholesale electricity markets, introducing a small carbon tax that reduces without eliminating the cost advantage of emissions-heavy, coal based electricity generation over gas based electricity generation can increase equilibrium carbon emissions for some fixed levels of demand. I provide empirical evidence that in Western Australia, a carbon tax reduced the market power of the dominant firm in that market, reducing its profit incentive to lower its coal based generation in some demand conditions. Overall, it was ambiguous whether the tax reduced short-run emissions in the electricity sector. The results indicate that the immediate short-run impacts from carbon taxation can be small and perhaps even induce emissions in imperfect markets and therefore the majority of emissions reduction from carbon taxation in electricity markets are likely to come in the long-run from investment responses.