Implications of Taxation Alternatives in Indiaâ€™s Energy Transition: ESAM Analysis

Topic:
Author: Rajat Verma
Co-Authors: LAVEESH BHANDARI

India has pledged to achieve net zero by 2070, which will have fiscal implications as revenue generated by fossil fuels accounts for 3.2% of its GDP. Hence, one also needs to examine the Fiscal transition along with the energy transition. This study addresses the critical question of how the replacement of existing fossil fuel taxes with various indirect tax options will impact the economic efficiency, emissions intensity and equity (E3) across households groups. While previous research has explored the potential impacts of introducing new eco-taxes, this study introduces a novel perspective by evaluating the effects of replacing existing fossil fuel taxes with alternative taxation strategies, particularly within the unique context of India using an Environmentally-extended Social Accounting Matrix (ESAM) approach .

This paper uses the aggregated version of the ESAM for India 2019-20 which has 45 production sectors, 32 labour categories and 40 classes of households, categorised based on region, social groups and annual consumption, thereby allowing us to analyse the equity implications of taxation alternatives. The environmental accounts within the ESAM provide a deeper understanding of how these tax alternatives will impact the environment. The impact on key macroeconomic variables and the environment is assessed using the modified multiplier model, and the distributional impacts on households are assessed using the price-vector model. Using these methods, we estimate the potential impacts of replacing existing fossil fuel taxes for seven different tax options which can be categorised under Carbon Taxes, User Taxes and Goods and Services Taxes (GST).

Preliminary results indicate that replacement with any tax will impact the welfare of households by impacting their tax burden although the impact is progressive in almost all the scenarios. The extent of impact varies greatly with the nature of the tax and the tax base. Overall, these scenarios depict marginal impacts on the GDP coupled with a small yet noticeable decline in emissions intensity and fiscal deficit across most scenarios. However, when we replace fossil taxes with emissions taxes either with distance travelled taxes or by a combination of distance travelled and electricity use, we observe that the tax shifts lead to a slight increase in the GDP, a decrease in the overall tax burden along with a decrease in the emissions intensity.