

TECHNOLOGICAL CHANGE FOR GHG EMISSIONS REDUCTION IN AN INPUT-OUTPUT MODEL FOR MEXICO

Topic: Environmental IO models 6

Author: Pablo Ruiz-Napoles

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PABLO RUIZ NÁPOLES

Facultad de Economía
Universidad Nacional Autónoma de México
Email: ruizna@unam.mx

Abstract

In this work we develop an Environment Input-Model model for the Mexican economy to find out under which conditions, will it be possible for the Mexican Government to fulfil its pledge, made as part of the Copenhagen Accord of reducing the country's GHG emissions by 30 per cent below 2002 levels, by the year 2020. This model shows to what extent GHG emissions reducing technologies, applied in selected sectors of the economy, reduce overall emissions through their direct and indirect effects in the economy and it estimates the economic positive and negative impacts of these technologies on costs and demand growth.

We used the Input-Output approach to measure and identify the most polluting sectors of the economy, the strategic sectors of the economy and the intersection of these two groups. The result was a definition of a subset of both strategic and high GHG emitting industries we called the strategic-pollutant sector.

From our results we observe that technical change, interpreted here as a modification in the Input-Output matrix, when introduced in some strategic sectors, tends to produce important and beneficial effects like pollution reduction and output growth, simultaneously.

It is also clear that unless there is a big technological change in the energy sector and in those industries related to transportation services, that is, to the vehicles using oil fuels, there is little chance to meet the objective of reducing GHG emissions levels, not even their rates of growth. This conclusion also affects one of the most important non-energy related industry which is Forestry.

In sum, we find that a technological change aimed to reduce GHG emissions, do reduce the emissions when this change is applied in strategic and high pollutant sectors. But if the number of industries having this technical change is increased so as to cover the whole group of industries we found the most important ones for policy attention, then we could have a much higher impact in reducing GHG emissions.