

CHOICE OF TECHNIQUE FOR MINIMIZING GREENHOUSE GAS EMISSIONS: AN INPUT-OUTPUT EXERCISE FOR THE MEXICAN ECONOMY

Topic: Environmental input-output modeling VI

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The reduction of Greenhouse Gases (GHG) emissions in the economy, i.e. mitigation, can be posed as a problem of minimization of total GHG emissions associated to production. In an Input-Output model in which we define x as the production vector and e as the vector of emissions per unit of output, we propose to minimize overall GHG emissions in the economy by means of a choice of productive techniques subset, among a finite set of feasible techniques.

The problem can be seen as one of minimizing the total amount of GHG emissions when the level of output is conditioned by the final demand f of m goods and services associated to two matrices (of m goods and services each) using n techniques of production, ($m < n$): a matrix B , associating products and techniques, and a matrix A specifying inputs required for each technique. For the not joint-production case, the problem is one of minimization of various techniques for each product.

In this work we are doing an empirical exercise for the Mexican economy, using a matrix A that includes various productive techniques for each product. These techniques are the ones that are actually working in some economies (or have been recommended by other case studies). At the same time we explore the dual problem of maximizing the final demand value, by obtaining emission-values for each good which are not over the e coefficients