

Assessing consumption-based carbon emissions for the city of Bogota

Topic: IO modeling: Consumption-based accounting

Author: Enrique GILLES

Co-Authors: Luis A. LOPEZ, Maria Angeles Cadarso, Mateo Ortiz

In this paper we address the environmental dimension of the sustainability for the city of Bogota, from a consumption-based perspective. We are interested on assessing the carbon footprint for the whole city in line with a growing research that highlights the role of cities in climate change and the increasing active role of majors of relevant cities around the world in the fight against climate change. To achieve this goal, we nest an IO table (IOT) for Bogotá, constructed by city authorities in 2012, into the EORA Multi-Regional Input Output (MRIO) and data on international trade from Colombia's office of statistics. This allows us to identify in which sectors and countries emissions are generated as a response of the city final demand and to assess the differences between consumption-based inventories and production-based inventories for the city. Since the cities are rarely self-sufficient, the evaluation of the carbon footprint of the Bogota allows us to differentiate between the emissions that are directly produced in the city, those incorporated in the purchases made to the rest of the Colombian economy and those associated with imports from the rest of the world.

Our preliminary hypothesis are twofold: first, that the carbon footprint of Bogotá is reduced compared to developed cities, consistent with the differences in electrical energy mix, transport systems and income per capita, and second, that imported emissions for this city are relatively low compared to cities which are more integrated into global value chains.