

## Distributional Effects of the EU Climate and Energy Package in Poland

Topic: (1.1) Energy Input-Output Modeling (1)

Author: Bartłomiej Rokicki

Co-Authors: Kenia B. DE SOUZA, Luiz Carlos de Santana Ribeiro

The European Union Emissions Trading System (EU ETS) is a "cap and trade" system introduced in 2005 in order to meet emissions reductions required by The Kyoto Protocol. It caps the total volume

of GHG emissions from installations and aircraft operators and allows trading of emission allowances. With the 8% share in total EU27 GHG emissions, Poland plays an important role in the achievement of the EU climate and energy policy objectives. The main energy source in Poland is obtained from the coal-fired power plants which contribute to increase the GHG concentration in atmosphere. This paper aims to measure the impact of the EU 2020 carbon taxation package on the Polish economy. We take into consideration different tax levels and the effects over welfare and income for ten different household groups based on 2010 data. The following databases are used: Poland Input-Output Matrix, Household Budget Survey, National Household Sample Survey and emissions data from the National Centre for Emissions Management (KOBiZE). A Leontief price model is developed, taking into account the Polish input-output matrix weighted by the intensity of GHG emission of each industry. Considering alternative scenarios, where the tax ranges between 16.275 to 30 euro/ton of GHG emissions, main results show a significant emissions reduction (between 4.97 and 8.53%), and a small negative impact on output (from -0.86 to 1.53%), considering taxation over European Union's Emissions Trading System's selected sectors. Electricity, gas, steam

and air conditioning is the most affected sector, followed in a much lower scale by Waste collection, Sewerage; remediation services; Agriculture and Non-metallic mineral products. Furthermore, the income and welfare losses are lower in the four richest household groups.