

Distributional Effects of Carbon Tax Policy in Iran, Input- Output Approach

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Carbon tax as a form of carbon pricing, is a way of imposing tax on those who emit harmful carbon dioxide, or carbon dioxide equivalents, into the atmosphere. It is being touted as a way to reduce the world's fossil fuels consumption, will encourage the development of new clean and affordable energy resources, help to achieving the green economy, and the transition from existing ones. This policy tool has also more significant advantages that, if implemented corrective, can achieve environmental, economic and social goals in a coherent way, overcome market failures by pricing environmental costs, increasing efficiency and allocating resources optimally, making green products competitive, stimulating the development of new innovations, and overall enhancing social welfare. Moreover, governments also could return the money they get from the carbon tax to spend on public to reduce income and business taxes, payroll taxes or social security.

The overall effect of carbon tax may raise costs and slow economic growth. In general there are four possible spend of the government revenue: reducing the government budget deficit, reducing payroll taxes, reducing the corporate income tax, and providing per capita household grants. Economic models in this space are typically rare to design revenue positive scenarios. When revenue is spend to reduce the deficit, a carbon tax is moderately regressive—that is, it increases taxes by a larger percentage of income for lower-income households than for higher-income households. Using revenue to reduce the corporate income tax, would result in higher taxes for low-income families and disproportionate benefits for higher-income taxpayers. Using revenue to provide lump-sum rebates would more than offset the carbon tax burden for low- and middle-income taxpayers but leave high-income families with a net tax increase. Using carbon tax revenues to reduce employee payroll taxes would result in a net benefit for upper middle-income taxpayers, while increasing tax burdens modestly for low-income and the highest-income households. Generally, the equity of a carbon tax depends on how the revenue is spent on one hand and in the other hand how price increment due to carbon tax bring inequality. This paper investigates the latter. Iran is among the top ten CO₂ emitting countries for decades. According to the official data of the Ministry of Energy, GDP and energy consumption have grown in three periods: 1993-1993, 1994-2004, and 2005-2015. In three periods, GDP growth rate was (2.1%, 3.6%, and 2.6%), while energy consumption growth rate was (6.5%, 4.9%, and 4.18%). Iran has submitted Intended Nationally Determined Contributions (INDCs) to the UNFCCC committing to cut the greenhouse gas emissions by 4% percent in 2030. Under the Paris Agreement, Iran must determine its policy and reports its contribution regularly. The implementation of this agreement can be realized with different policies. One of the short-term greenhouse gas emission reduction policies is carbon tax. In this direction, the main aim of this paper is to study distribution effects of carbon tax in Iran regardless on how the revenue spend.

For this purpose, at the first step, an extended environmental input-output table is prepared. For extension, one row is added to the input-output table and show CO₂ emission of each activity. At the second step a tax per metric ton of CO₂ emissions is considered as a shock price to the input-output price model. At the third step, suits index is employed to estimate the distributional impact of carbon tax policy.

The main data bases are: a) national 2011 input - output table, which has been constructed by, Islamic Parliament Research Center of The Islamic Republic of Iran. Input-output table is aggregated to 31 sectors due to insufficient data on sectoral energy consumption, b) households and sectoral energy consumption which have been provided by the Ministry of Energy (2011- energy balance sheet 2011), and the survey of mining and manufacturing from Statistical Centre of Iran. First results show that a tax on carbon dioxide puts more pressure on the rural household and suits index is progressive.