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Coal Plant Shutdown in Japan

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Abstract

This study develops a computable general equilibrium model that explicitly incorporates technological choices in the power sector and quantitatively evaluates the environmental and cost effectiveness of Japan's 2030 Nationally Determined Contribution (NDC), the Government of Japan's energy mix targets, and the phased closure of coal-fired power generation. The magnitude of carbon leakage and changes in industrial structure depend not only on the stringency of emissions constraints, but also on the set of countries participating in emissions reduction. Under the 2030 NDCs, many countries do not undertake emissions reductions; consequently, carbon leakage is substantial, thereby reducing the effectiveness of emission reductions in participating countries. Furthermore, decarbonisation in the power generation sector has a substantial effect on reducing carbon dioxide emissions. It is also shown that the shutdown of coal-fired power plants in Japan contributes to a reduction in carbon dioxide emissions.

Keywords: Computable general equilibrium; technology choice; climate policy; carbon leakage.

JEL Code: C68, H30, Q54

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