

Economic analyses of regional impacts with adaptation to climate change for the Paris Agreement*

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Abstract

This study measures regional impacts of adaptation to climate change for the Paris Agreement under the Shared Socio-economic Pathways (SSP) and Representative Concentration Pathways (RCP) scenarios. According to AD-DICE, we develop a global economic model with adaptation to climate change using an Evaluation Model for Environmental Damage and Adaption (EMEDA). Simulated EMEDA results indicate that: 1) each region increases an adaptation level under all scenarios as temperature increases; 2) Asian and African adaptation costs exceed more than one percent of GDP in the year 2100 under the business as usual (BaU) scenario; 3) regional adaptation levels are higher under the BaU scenario than in the 2.0°C target scenario; 4) adaptation costs under the 2.0°C target are higher in Asia and Africa than other regions; and 5) adaptation costs amount to one percent of GDP in Japan, EU and Latin America under the 1.5°C target scenario by adaptation.

JEL-Classification: D58, Q54

Keywords: Adaptation, climate change, global warming, SSP, RCP, IAMs, CGE models

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