Social Impacts on Global Warming and the Paris Agreement: Dynamic-EMEDA Simulations under SSP-RCP Scenarios

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Most countries in the world welcome the ratification of the Paris Agreement in 2016. The Paris Agreement goal is "holding the increase in the global average temperature to well below 2.0C above pre-industrial levels (Paris Agreement Article 2.1.(a), UNFCCC 2015, pp.22. l.10-13.)" that called the 2.0 degree Celsius target (the 2C target), and attempt to the 1.5C target in the year 2100. Therefore, many countries are required exertion to attain each country's objectives such as CO2 emission reductions.

Under global warming and climate change, there are many studies using various economic analyses. Common approaches to assess impacts of global warming and climate change are integrated assessment models (IAMs) and computable general equilibrium (CGE) models to simulate future socioeconomic effects by global warming. These models are used to simulate future global temperature, climate conditions, ocean circulation, and direct impacts on agricultural, forest and fisheries sectors. Focusing on economic impacts on global warming and climate change, there are also many studies by IAMs and CGE since Nordhaus (1996) analyzes economic effects on global warming.

This paper assesses global-total and global eight regions' effects of global warming in the service sector under the Paris Agreement with various latest socioeconomic scenarios. Dynamic-Evaluation Model for Environmental Damage and Adaption (EMEDA) finds that individual countries under SSP1(2)-RCP2.6 scenario which is lowest greenhouse gas concentration trajectories and tight CO2 emission reductions are able to receive same economic benefits in business as usual in the end of century although around 2050 to 2080 are few per cent lower value-added. For most governments, SSP3-RCPs scenarios are not fascinated because of lower growth or reduction of value-added from the year 2004. Therefore, SSP1 and 2 are more realistic choices for governments and it is possible to select RCP2.6, tight CO2 emission reductions, for long-run future.

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