

A Compilation of SEEA and Application to Input-Output Accounts

Topic: Input-Output Analysis: Industrial Policies - I

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Recently, the System of Environmental-Economic Accounting (SEEA) that is a satellite system of the SNA has become an international statistical standard as a means of analyzing integrated policies regarding climate change / circular economy / SDGs issues and the interaction with the economy. In 2017, the United Nations Statistical Commission approved SEEA as supporting framework for applying the SDGs to policies.

In the transition from the Input-Output Table system to the Supply and Use Table system, the United Nations has recommended the compilation of Physical Supply and Use Table (PSUT) that is one of primary accounts in SEEA. SEEA application to policies are required at research and practical levels. Related former studies have also attempted to evaluate SDGs goals using the framework of SEEA and the extensions.

These days, the compilation and application of the Environmental Extended Input-Output Table based on SEEA Applications and Extensions have been emphasized concerning the application of SEEA to analysis. On the other hand, the application of SEEA using the CGE models that can deal with changes in price and quantity at the same time are being attempted in the analysis of policy issues.

According to the research question above, in this research, we adopted the method to compile several Japanese SEEA Accounts including PSUTs and transform them into Environmental Extended SAMs (EESAM) with monetary and physical data. Furthermore, we have constructed SEEA-CGE models using these SEEA accounts, PSUTs and EESAMs for SDGs policy analysis.

We have constructed a statistical framework for evaluation of circular economy and decarbonized society scenarios against climate change that also link to SDGs policies using the stock / flow data of various materials and energy sources by monetary and physical terms. For the policy analysis above, we have specifically compiled composite Japanese Air Emission Accounts, Physical Energy Accounts and Material Flow Accounts (Waste accounts) including corresponding PSUTs by sectoral data such as greenhouse gases, energy / material inputs, waste emissions. In 2022, the Cabinet Office published the official Air Emission Accounts and has also attempted to estimate sectoral Environmentally Adjusted Multifactor Productivity using the accounts. The first author was a member of the research group, and this research is positioned as a continuation of this work and its development with related accounts for further policy analysis.

Based on SEEA accounts above, we have also compiled an Environmental Extended SAM for construction of a SEEA-CGE model for policy analysis including SDGs. In this model, various environmental factors such as greenhouse gases, energy / material inputs, waste emissions are incorporated as variables and policy analysis on circular economy / decarbonized society scenarios are attempted in correspondence with the SDGs targets.

Nowadays, SEEA is widely used to provide information on related policies for policy issues such as circular economy, climate change, and green growth. The various SEEA applications have been incorporated into the green growth strategies in recent years. For the novelty of the research, we believe that our research is one of the pioneering attempts through the compilation of composite SEEA accounts and CGE model for application to policy analysis including SDGs as described

above and hope that our research will contribute to analysis for corresponding integrated policies.