

Development of a Time Series of Australian Input-Output Tables and Greenhouse Emissions

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Abstract

A time series of Australian input-output tables has been developed, generalised for greenhouse gas emissions. This paper gives an overview of the construction techniques utilised; the methods used to generalise the tables for greenhouse emissions; an overview of applications, including the development of multipliers over time; and an estimate of errors using Monte-Carlo simulations.

In order to delineate environmentally important processes, a range of fine detail commodity data was utilised in order to expand the system from roughly 100 sectors into a temporally consistent 344 sectors. Confidential and inconsistent data was overcome using the CRAS method, a recent modification of RAS. Tables were estimated firstly from published IO data (17 tables over 33 years), secondly by adding in unpublished supply/use data (10 recent years), and finally by including National Accounts data (all years). This enabled a consistent time series to be constructed, whilst incorporating the highest level of detail from published and unpublished IO tables. Finally, the system was augmented with a time series of energy and non-energy related greenhouse emissions.

An analysis of the change in greenhouse multipliers over the time series is given, extracting key industries in relation to both greenhouse emissions and economic importance (utilising income, profit and other GDP related factors). Errors are estimated using Monte Carlo simulations.

Keywords: Australia, Input Output, Time series, Greenhouse.