

Introduction to the E3-India model

Presenter: Unnada Chewpreecha (Cambridge Econometrics, UK)
Hector Pollitt (Cambridge Econometrics, UK)

India's economy is rapidly evolving. Its strong economic and population growth are causing increased environmental pressures both domestically and at global level. The latest estimate suggests that India will need to quadruple its power generation capacity to meet demand in 2030.

At the same time, India is under pressure to mitigate climate change by controlling its emission growth. India's transition to a low-carbon economy requires a combination of ambitious policies. However, policy makers often do not have appropriate tools to help them understand policy impacts on economy, jobs and impacts among the states (where much policy is determined).

The E3-India model is an extended macro-econometric tool that captures not only economic and labour market interactions but also interactions between the economy, energy system and environment at state level. E3-India's structure is based on the System of National Accounts, with an input-output core that determines sectoral linkages in each state. Additionally, E3-India contains a bottom up technology module for power generation.

Agent behaviour is estimated from past historical data. As a result, E3-India is not bounded by the assumptions common to equilibrium models. Instead, the model is demand-driven and, under the right policy conditions, new policy can lead to increased economic prosperity and employment growth, drawing in excess productive capacity.

Together with local experts, we have constructed one of the most complete set of economic, energy, power sector, and emission time-series databases at state level. Our data start from 1993 and end in 2015.

E3-India is therefore a comprehensive tool for policy makers. Its wide range of policy inputs includes: carbon tax, energy tax, subsidy removal, tax reform, renewable promotions, energy efficiency, regulations and many more.