神奈川大学
KANAGAWA UNIVERSITY

Applied Economics Workshop #3

Climate Policy, Fiscal Rules, and Energy Transition



Speaker

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Abstract

This paper develops a dual-energy DSGE framework to examine how climate policy interacts with fiscal rules in shaping the energy transition. By incorporating intertemporal abatement capital and environmental preferences, we analyze the macroeconomic and welfare implications of alternative revenue-recycling regimes. Our results highlight a critical vulnerability: earmarking carbon tax revenues exclusively for green subsidies creates a pro-cyclical fiscal constraint, causing transition funding to contract precisely during energy crises. In contrast, consolidated budget structures and expanded green infrastructure capacity enhance resilience by stabilizing subsidy flows and absorbing demand shocks. Applying our framework to Taiwan, an energy-import dependent economy operating under an earmarked carbon tax regime, the welfare analysis shows that current carbon pricing remains far below the social optimum. Stricter taxation consistently raises aggregate welfare, even when environmental preferences are assumed to be weak. These findings underscore the importance of fiscal design in climate policy, showing that resilient energy transitions require both robust carbon pricing and fiscal frameworks that shield green investment from volatile pollution revenues.

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Keywords
Environmental DSGE model, green subsidies, carbon taxes

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