

環境政策研究室

SDGs達成に向けた取り組み



研究テーマ・キーワード Research Themes・Keywords

気候変動緩和に向けた企業・産業の生産性・効率性分析

Productivity and efficiency analysis toward climate change mitigation

● 気候変動

Climate Change

● 環境政策

Environmental Policy

● 環境経済学

Environmental Economics

● エネルギー経済学

Energy Economics

● 効率性・生産性分析

Efficiency and Productivity Analysis



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研究概要 Research Outline

企業や産業レベルでの生産性・効率性分析を通して、地球温暖化をはじめとする環境問題の解決に向け有効なエネルギー・環境政策について研究しています。

We investigate effective energy and environmental policy toward environmental issues such as global warming through productivity and efficiency analysis.

進行中の研究内容 Research Contents in Progress

1 世界各国の製造業のサプライチェーン効率性分析を行っています。二酸化炭素排出量の削減に向けて、各国の製造業の生産技術改善とサプライチェーンマネジメントが果たす役割について研究しています。

We've been analyzing efficiency of supply chains of global manufacturing sectors. We discuss the role of production technology and supply chain management in reducing carbon emissions.

2 日本では企業平均燃費(CAFE)基準が導入されており、自動車メーカーはその基準を満たすように製品開発・販売戦略を考える必要があります。この研究では、自動車メーカーの燃費基準達成に向けた環境・経営戦略について分析しています。

The Japanese government adopts the CAFE standard, and automakers need to reconsider their product design and sales strategy. This study investigates corporate strategy to achieve the target.

最近の研究実績 Recent Research Results

〈論文／Published Papers〉

● "Measuring performance of supply chains based on data envelopment analysis and multi-regional input-output analysis: An application to 18 manufacturing sectors in 43 countries" H Takayabu (2024) *Heliyon* 10, e25881.

- "Carbon - neutral pathways to 2050 for Japan's aviation industry in the absence of a mass supply of sustainable aviation fuels" M Kito, H Takayabu, K Nansai (2023) *Journal of Industrial Ecology* 27, 1579-1592.
- "Production efficiency and cost reduction potential of biodiesel fuel plants using waste cooking oil in Japan" M Ogata, T Nakaishi, H Takayabu, S Eguchi, S Kagawa (2023) *Journal of Environmental Management* 331, 117284.
- "Production efficiency of animal feed obtained from food waste in Japan" T Nakaishi, H Takayabu (2022) *Environmental Science and Pollution Research* 29 (40), 61187-61203.
- "Environmental efficiency analysis of China's coal-fired power plants considering heterogeneity in power generation company groups" T Nakaishi, H Takayabu, S Eguchi (2021) *Energy Economics* 102, 105511.
- "Determinants of technical inefficiency in China's coal-fired power plants and policy recommendations for CO₂ mitigation" T Nakaishi, S Kagawa, H Takayabu, C Lin (2021) *Environmental Science and Pollution Research* 28 (37), pp.52064-52081.
- "Proposing effective strategies for meeting an environmental regulation with attainable technology improvement targets" S Eguchi, H Takayabu, M Kaneko, S Kagawa, S Hienuki (2021) *Business Strategy and the Environment* 30 (7), pp.2907-2921.
- "Sources of inefficient power generation by coal-fired thermal power plants in China: A metafrontier DEA decomposition approach" S Eguchi, H Takayabu, C Lin (2021) *Renewable and Sustainable Energy Reviews* 138, 110562.
- "CO₂ mitigation potentials in manufacturing sectors of 26 countries" H Takayabu (2020) *Energy Economics* 86, 104634.
- "Impacts of productive efficiency improvement in the global metal industry on CO₂ emissions" H Takayabu, S Kagawa, H Fujii, S Managi, S Eguchi (2019) *Journal of environmental management* 248, 109261.