

Title: How to create the value of secondary material?

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Abstract

Exploitation of natural resources plays an essential role in economic growth. Due to the rapid industrialization, an accelerated growth in demand for resources is inevitable. As a result, the wastes are generated increasingly in extraction, consumption, and disposal activities. In order to avoid or reduce the impacts of natural resources scarcity and other environmental costs borne from traditional waste management, introduction of secondary material is highlighted. Expanded secondary material supply may furthermore have vital environmental synergies, reduce reliance on critical raw materials, and even create new economic value. This research emphasize on assessing the potential economic benefit and the advantages of secondary material reintroduced into the economy through recycled waste streams in different scenarios. Future Technology Transformations (FTT) will be applied to discuss the market price competition and technological substitution of waste management driven by the effects of relative investment changes in different waste treatments or taxes on incineration, landfill, and raw material. And combined Waste Input-Output Analysis (WIO)-Computable General Equilibrium Model (CGE) can sketch the flows of raw and secondary materials through supplies, demands and the waste sectors. Moreover, it can also reveal the transformation of industry structure and the competition between raw materials and secondary materials. Through the set of linked models, it's expected to observe the potential of reduction in raw material usage, lower prices of commodities, increasing overall production, and new value created by secondary material.