Regional Inequality and CO2 Emissions in China: a consumption based MIRO approach

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There is amble evidence showing that the rich countries consume most of goods and services and at the same time gain most of the economic profits but that the poor suffer the environmental costs. In this study we argue that the inequality of economic gains and environmental consequences does not only exist at the global level but that we find the same patterns within a country's boarders using China as the case study. China, as the world's biggest emitter, attracts a lot of attention regarding its economic growth, technical progress and environmental degradation. Rather than a homogenous country, China is a vast country with substantial regional differences in physical geography, regional economic development, demographics, infrastructure, and lifestyles. Using environmentally extended multi-region input-output analysis, this paper calculate both consumption and production based CO2 emissions for 30 regions in China and the emissions embodied in the inter-regional trade. Our results show that the rich coastal areas consume and gain most of the economic benefits whereas the poorer regions provide low cost production and bear most of the emissions. The central and south coastal regions gain profits from advanced infrastructural investment and exports, but impose a large amount of emissions on the central and western regions, which provide the raw materials and low cost products for the coastal area. A fairer distribution of benefits of costs would imply that the coastal regions assume the responsibility for emissions in other parts of China but associated with consumption in coastal areas. A consumption based approach to carbon accounting is better suited to track and allocate emissions a the whole supply chain.