

## **Empirical Analysis of Carbon Footprint Considering Production Activities of Informal Sector**

Topic: Regional input-output modeling II (Chair: Vishnu Prabhu, Gokhale Institute of Politics and Economics)

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This study attempts to estimate how informal sector in India contributed to production- and consumption-based CO<sub>2</sub> emissions in India. The informal sector is a set of activities that are imperfectly regulated by the government and it is hardly accounted on official statistics. In India, the third largest CO<sub>2</sub> emitter in the world following China and the U.S., production activities of the informal sector accounts for about half of the GDP and employs about 90% of the population. In spite of the huge size of the informal economy, due to the unavailability of economic and emission accounts, it is not well identified how the production activity of the informal sector involves CO<sub>2</sub> emissions in the whole supply chains in India. We first constructed an environmentally-extended input-output table in 2016 in India that distinguishes between formal and informal manufacturing activities in India by using the official data published by the Indian government and previous studies. We visualized the environmentally-important supply chains with higher CO<sub>2</sub> emissions as networks. Our results showed the several informal sector is included in the supply chain which induced the largest CO<sub>2</sub> emission in India and especially the informal sector in non-metallic mineral products contributed to huge CO<sub>2</sub> emissions. The impact of informal sector in CO<sub>2</sub> emission is not negligible and it is necessary to address the informal sector for a rapid reduction of CO<sub>2</sub> emissions in India.