A Methodology for Estimating Labour Impacts of Low Carbon Growth Pathways

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Large-scale and rapid reductions in global fossil fuel use are required to meet the temperature goals set by the Paris Agreement 2015. Inadequate reductions in emissions in the pre-Paris Agreement period have led to a rapidly shrinking global carbon budget, and even developing countries with very low contributions to historical emissions and low income and developmental levels are now under pressure to rapidly decarbonize from already low levels of carbonization across their economies. Forgoing the use of fossil fuels can impact the entire economy based on a countryâ€™s national circumstances, production processes, resource and technological availability, and labour dependencies. Nevertheless, it is often argued in the literature that forgoing fossil fuels and undertaking low-carbon or carbon-free development constitutes an â€˜opportunityâ€™ rather than a hardship. However, this potential and/or trade-off is never adequately quantified, especially for developing countries. Conversation on just transitions must cover all aspects of the transition from fossil fuel use, or foregoing the use of a particular fuel despite its domestic availability, i.e., the impact on energy security, costs, supply chains, labour, investments, and on the economy as a whole. In this paper, we attempt to address a part of this question and quantify the impacts of forgoing the use of coal on economic output and labour in India.

Coal is one of the core sectors of the Indian economy accounting for ~65% of its total primary energy supply in 2021 (Government of India, 2022). Its contribution to the total GDP in 2015-16 was ~1% (Chadda & Sivamani, 2022). It is also a highly labour-intensive sector, employing more than 0.3 million workers in government-owned mines alone (Government of India, 2020). However, the renewable energy (RE) sector is currently less labour-intensive with employment limited to short-term jobs in downstream activities such as construction, installation etc.

In this paper, we propose a methodology to quantify the impacts of low-carbon development or fuel substitution on economic output, wage bills and employment for India. We use an Input-Output (IO) model to estimate the impacts on total economic output, and changes in patterns of labour absorption, of a reduction in coal-based power generation and a commensurate increase in RE-based power generation. We use the recently released hybrid IO table for India for 2015-16 developed by Chadda & Sivamani (2022). We demonstrate the methodology using a scenario for a 20% shift from coal to RE-based power generation for the year 2030. The potential gains and losses in terms of wages and jobs are then assessed for this scenario.

The novelty of the study is that it attempts to bridge a gap in the literature. Studies assessing the effect of low carbon development mostly focus on impacts on the fossil fuel sector alone and fail to capture the economy-wide impacts. Other studies which project plausible employment generation from the RE sector do not quantify potential job losses and whether RE sector employment can abate the labour impacts of phasing down of fossil fuels.

While we illustrate a methodology to assess the impacts of low-carbon development for India, we emphasize here that this is not an argument against low-carbon development. It is unarguable that we need urgent global climate action and for countries of the Global South, the impacts of climate change are likely to be much higher due to higher vulnerability and low resilience (IPCC, 2022).

However, we must be cognizant of the impacts of climate action as well. Indeed, the United Nations Framework Convention on Climate Change (UNFCCC) itself recognizes the importance of assessing the â€œimpacts of response measuresâ€• implemented to address climate change. It is important for India and other developing countries to assess the potential impacts of implementing mitigation measures to then enable a policy environment to address these, to ensure just and equitable low-carbon development within their countries even as multilateral discussions on global equity and climate justice continue.

References

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