

Structural Transformation and its Environmental Consequences in India and China : An Analysis within an Augmented Input Output Framework

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In this paper, household sector is assumed to have carbon emission and by endogenising the household sector in the Input - Output model, we have tried to capture the implication of carbon emission from household consumption and impact of consumption multiplier on pollution as well. It is observed that most of the production sectors in India and China, over the period 2000-2010, experience change in the technological process(taking account of direct and indirect effect) such that total carbon intensities become smaller . This is, of course, encouraging as it suggests that both the countries are moving toward advanced technology with reduced carbon intensities. While decomposing the change in total (direct plus induced) pollution intensity of exports over the period 2000 – 2010 into three components namely the ‘effect of change in direct pollution intensity’, the ‘effect of change in production structure’ and the ‘effect of change in export composition’, it is observed that both in India and China, change in direct pollution intensity and change in technology are reducing the total pollution intensity but the change in export composition is increasing the total pollution intensity when household sector is treated as exogenous. The same trend is followed in India when household sector is endogenised but for China, along with export composition , the production structure now started to contribute to the total pollution intensity. While in India, the dominance of consumption multiplier matters for cancelling out the positive pollution impact of the sectors like ‘Electricity’ and ‘Transport’, it may not be so in China. Again, some exportable commodities may not be directly electricity /transport intensive but inputs in these sectors may be highly electricity /transport intensive . As a result, export and consequently domestic production of these sectors ultimately contributes to carbon emission as transportation and electricity are emission intensive . So trade composition is to be targeted taking account of the need of growth potential with minimum carbon emission. .