

Global income inequality and carbon footprints

Topic: Tracing Carbon Emissions in Global Value Chains I

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Two broad approaches have been pursued hitherto in international negotiations: “top-down” international agreements, such as the co-called Kyoto Protocol, and “bottom-up” (voluntary) contributions by nations, cities, companies and other entities. The top-down approach has made little progress so far due to the open access problem of global atmospheric sinks but they can nevertheless provide an important framework within which voluntary contributions can take place. There are a number of ways of sharing emissions quota. Inertia or grandfathering approaches refer to allocating emissions based on emissions in the past. Equity focused approaches allocate emissions according to a country’s historical or current responsibility in terms of (cumulative) contributions to greenhouse gas emissions. One variant of the equity focused approach is the contraction and convergence argument which to allocate emissions based on equal rights to pollute or utilize these commons for every individual (i.e. per capita). Such an approach requires knowledge about per capita carbon footprints across income groups and countries. We attempt to bridge this gap with the proposed paper, which can provide some important groundwork for the ongoing discussion and negotiations of greenhouse gas mitigation targets and on how to allocate rights to emit greenhouse gases to the global atmospheric commons between countries.

About 50% of the global population, that is more than 3 billion people, live on less than 3\$ a day. The top 10% earn more 23\$ (PPP) per day. Clearly their lifestyles, consumption patterns and associated per capita carbon footprints differ enormously. What is the difference in terms of carbon footprint? What is the contribution to total carbon emissions of the global middle class? Do we see a convergence of consumption patterns and carbon footprints of rich folks across countries? What are the carbon implications of moving hundreds of millions of people out of poverty? What are the carbon implications of urbanization and associated lifestyle and income changes in India and China, given current trends? To answer these questions we present our compilation of consumption patterns for different income categories from consumer expenditure surveys for most countries of the world, representing 90% of the global population. These have been linked to a global multi-regional input-output model to calculate carbon footprints for different income categories, globally.

Our results show that when focusing on countries and averages we miss lots of interesting information. There are huge differences in carbon footprints between as well as within countries. A general finding is that the higher the income the higher the carbon footprint. There is no leveling off. Higher incomes generate higher carbon footprints. There are interesting differences between countries. For example, in US income groups are associated with higher carbon emissions when compared to equivalent groups in European countries. We will present some reasons of why that is the case. When looking at poor countries we find huge disparities between the carbon footprint of the rich versus the poor which for some very poor countries differ by several order of magnitudes, and are generally much larger than differences between rich and poor in rich countries such as the US and Europe. The global middle class is the main contributor to global carbon emissions thus it is not surprisingly that adding to the middle class by moving people out of poverty adds significantly to global carbon emissions and makes global targets for mitigating greenhouse gases more difficult to achieve given the pace of technological progress, fossil fuel dependence and generally increasing carbon emissions with higher income.