Conducting and Scrutinizing Quantified Equity Analyses – A Possible Research Agenda

Christian Holz, PhD Senior Research Associate, Climate Equity Reference Project cholz@climateequityreference.org

Scholars have proposed numerous approaches, principles, and conceptions relevant to the question of equitable burden sharing of climate efforts, and mitigation specifically. The IPCC, in particular, notes that, in addition to the notions of capacity, responsibility and the right to sustainable development – all of which can be fairly straightforwardly taken from the principles of the UNFCCC – ethical notions such as "the relative moral relevance of consumption-based emissions as opposed to production-based emissions, survival emissions as opposed to luxury emissions, progressive as opposed to regressive allocation of mitigation costs, prioritarianism as opposed to egalitarianism, and – not least – the right to development and the critical ethical importance of the eradication of poverty" (Kartha et al. 2017) as ethical issues relevant to burden sharing.

However, in practice, it appears that *quantifiable* ethical considerations are more prominent in the practical political discourse; this as evidenced by exercises such as the Climate Action Tracker (CAT 2017); the IPCC's "Categories of effort-sharing proposals" (IPCC 2014, table 6.5), which only include burden sharing approaches that were previously quantified in the literature and that were selected according to certain modelling criteria and "only covers a small proportion of the possible allocation approaches" (Höhne et al. 2014, p. 122).; the use of these categories in recent assessments of NDCs (Robiou du Pont et al. 2016); or the recent Civil Society Equity Review reports, which assess INDC and Cancun pledges against equity-derived quantitative benchmarks (CSO Review 2015, 2016).

As a result, *unquantified* equity considerations (and their implications) are easily excluded from the high-profile debate. Conversely, as quantifications appear to be skewed, for multiple reasons and through multiple mechanisms¹, toward results that show biases against poorer and historically (and/or currently) lower-emitting countries, the more "scientific" body of work that pivots on quantified expressions of equity inevitably inherits, and indeed amplifies and compounds, these biases.

A research agenda could approach this imbalance from two directions. First, research could be undertaken to quantify previously unquantified equity approaches (including, as a first step, through crude heuristic approximations), with the goal of further exploring their implications in quantitative terms, as well as to begin addressing the biases of efforts (such as the aforementioned IPCC categorization, or CAT, etc) that exclude non-quantified perspectives by making data available that could be included in these efforts. Second, another stream of this research agenda could focus on scrutinizing the quantifications of burden sharing approaches done elsewhere in the literature, including, for example, quantifying the bias introduced through long transition periods, or using arguments from the literature to explore the claim to present an equitable approach.

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For example, by labelling burden sharing approaches (for example, approaches that are wholly or in part based on cost minimization, or that are wholly or in part based on current shares of emissions (also known as grandfathering)) as equitable without compelling (or even visible) arguments that justify such a claim, or by introducing long transition periods from non-equitable to equitable approaches (for example from grandfathering to equal per capita emissions in, say, 2050).

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