Paper title: Technology composition in a long-run pollution transition: evidence from the (virtual) elimination of ozone depleting substances in developing countries

Conference theme: 'Towards Low Carbon Energy Systems'

Paper abstract: This paper sets out to make a predictive statement about the composition of technologies that is likely to be being used in the medium and long term future to deal with greenhouse gas emissions, and particularly whether that composition is likely to be different to the composition being used today. The paper considers detailed, project-level empirical evidence from the near-total transition in 22 developing countries away from ozone depleting substances (ODS) during the period 1990 – 2011. Countries in the data set of particular interest are China, Brazil and India. An equivalency test is used to compare the share composition of the ODS phase out technologies being used in 1990-1995 with the share composition in 2005-2010. The null is that the share composition is different and the alternative is that they are the same. By this approach evidence is found to support the null that technology share composition was equivalent across periods only through the rejection of a null hypothesis. The data (for 3,022 projects) are fitted to a hazard analysis model. Each unit of ODS-using industrial capacity is modelled as 'succumbing' to the hazard of being phased out. The hazard model tests which characteristics of ODS-using industrial capacity associate with succumbing to early and late phase-out (country, industry, unit abatement cost, and technological approach). From a perspective of long-run transitions in industry away from pollutive substances, implications are drawn out for future GHG mitigation patterns.

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