

## Journal Pre-proof

Energy, climate and development: From international heterogeneity to local implementation

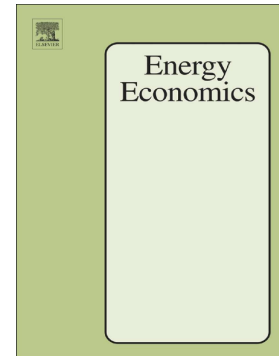
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**Energy, Climate and Development: from international heterogeneity to local implementation**

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The economic growth of developing countries, especially in Sub-Saharan Africa, requires affordable and reliable access to energy. Furthermore, in a context of global climate change, this access needs to be sustainable, resilient to weather and economic shocks, and equitable. This special issue is the follow up of the annual conference organized by the Climate Economics Chair on "Climate Energy and Development". It regroups selected papers that shed light on the complex issue of improving access to energy in developing countries in an environmentally friendly and equitable way.

First, from a macro-economic perspective, it is essential to have a good understanding of the carbon impact of public policies and private behaviors. The role of carbon accounting is indeed central. In particular, the spatial allocation of emissions is an issue, especially in developing countries where heterogeneity between territories is strong. Zhang et al. show that cross-border effects and the increase of products network fragmentation strongly influence the responsibility allocation of emissions. Moreover, Tol underlines the key importance of assessing the social costs of carbon, that are nationally heterogenous and especially larger in poorer countries. The author shows that those results are driven by income convergence between poor and rich countries, as well as risk aversion. Finally, relating to the resource literature, Chiroleu-Assouline et al. investigate the link that may be emphasized between resource endowments and carbon emissions. They give evidence of a carbon curse relationship: resource-rich countries tend to follow more carbon-intensive development paths than resource-poor countries and tend to pollute more in resource-related sectors. This suggests strong lock-in effects of resource endowments into carbon intensive economies.

From a more micro-economic perspective, work has been done both from the supply and the demand side. From the supply side, Perrotton et al. analyze potential conflicting objectives between national authorities and foreign investors in the implementation of gas infrastructure. Taking the case of Mozambique as an example, they show that when rate-of-return regulations are implemented, public institutions may have a tendency to increase ex ante the planned infrastructure size, in order to meet the ex post targeted level of demand. From the demand side, Barry et al. analyze the patterns of pay-as-you-go (PAYG) contracts for solar energy in Benin. They show that consumers the most willing to be enrolled in those contracts are already connected to the network, but willing to increase the reliability of electricity access. In contrast, consumers in more remote areas have a weaker participation, which reduces the capacity of PAYG systems to facilitate access to electricity in more isolated areas.

Overall, those pieces of work suggest that carbon accounting and evaluation, lock-in effects, equity of access to energy in remote areas, and political economy conflicts in infrastructure development are key drivers to understand the patterns of energy access in developing countries. Further work in those areas appears then necessary.

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