

MCC Press Release

## Carbon pricing in Uganda – only an option with revenue redistribution

---

Without compensation, there is a risk of malnutrition and deforestation. An MCC model study calculates how climate protection and development can go hand in hand.

**Berlin, 30/10/2024.** Climate protection through carbon pricing – in Uganda, that wouldn't be a big deal in terms of money. The country, with a population of around 50 million, would collect just 26 million US dollars a year if fossil fuels were priced at 40 dollars per tonne of CO<sub>2</sub>. But the seemingly tiny burden of 3 dollars per household per year reduces emissions by 18 percent. At the same time, however, the food situation worsens if the burden is not compensated for, with people eating around half as much fruit and vegetables, for example. And they collect a tenth more firewood, which accelerates the already threatening deforestation, endangering biodiversity. This scenario is presented by the Berlin climate research institute MCC (Mercator Research Institute on Global Commons and Climate Change) in the journal *Environment and Development Economics*.

“In our model study, supported by empirical data, we show how climate policy in a low-income country in sub-Saharan Africa affects the economic welfare of private households,” reports Raavi Aggarwal, who led the study as a doctoral student in the MCC working group Climate and Development, and who is now working as a Visiting Assistant Professor at the Indian Statistical Institute in Delhi. “Carbon pricing in Uganda will affect energy demand, how biomass is used and the quality of nutrition in a different way than in industrialised countries – this is important to know for sustainable policy, and has been little researched so far.”

The research team uses a so-called EASI consumption demand model, with data from Ugandan statistics on the spending structure of private households and the prices of goods, as well as the country's CO<sub>2</sub> emissions by economic sector as determined by the Global Trade Analysis Project research network. Econometric methods are then used to assess how the assumed carbon price of 40 dollars would affect private households, and how they would react to it. Only a minority is directly affected: one in three households has access to kerosene, the fossil fuel most commonly used in Uganda for cooking, and only one in six has access to electricity. By contrast, all households feel the indirect effects through the production costs of other goods, such as food.

Unlike in industrialised countries, the distributional effects of carbon pricing in Uganda are progressive overall: high-income households bear a greater burden in percentage terms. Relative to spending on energy and food, the model study shows a 12 percent burden on the richest households and a 1 percent burden on

MCC was founded jointly by:

the poorest half. The demand for kerosene and electricity drops by 20 percent and 11 percent respectively, with people switching to firewood and charcoal for cooking and heating. In terms of nutrition, demand for cereals, which are produced with relatively low carbon emissions, nearly doubles, although demand for meat & fish and vegetables falls by over 50 percent, and for fruit by 15 percent. You can do without meat and fish – but this radically unbalanced diet leads to a 20 to 30 percent lower intake of proteins and micronutrients, which the study accurately reflects for both rich and poor, urban and rural populations.

“From an economic point of view, carbon pricing is indeed the most efficient form of climate protection for the Global South as well,” emphasises [Jan Steckel](#), working group leader at MCC and co-author of the study. “But from a development policy perspective, it is only an option if the revenues are somehow paid back to the population.” The model study calculates a variant with the entire revenue redistributed in the form of a uniform per-capita payment, in which the negative effects disappear for most of the population. “Organising something like this in practice is still the subject of further research, but subsidies for emission-free cooking stoves, for example, have proven to be effective. In any case, time is of the essence: whether the world meets the Paris climate targets will be determined in the Global South.”

#### **Reference of the cited article:**

Aggarwal, R., Ayhan, S., Jakob, M., Steckel, J., 2024, Carbon pricing and household welfare: evidence from Uganda, *Environmental and Development Economics*  
<https://doi.org/10.1017/S1355770X24000214>

#### **About MCC**

MCC explores and provides solution-oriented policy portfolios for climate mitigation, for governing the global commons in general, and for enhancing the many aspects of human wellbeing. Our six working groups are active in fields like economic growth and development, resources and international trade, cities and infrastructure, governance, and scientific policy advice. Co-founded by the Mercator Foundation and the Potsdam Institute for Climate Impact Research. | [www.mcc-berlin.net/en](http://www.mcc-berlin.net/en) | [https://twitter.com/MCC\\_Berlin](https://twitter.com/MCC_Berlin)

#### **Media contact:**

Ulrich von Lampe  
Head of Press and Public Relations  
Mercator Research Institute on Global Commons and Climate Change (MCC)  
Telephone: +49 (0) 30 338 5537 201 / Mobile: +49 (0) 171 1964 449  
Email: [lampe@mcc-berlin.net](mailto:lampe@mcc-berlin.net)

MCC was founded jointly by: