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The mechanism behind the environmental kuznets curve for carbon dioxide is unlikely to be sufficient to achieve the 2°C goal

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Pollution may increase with the income per capita up to a maximum, above which it decreases with the further increase in income per capita, i.e. following an inverse U-shape in the pollution vs. income per capita. Such a behaviour is called the Environmental Kuznets Curves (EKC).

In a previous presentation, we reviewed EKC for CO_2 exploring its relation between CO_2 per capita and the Human Development Index (HDI) between 1990 and 2013. We find evidence for a reduction in CO_2 emissions per capita in highly developed countries. We present an updated model according to which the emissions per capita of a country are composed of a component related to the actual state of development and a component related to the change of development. The model leads to four distinct cases of which two have EKC shape and two imply saturation. This outcome is in line with previously suggested qualitative relations.

Based on the past trend in parameters of the less extreme version of the EKC curve, we formulate a scenario for the future and contrast it against the RCP scenarios. We find that the mechanisms behind the EKC are unlikely to be sufficient to limit global warming below the 2°C target.