

## FOOD WASTE AND INCOME

## Going to waste

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Despite growing food insecurity worldwide, food waste at consumption level is still a concern. Yet, the exact amount of food wasted by retailers and individual consumers remains unquantified, precluding the full understanding of its impacts on food security and environmental sustainability.

Emiliano Barrera and Tom Hertel, from Purdue University, have modelled global food waste across income groups and predict how it will evolve in the next three decades in order to understand the implications of food waste for food prices, production and resource use. The authors generated a panel database on household food waste for 158 countries based on an adjusted version of the physiological energy balance equation first proposed by Hall et al. (*PLoS ONE* 4, e7940; 2009). From this panel, they derived a non-linear relationship between per capita income and the share of food availability wasted, which was then incorporated into a global partial equilibrium model of the agricultural sector (U. L. C. Baldos and T. W. Hertel *Environ. Res. Lett.* 8, 034024; 2013). The model simulated household food waste in 15 regions under different levels of food waste reduction and market integration.

Results show that, in the absence of policy interventions or behavioural change, by 2050, global calories wasted will nearly double and per capita food waste will

increase by 72% (reaching 812 kcal per capita per day). Generally, food waste begins to grow as wages and household income rise, and diets diversify — although specific dynamics differ across low, medium and high-income country groups. Middle-income countries are the main contributors to global food waste. While little change is projected in high-income regions (Europe, Canada and USA), the sharpest increase in waste is expected in South Asia, followed by sub-Saharan Africa and South America. Simulations have also shown that food waste reduction allows for a decline in cropland area and undernourishment, especially under full market integration (which facilitates accessibility to non-wasted food across countries).

As the authors point out, some aspects of their analysis could be improved in future research. This includes regional aggregation and representation of food types, for which the share of food waste has been assumed equal. Still, this study bridges an important knowledge gap by quantifying food waste at national level, and offers practical guidance on how food waste is likely to be impacted by different policies.

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