

# Science for Environment Policy

## The economic impact of reducing food waste in Germany, Poland and Spain

**A new study has quantified the economic impact of reducing avoidable food waste in Germany, Poland and Spain.** The researchers modelled impacts on production, GDP and employment. The results show that reducing food waste from households has the greatest impact, although policy measures should be tailored to individual EU Member States.

**A third of all food produced for human consumption is lost or wasted, and the EU alone wastes an estimated 88 billion tonnes of food every single year.** This is equivalent to 76 kilograms per person per year. This is an unsustainable level of waste which threatens food supply and the environment. The EU is taking several [actions against food waste](#), as a critical part of efforts to achieve a [circular economy](#), where resources are used more sustainably.

In order to achieve policy change on food waste, it is important to understand both the monetary value of food waste and its social and environmental impacts. While most previous studies have assessed the amount of food wasted by households, this study evaluated the impact of food waste on *national economies*.

As case studies, the authors assessed three EU Member States with different economic structures: Germany, Poland and Spain. They evaluated the effect of reducing food waste on three economic factors: total output, gross domestic product (GDP) and employment.

To do so, they applied a novel modelling approach, which considers demand and supply interactions, connections between sectors, substitution effects and price mechanisms. They applied the model, based on data for the year 2007, to identify the most significant economic impacts of food waste. They modelled different scenarios, including reduction of food waste by the wholesale/retail sector, food service/catering sector and households.

To inform the modelling, the researchers sourced detailed information on agricultural and food manufacturing from the [AgroSAM database](#) covering the EU-27. They suggest this approach enables better food-waste policy design because global measures can be tailored to the characteristics of the national economy.

The model estimated the impact of reducing avoidable food waste — food that is thrown away but was edible 'at some point prior to disposal', which was valued in monetary terms. The researchers found that households waste the most food, followed by the manufacturing sector, the food service/catering sector and finally the wholesale/retail sector.

The researchers describe the impact of reducing avoidable food waste in terms of 'shock', which describes the monetary value of avoidable food waste — the amount of money that each part of the food chain is saving due to unnecessary purchases. They also describe the impact on GDP, which represents the value of economic resources — such as the land or labour needed to produce food — saved by reducing waste.

The economic impact of reducing food waste was greatest in Germany (a 'shock' of €29 968 million), followed by Spain (€12 742 million) and Poland (€6.868 million). However, employment would suffer. The predicted job losses resulting from reducing food production in Germany amounted to around 600 000 — roughly double that of Spain and Poland.

*Continued on next page.*



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**Source:** Campoy-Muñoz, P., Cardenete, M. A. & Delgado, M. C. (2017). Economic impact assessment of food waste reduction on European countries through social accounting matrices. *Resources, Conservation and Recycling*. 122: 202–209.

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Although the percentage of food waste that could be avoided was the same across sectors (6.3%), the financial impact varied by sector. For example, the impact of reducing food waste on the wholesale and retail sector would be smaller than on catering.

Poland was most affected by reducing food waste within the wholesale and retail sectors, leading to an economic 'shock' of €246 million, but a loss of production and GDP of 0.33% and labour reductions of over 36 000. In Spain, the economic shock amounted to €108 million, a decrease in production and GDP of 0.07% and a fall in labour of over 11 000. Germany was the least affected, experiencing a shock of €73 million, a minimal effect on production and GDP (-0.02%) and a reduction in employment of just 6 400.

In Poland, reducing food waste in the catering sector had similar impacts to wholesale/retail, but in Germany and Spain the monetary value of reducing food waste from the catering industry was over one thousand million euros.

Households generate the most food waste of all sectors and reducing this was predicted to have the greatest impact in Germany (€28 293 million saved due to unnecessary purchases), followed by Spain (€11 468 million) and Poland (€634 million).

This study describes the potential monetary savings that could result from reducing food waste and is one of the first to assess the economic impact of reducing waste in terms of production, GDP and employment.

Although the study does not quantify the environmental impacts of food waste such as energy and water use, the impacts simulated by the study provide an estimate of the value of wasted food resources, which have consequences for climate change and food security. The researchers say reducing food waste is important for achieving balance between economic development and environmental sustainability.

Taken together, the results suggest that reducing household food waste has the most significant benefits for national economies, although this depends on the economic structure of the country in question. The researchers recommend that measures are tailored to the economic structure of individual Member States and emphasise the need for more research on food waste at the national level.

