

Impacts and adaptation to climate change in European economies

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The economic impacts of climate change have been estimated for a global mean temperature rise of +2°C and +4°C, respectively. This has been done for 85 sub-regions covering 27 European countries. The results are snapshots of the European economies under different climate futures.

+2°C increase

The results indicate that the European economies are moderately affected by a +2°C increase: the total GDP for the European region falls by 0.03% when compared with GDP without climate change.

The strongest negative impacts are found in the two southern regions, where a +2°C increase implies per year reductions in GDP up to 0.1% in Spain and Portugal. The effects in these southern regions are mainly caused by a drier climate, which affects agriculture and forestry. Higher temperature also implies negative impacts to tourism.

+4°C increase

At a +4°C shift, all sub-regions lose in economic terms in this study, and the reduction in GDP are considered substantial, especially in the southern regions of Europe. As expected, the sectors based on utilization of natural resources, agriculture, forestry and fisheries, are the most affected. For Europe the estimated reduction of annual GDP in 2080 is 0.26%.

Regions that face the most negative impacts in the +2°C shift are the most severely impacted in the +4°C shift, and those who gain in the +2°C shift are the least affected in the +4°C shift. GDP loss in the sub-regions of Europe varies from less than 0.1% in some sub-regions of the Baltic States and Central-Eastern European countries to between 0.6 and 0.7% in the sub-regions of Galicia and Andalucia in Spain.

Source: Aaheim et al., 2012. Global Environmental Change 22: 959-968.

Photo: W. ten Brinke