



EUROPEAN CENTRAL BANK

EUROSYSTEM

# Climate change and macroeconomics: Where do we stand

*A central banker's perspective*

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Panel at the PIIE conference on  
“The macroeconomic  
implications of climate action”

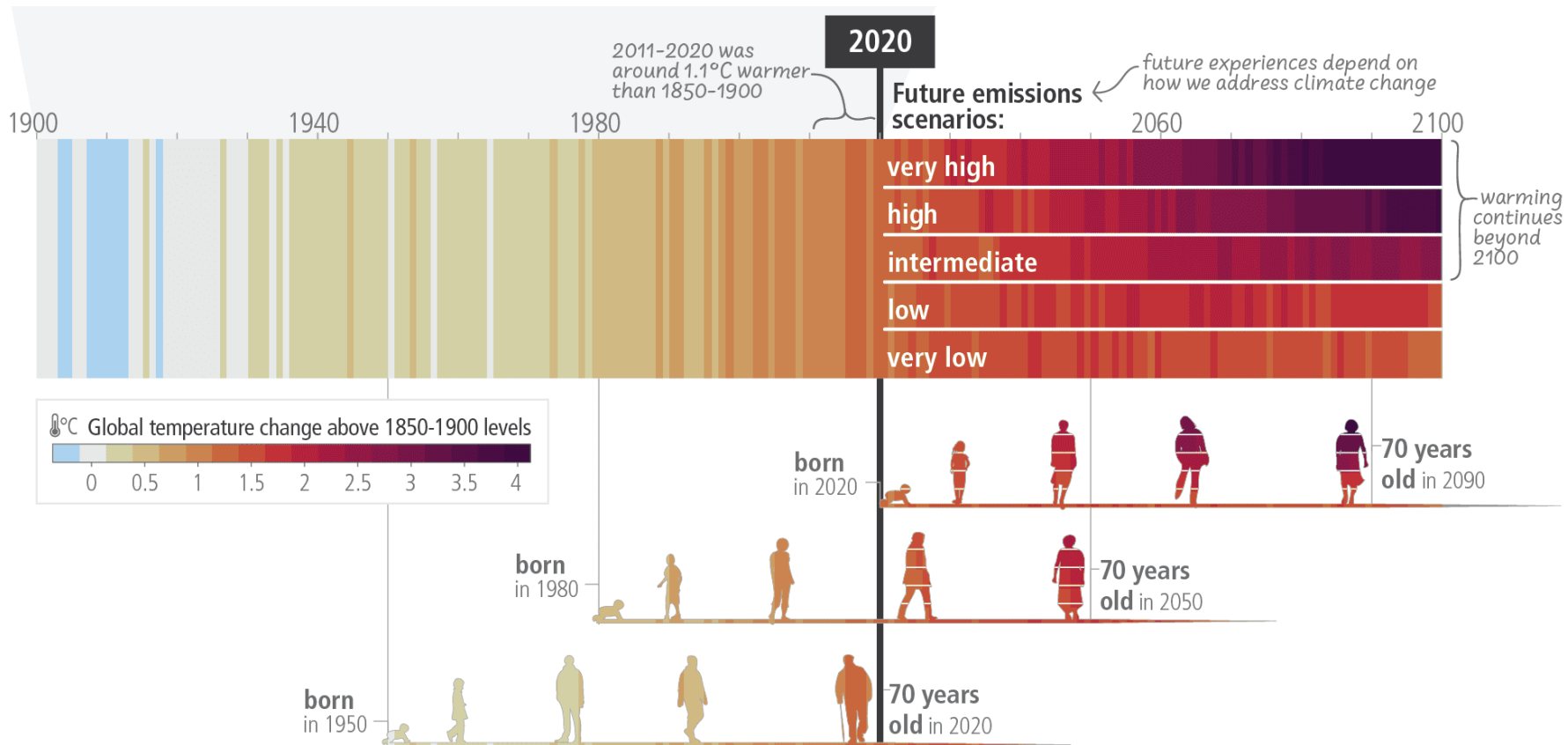
06/06/2023



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# Climate science: Warming will continue under any scenario



*“If we do not account for **the impact of climate change on our economy**, we risk missing a crucial part in our work to keep prices stable.”*

Christine Lagarde, November 2022

# Macroeconomic impacts of a changing climate: growing literature

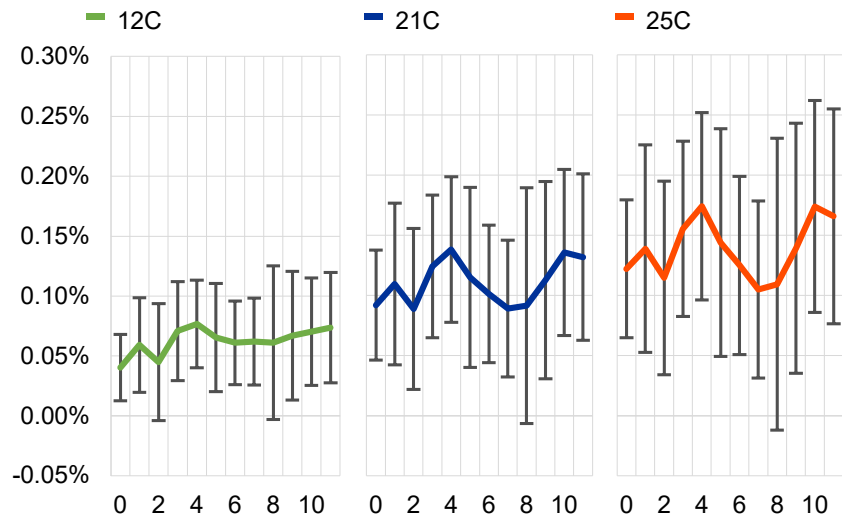
- Well-documented relationship between higher temperatures and declines in economic output
- Impact channels include agricultural output, labour productivity, supply, energy supply and demand, health
- ➔ • First evidence of links between weather shocks and inflation
  - Inflationary impacts of hot summers in warmer countries
  - Some evidence for downward impacts on some inflation components in the longer run (through dampened demand)
  - Most evidence for temperature shocks, but other impacts also matter

# New empirical evidence: Non-linear inflationary pressures of temperature shocks

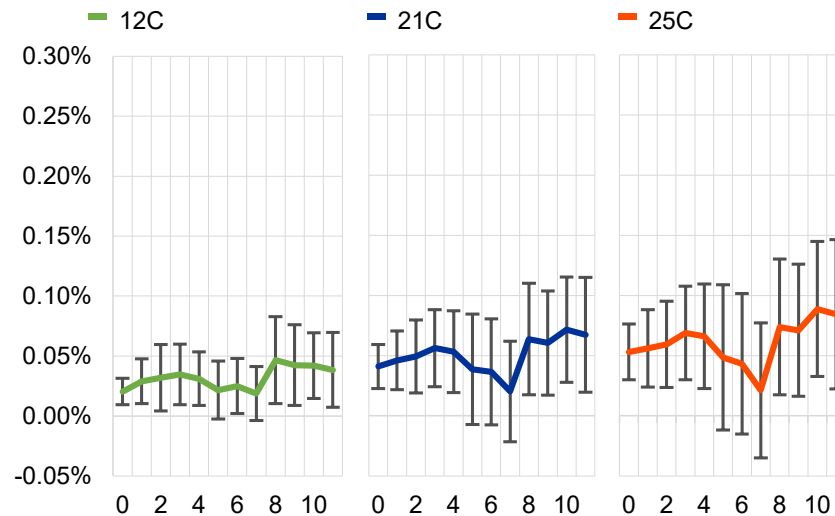
## Cumulative impact of a 1°C increase in mean temperature

(x: month, y: percentage points)

Food inflation



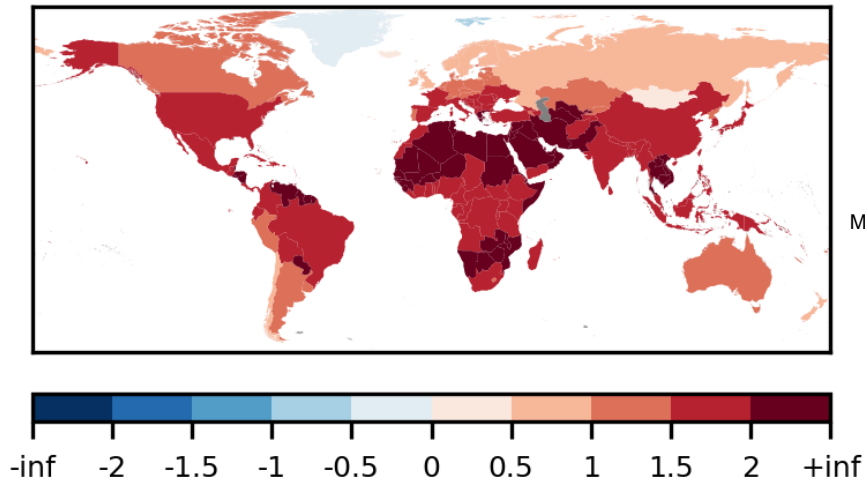
Headline inflation



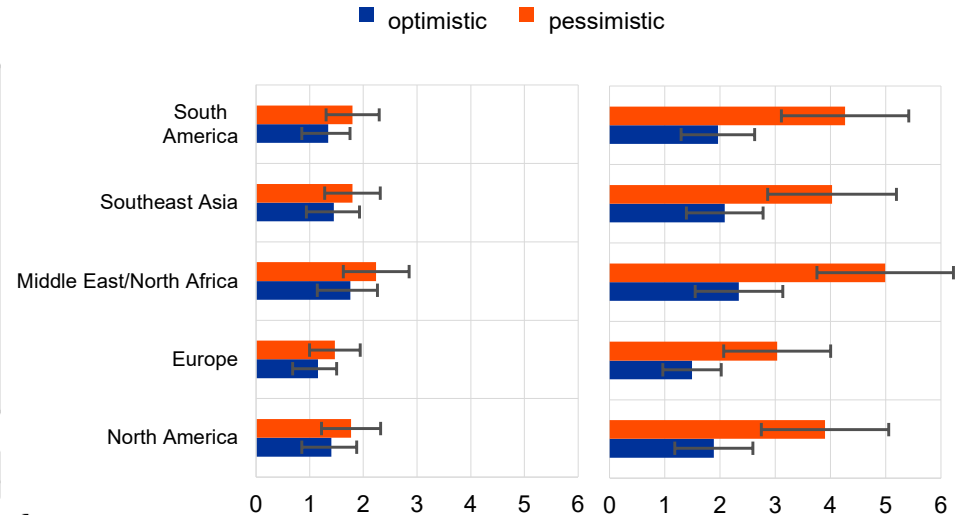
# Climate change to add pressures on food inflation, absent un-precedented adaptation

## Annual impact of projected warming on food inflation (percentage points)

2035 projected warming, pessimistic scenario



Warming projected in different years and scenarios

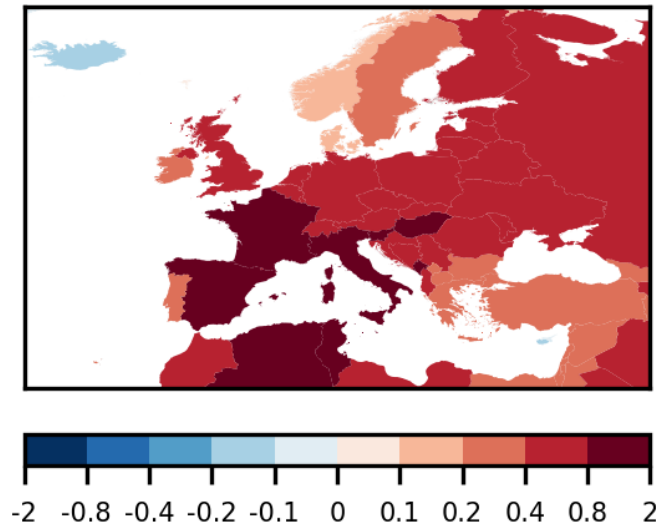


# Heat extremes can add inflationary pressures

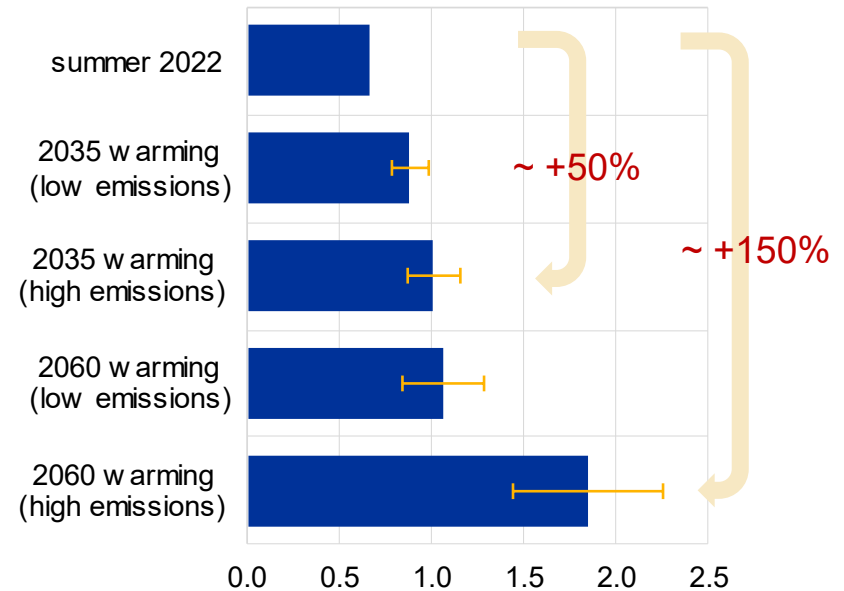
## Estimated impact of extreme summer heat on food inflation in Europe

(percentage points)

2022 summer heat



Warming projected in different years and scenarios





## Key messages

- Climate change impacts will increasingly materialize
- Empirical evidence: **temperature shocks can increase inflation**, especially in warmer countries and months
- **Impacts of average warming and heat extremes on inflation will increase**, in the absence of unprecedented adaptation
- Central banks need to increasingly **consider climate change impacts in macroeconomic projections and assessments**
- Macroeconomic impacts of a net zero transition/climate action should be reflected against **a baseline in which physical risks materialize**
- Climate change **mitigation and adaptation will also reduce the risks that weather shocks pose** to inflation

**Thank you**