

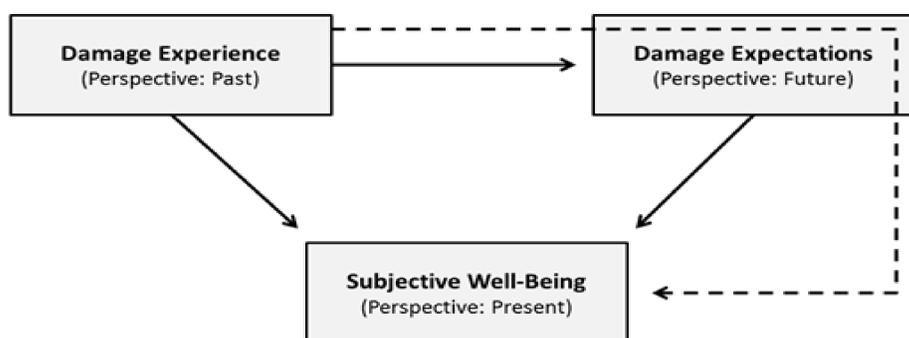
# Extreme Weather Experiences and Climate Change Expectations

Climate change (CC) and extreme weather events (EWE) such as heat waves, hurricanes (Matthew, Katrina), and floods affect the living conditions of households and individuals worldwide. Climatologists expect to see an average global temperature rise of between 1.0 and 3.7 °C, relative to 1986-2005 (IPCC 2014), by 2100. This is likely to result in an increase in the frequency and severity of EWE. Against this background this project focusses on the effects of EWEs and CC on the subjective well-being (SWB) of individuals. The effects on SWB can be divided into:

- Weather-related material and damage to health experiences
- Expectations about future climate change

## Research Questions

- How does damage experience in the past affect current SWB?
- How do damage expectations for the future relate to current SWB?
- Is there an indirect effect of damage experience as changed damage expectations affect SWB and, what is the extent of any possible effect?



## Empirical Strategy

- Subjective Well-Being (SWB) ≈ Life Satisfaction (LS)
- Life Satisfaction (LS) data as empirical proxy for utility
- LS regressions with damage experience from EWEs and damage expectations towards CC as independent variables:

$$LS_i = \alpha + \beta \cdot EWE_i + \gamma \cdot CC_i + \delta X_i + \varepsilon_i$$

- Life satisfaction question: “All things considered, how satisfied are you with your life as a whole nowadays?” (11-point scale with 0 = extremely dissatisfied and 10 = extremely satisfied)

- EWE data: Stated financial or health damages as a result of experienced heat waves, storms, heavy rain, or flooding
- CC data: Rated consequences of climate change on their personal living conditions in the next decades
- Representative sample of approximately 6,400 German households, interviewed via either an online or a TV-based questionnaire (Osberghaus 2015)

## Results

- LS decreases significantly as a result of damage experience caused by heat waves in the past (direct effect)
- Damage experience resulting from other EWEs (storms, heavy rain, flooding) shows negative, although insignificant, effects on LS
- Presuming that heat waves are qualitatively different from the other events, in that they tend to primarily cause health-related damage, whereas the other EWEs cause mainly financial damage this finding may be explained by the possibility of insuring against material damage, but not against health damage
- LS decreases significantly as a result of climate change-induced damage expectations in the future (indirect effect)
- Significant but small indirect effect of CC expectations as compared to the direct effect of EWE experiences



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## Research Interests

- Environmental & Resource Economics
- Economics of Well-Being

## Teaching

- Resource Economics
- Environmental Economics (Umweltökonomie)
- Behavioral Economics and Happiness Research (Verhaltensökonomik und Zufriedenheitsforschung)
- Competition Policy

## Literature

- Welsch, H., Kühling, J., (2016): Transnational Diffusion of Environmental Preferences: The Roles of Similarity and Proximity, *ZenTra Working Paper in Transnational Studies* 64 / 2016.
- Osberghaus, D., Kühling, J., (2016): Direct and Indirect Effects of Weather Experiences on Life Satisfaction – Which Role for Climate Change Expectations? *Journal of Environmental Planning and Management*.