

## Perceived flood risk and its effect on house prices

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In the paper we want to present, we investigate how flood risk information affects the housing market. We use the impact estimates to infer how risk perception as a function of information influences willingness to pay. Information of flood risk can be retrieved from personal landscape assessments, flood maps from public authorities, media coverage of flood events and actual flood events. In this paper, we analyze how these sources of information affect house price development and discuss what that says about peoples' storm risk perception and willingness to pay for reduced flood risk.

The analysis is based on a quasi-experimental difference-in-difference design, in which the publication of detailed public flood maps in 2012 and a storm flood event in 2013 in Denmark are used as events to compare flooded and non-flooded houses and houses in flood risk, before and after the events. In our model, we correct for a large number of confounding factors with a rich dataset on house prices and housing characteristics. The dataset contains information on 12,228 single-family houses and terraced houses sold between the years 2006 and 2018. The houses are located at Roskilde Fjord, Denmark. Each house is individually identified and explained by 39 variables for housing characteristics, neighborhood characteristics, and environmental characteristics. Further, the data include a flood risk assessment based on a spatial digital terrain model

with a precision of 10 cm and information on insurance claims from the flood event in 2013.

We find that flood-prone houses located from zero to two meters above sea level have a 9.7 % price reduction compared to non-flood-prone houses. Estimates show that publications of flood maps do not appear in itself to impact house prices. The flood risk information is updated when a storm surges event occurs. Prices drop 22% if a house is flooded. After three years, the flood event information effect vanishes.

Flood events influence people's perception of risk. Risk perceptions affect their behavior and willingness to pay on the housing market. However, the results indicate that the market is fast at forgetting the negative consequences of a flood.