The Low Countries are Getting Lower: Land Subsidence, Foundation Risks and Property Prices in the Netherlands

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SUMMARY

It is estimated that 750.000 of the 8.300.000 houses in the Netherlands are at risk for land subsidence. Despite the high costs of repairs for homeowners, as well as potential physical dangers, public awareness remains limited. Previous research shows that when buyers are aware of foundation risks, potential costs for renovations are calculated into house prices. However, for houses that are potentially at risk based on year of construction, only 2,2% of the publicly available advertisements mention possible foundation risks, meaning that many potential buyers remain unaware of foundation risks.

In the Netherlands, when considering the risks of climate change, thoughts tend to go to flooding, since 26% of the country is below sea level, and another 29% is susceptible to river flooding. However, as became especially clear during the summer droughts of 2018, 2019, 2020, and 2022, droughts also pose a risk. During these droughts, ground water levels strongly fluctuated, which negatively affected the foundations of older houses, especially those built before 1970 on timber pilings or directly on soft clay or peat soils.

By combining unique and detailed housing market data from the Netherlands' Cadastre, Land Registry and Mapping Agency – in short Kadaster – with data from the National Foundation Risk Map (Basiskaart Funderingsrisico) developed by the Knowledge Centre for Foundation Problems (KCAF), we are able to analyze the extent to which foundation risks, driven in part by climate-induced soil subsidence and groundwater fluctuations, are reflected in residential property prices. We consider the extent to which this differs between at-risk regions, housing types and types of homeowners, since foundation risk is not only a technical issue, but also a socioeconomic one, that affects property values, homeowner equity, and long-term

affordability.

In this study, we demonstrate the value of Kadaster's detailed housing market data, as well as the benefits of combining different sources of geospatial data, allowing us to support policy makers in formulating targeted interventions and evidence-based decision-making. Furthermore, we contribute to the growing body of knowledge on the economic impacts of climate change on the built environment.