

Real estate economics

Do Housing Affordability in urban areas

Housing prices have risen sharply in the cities in recent years, putting pressure on housing purchasing power, especially for young first-time buyers and newly established families in need of space. This is the trend in Norway and in many other EEA countries. Important indicators of the purchasing power of housing in an area are the development in ownership rates and calculations of how large share of transacted homes various groups of the population can afford. However, these goals do not take into account differences in housing needs, increased travel distance or whether the dwelling quality is deteriorating. This project will contribute to new insights by exploring the purchasing power of equal quality homes (equal size, type, etc.) in urban areas where homes are also segmented according to suitability for different types of households, such as requirements for more bedrooms for families with children. The analysis can further compute how far from the City Center different household types must move to be able to afford a home of constant quality, and calculate adjusted purchasing power measures. The work will benefit from rich transaction data for home sales from Eiendomsverdi and register data for home purchases from Ambita. Results regarding housing affordability can be compared with regional relocation flows and housing construction.

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Gains from sustainable management and renovation of the building stock

Housing associations, academia and the private sector have a new and active "Sustainability collaboration within green transformation". Interested master's students can follow this process and at the same time gain access to data and experiences from pilot-concepts for greener renovation completed autumn 2020. What is the socio-economic value of traditional versus new «green solutions» projected in a 0 - 40 year perspective from a pilot project calculated up to macro level? Valuation analysis and carbon emission accounts may be relevant here. Related topics in the project are also «green loans» and «green insurance» associated with housing. A "Sustainability Account" has also been developed, which is a useful starting point for the students. The analysis will benefit from data from Statistics Norway for renovation and conversion of the housing stock.

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Forecasting house prices and the macro economy with machine learning.

Models that are often used to forecast house prices tend to build on macroeconomic indicators. These are sometimes unavailable in real time, and there is a need to build indicators based on current information to be able to assess the macroeconomic development at an earlier point in time. Moreover, there is an increasingly rich availability of micro-data in real time such as auction-data and the amount of dwellings supplied to the used-market, that may improve inference in predictive models. This MA-project will develop economic indicators from micro-data using machine learning methods such as random forests and gradient boosting, and build models that forecast house prices or other macroeconomic variables. Model performance can be

compared with simpler models/traditional data. The successful student should be interested and have some experience using statistical software such as R or Python.

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