

HOUSING MARKET COMPLEXITY AFTER A NATURAL DISASTER. A HEDONIC PRICE MODEL FOR L'AQUILA

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ABSTRACT

Housing is one of the most important issues after a natural disaster. Even considering the strong State aid, common in these circumstances, the real estate morphology in the years after catastrophic events changes quite dramatically. However, these dramatic changes are often not captured by a simple measure such as house prices, either in the form of rents or sale prices. Even in a situation where we do not observe any change in the average house prices, the quality and composition of the housing market are greatly impacted by the process of destruction and reconstruction following an earthquake.

The aim of the paper is to look at the changes in the characteristics of the housing market in the case of the city of L'Aquila in Italy, which was severely hit by the earthquake of April 2009. Following the earthquake, there was an outflow of money invested in the reconstruction process. Four billion euros were spent just for private buildings and another four are on their way. The combination of the two external shocks represented by the earthquake first and the reconstruction subsidies second, should have created a discontinuity in the house price time series. However, surprisingly, the trend in L'Aquila was in line with similar cities not affected by disasters and with the overall national housing market cycle.

This surprising pattern requires a deeper analysis of the underlying features of the L'Aquila housing market. Starting from the Zabel work [Zabel, J. (2015). The hedonic model and the housing cycle. *Regional Science and Urban Economics*, 54, 74-86], this paper would therefore apply an hedonic house price model for the market of L'Aquila on all the housing market transactions for the period 2014-2016. The data on individual transactions, which include household and building characteristics, will be combined with data on the reconstruction process of every single house from the public dataset "opendataricostruzione.gssi.it" and data on territorial amenities and housing market from Istat, OECD, Bank of Italy and Scenari Immobiliari.

Following the hedonic model approach, the final house price will be a function of three vectors: house characteristic, territorial amenities and individual preferences. In the "augmented" model, other factors linked to the earthquake will also be considered, including migration rates, seismic classification of buildings and new neighbourhood settlements. Especially the seismic classification of buildings is an important factor to control for in a city like L'Aquila. Different individuals might have a different willingness to pay for different levels of seismic preparedness of houses.