Integrated Decision Support System

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The socioeconomic importance of housing and its medium- and long-term investment returns requires a significant effort to predict future dynamics to ensure that the different real estate market agents make the best decisions. Furthermore, the territory structure and the lack of information and transparency of the housing market mechanisms also influence its understanding.

The call for data analysis techniques, either to understand the theoretical background of the mechanisms that determine the functioning of the market and define its dynamics, either to provide the basis for the development of decision support tools and policy formulation and assessment, lies on the complexity explained by:

· the lack of high-quality information and adequate tools to support decision making;

· the housing market not being transparent: objective supply information about housing stock, and its technical and financial constraints, isn't clearly available;

·the pricing mechanisms and buyers preferences and expectations not being directly provided.

There is a variety of literature on spatial economics that gives theoretical basis for predict housing prices and attributes valuation. However, these analytical models are subject to criticisms because of their inability to integrate the variability of exogenous.

Thus, foresight analysis is a complementary tool to these analytical models, and is one of the central concerns of DONUT-Prospect: an Integrated Decision Support System that deals with the challenges in describing the housing market, both in its spatial heterogeneity and temporal evolution. The conceptual basis and the general framework are based on the combination of two main foresight techniques (scenario analysis and Delphi surveys) with a traditional hedonic housing price model, based on the assumption that it is possible to discuss strategies in the context of great uncertainty and to identify trends and assess future evolution. The empirical application outcomes support the estimation of housing characteristics and its hedonic prices in 2030, based on the evolution of social and economic phenomena and the heterogeneity supply demand (housing prices and features; and type of consumers).

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FIGURE 1
Housing price model: 2010 e 2030 (foresight model).

FIGURE 2
Link between the expert panel and Delphi exercises.