ABSTRACT

In the paper an analysis of functional correlations of property prices with the main locational and socio-economic variables, which generally contribute to define the market value of properties, has been developed. Locational characteristics are represented by the surfaces of soil used for the main functions, borrowing the logic of the system of classification of CORINE Land Cover (European Commission). The analysis has been contextualized to the 258 municipalities of the Apulia region (Southern Italy), and has been referred to two different moments (years 2006 and 2011), and two different market segments (residential and retail). The functional relationships between property prices and explanatory variables considered, estimated through a software that implements a genetic algorithm, are particularly interesting. The methodology outlined constitutes a valuable reference for the definition of models aimed at supporting, in a more rational and convenient way, public planning decisions and private investment choices.

Keywords: Determinants of Value, Econometric Analysis, Economic Impacts, Genetic Algorithms, Land Use, Property Values
INTRODUCTION

The acceleration of the urbanization of soil in recent decades, related to the increase in global population, has generated an alteration of almost all terrestrial ecosystems (Millenium Ecosystem Assessment, 2005; Banwart, 2011). This phenomenon has led to an awareness of the importance of the containment and monitoring of land use, as a resource to be preserved not only for the production of primary commodities, but also for its environmental (climate risk, landslide risk, etc.) and socio-economic importance (quality of life, tourist attraction, etc.).

Numerous Authors have studied the issue of the “sustainable intensification”, highlighting the opportunity for appropriate monitoring of land use (Petersen & Snapp, 2015; Artmann, 2015; Wang et al., 2013), the need for decision support tools in planning activities (Goncalves & Ferreira, 2015), the importance of green space for good environmental performance in neighborhood (Szulczewska et al., 2014).

The urbanization of the territory is stimulated, as well as by a real housing need and/or by the demand for complementary facilities, by the potential profit generally related to real estate (Tajani & Morano, 2015). Pressures in the construction market, that - at least until 2006, the year of maximum performance of property values - has been characterized by high profits and low business risks, the interest in investing in real estate and the possibility for municipalities to use urbanization fees for other expenditure items, have led to a real “commercial exploitation” of the territory with the spread of urban sprawl.

In the last fifty years Italy has been affected by a significant urban land conversion, especially in the central regions (Malucelli et al., 2014). The Institute Superior for the Protection and Environmental Research (ISPRA) has stated that all Italian regions are characterized by more than 5% of soil sealing; the highest values are in metropolitan areas, where the 70% threshold has been overcome. Romano & Zullo (2014) have studied the urban land transformation that has involved the Italian Adriatic coast, defined as the largest and most intense phenomena of building densification in Southern Europe, extended along more than 1,470 km of coast.

Locally choices in land use can have significant impacts on market values of properties that are located near the new urbanization. Changes in land use, in fact, contribute to define the locational characteristics that - along with sociological, microeconomic and macroeconomic variables - lead to the formation of the property values. In literature, the effect of these variables is generally investigated using hedonic price models, and is quantified by measuring the distance of the locational characteristic from the property considered. The determination of the influence that each change in land use can have on property values constitutes an information that involves considerable advantages: it can give an essential support to the Public Administration in the planning of the territory, in order to maximize the benefits for the community through effective land use choices (Tajani & Morano, 2014); it can help to equalize the taxation system of the local Public Administration, considering the benefits (or the economic losses) that are expected in a certain area as a result of the new land use; it can allow a private entrepreneur to estimate more accurately the market value of the buildings to be realized, taking into account the effect generated by the future higher supply of properties on the market. Furthermore, locally changes in land use are generally related to socio-economic parameters (e.g. household income and expenditure, average age, etc.), that determine the function, the typology and the level of the finishes of the buildings to be realized.

The present paper is involved within the framework outlined. In this work an econometric analysis of the functional correlations of property prices with the main socio-economic and locational variables that generally contribute to define the market value or a property has been developed. The analysis is contextualized to the Apulia region (Southern Italy), and the popula-
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