



# Perceived urban quality of the historic centers: A study concerning the city of Cagliari (Italy)

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## ABSTRACT

This paper proposes an econometric approach based on Discrete choice models to identify and analyze the residents' needs and expectations concerning the spatial organization of the historic neighborhoods where they live, which provides inferences on residential satisfaction's determinants. In this framework, determinants are grouped into three distinct categories as follows: i. level of satisfaction related to house; ii. neighborhood characteristics; iii. respondents' social and demographic characteristics. The information coming from the implementation of the DCM-based analysis can be used as an important reference point for the definition of planning policies for historic centers' preservation. In order to test and discuss its effectiveness, we use the model to analyze needs and expectations of the residents of the historic center of Cagliari, a medium-sized urban context of the Italian insular region of Sardinia.

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## 1. Introduction

Planning and historic centers' preservation can be considered synergetic concepts (Frank and Petersen, 2002) and activities. Indeed, effectiveness of preservation is founded on analytic and detailed planning which should implement policies aimed at preserving the characteristics of historic urban tissues and at boosting their capability of being attractive for the most important contemporary urban functions, such as housing, retail shops, and financial, insurance and real estate firms (Mueller et al., 2005). Moreover, it could be important to maintain the sense of identity of the people who live there. Hence, it is necessary to implement participatory processes involving resident families, entrepreneurs, employees and shoppers (Comune di Reggio Emilia, 2005, 2011).

One of the main components of sustainable planning approaches to the preservation of historic centers implies the availability of detailed and, as much as possible, complete information on residents' perceived needs and expectations.

We propose an econometric approach based on Discrete choice models (DCMs) (Ben-Akiva and Lerman, 1985; Greene, 1993; Greene and Henser, 2010) to identify and analyze residents' needs and expectations concerning the spatial organization of the historic neighborhoods where they live, which provides inferences on res-

idential satisfaction's determinants (Lu, 1999). In this framework, determinants are grouped into three distinct categories as follows: i. level of satisfaction related to house; ii. neighborhood characteristics; iii. respondents' social and demographic characteristics. The information coming from the implementation of the DCM-based analysis can be used as an important reference point for the definition of planning policies for historic centers' preservation (Fantin, 2013).

In order to test and discuss its effectiveness, we use the model to analyze needs and expectations of the residents of the historic center of Cagliari, a medium-sized urban context of the Italian insular region of Sardinia.

A questionnaire of about 30 questions is delivered, in order to collect objective and subjective information concerning the respondents' houses, neighborhoods and preferences. Indeed, another issue related to the analysis of the perceived urban quality is linked to the source of information. Subjective information is related to residents' perceptions, evaluations and satisfaction with the urban environment, which can be detected either through direct surveys or through other sources of information (McCrea et al., 2006). In this paper, a questionnaire is used to collect both objective and subjective data, as some variables do not need a subjective evaluation by the respondents, whereas some of them depend on respondents' perceived needs and expectations. Moreover, residential satisfaction's degree related to house, neighborhood's characteristics and relationships with neighbors-related variables can be considered subjective elements, as they imply an evaluation by the respondents based on their perceived expectations and needs. The

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environmental psychology-based assessment paradigm is applied to examine both the influence of objective factors and of subjective determinants related to interactions between personal and environmental variables (Christensen et al., 1992), such as the degree of residential satisfaction.

In the case of neighborhood's characteristics-related questions, objective elements such as the availability of services and the presence of negative environmental conditions determine subjective perceptions and evaluations (Amerigo and Aragones, 1997). Therefore, interviewees' feelings concerning their neighborhood sometimes are not consistent with the objective analysis defined by urban plans. Hence, the answers to neighborhood's characteristics-related questions may possibly entail a subjective character.

Many psychologists (among many, Bonaiuto et al., 2003; Adriaanse, 2007; Canter and Rees, 1982) analyze residential satisfaction's determinants through evaluation of indexes concerning the quality of the residential environment, based on evaluations of statements about house's and neighborhood's characteristics related to people's perceptions. Although this method could be considered suitable to collect information that is consistent with people's needs and expectations, it could be characterized by a Pollyanna's effect more evident than in those studies where objective variables are considered. Indeed, people show often the tendency to give positive rather than negative responses. This attitude could bias people's real perceptions and the related data. Other researchers (among many, Altas and Ozsoy, 1998; Lu, 1999; Sam et al., 2012) prefer to use both objective and subjective variables such as social and demographic characteristics of the respondents, house's characteristics, urban environment's features, levels of satisfaction and so on, to analyze and describe their perceived urban quality. In this way, more objective information is obtained.

It is important to notice that the choice of variables may depend significantly on researchers' background (Sam et al., 2012). Hence, there is not a predetermined way to choose variables and methods to collect information, and the techniques cited so far have both advantages and drawbacks. In terms of the classification proposed by Bonaiuto (2004), the study proposed in this paper is entirely based on a subjective perspective concerning the observed urban environment.<sup>1</sup>

The DCM-based analysis is implemented through a questionnaire delivered to the residents of the Cagliari's historic center's neighborhoods (Comune di Cagliari, 2011). Through their participation in the experiment, resident families' representatives should increase their awareness of the most important issues related to the spatial organization of their urban living areas, and provide information on correlations between perceived urban quality and the three types of determinants mentioned above.

Qualitative and quantitative inferences on the correlations between residents' level of satisfaction related to the neighborhood and its determinants, generated by the DCM-based analysis, imply important arguments and indications on planning policies related to the spatial organization of the historic centers, which will be discussed in the final part of the paper, starting from the results of the DCM-based case study concerning the historic center of Cagliari.

This paper is organized as follows. The institutional and normative framework of historic centers' planning of the Sardinia region is described in the second section. In the third section, we

discuss the DCM-based analysis we use to analyze the residents' perceived needs and expectations. The fourth section shows the implementation and results of the estimates of the DCM-based analysis applied to the historic center of Cagliari which uses the level of the respondents' residential satisfaction and its covariates in order to address arguments and indications on issues related to planning policies concerning the spatial organization of the historic centers. The results coming from the implementation of different discrete-choice models are presented and compared.

In the concluding section, we discuss the influence of the determinants found relevant on the level of residential satisfaction with the neighborhood, through the results of the DCM-based analysis. This influence could be taken into account to define future planning policies to increase the quality of urban life. Exportability to other urban contexts and further developments of the research work are discussed as well.

## 2. Institutional and normative framework

Cagliari is the main Sardinian conurbation, with a population of about 150,000 residents in 2012, and a regional capital city. Here, all the main offices of the regional administration are located. Furthermore, Cagliari is the main site of the Cagliari province, which includes the whole territory of Southern Sardinia. The main Sardinian University, with a student population of about 29,000 students in 2013, and the most important Sardinian Law Court are located in Cagliari. Cagliari has been identified as one of the nine main Italian metropolitan areas by the Italian Law No. 1990/142 and confirmed as one of the twelve Italian metropolitan areas by the Italian Law No. 2014/56. Therefore, it is a site where a new metropolitan province can be established if the regional administration wishes, which indicates that the importance of Cagliari as a key Italian conurbation has been officially recognized at the national level.

Moreover, the Sardinian regional administration has primary jurisdiction for land-use and urban planning, according to its special constitution. In other words, the Sardinian regional government may define Sardinian public planning policies. In fact, the Sardinian region is to some extent autonomous with respect to planning policies established at the national level.

For all these reasons, the metropolitan area of Cagliari can be considered a significant and well-defined urban environment to analyze the historic center-related planning policies, one which is sufficiently internally developed and integrated, and isolated from external influences as well.

In the framework of regional and urban planning processes of Sardinia, in the context of the Regional Landscape Plan (RLP), established by the Decision of the Sardinian Regional Government (DSRG) no. 36/7 of 5 September 2006, the Implementation plans of the historic centers (IPHCs) are planning tools which implement the Planning implementation code (PIC) of the RLP into the "Areas characterized by historic settlements". For these areas, the PIC defines a set of prescriptive rules and planning criteria (articles nos. 51–53 of the part of the PIC related to "Cultural and historic spatial framework", which is defined by articles nos. 47–59). More precisely, article no. 52 identifies the IPHC as a plan which has to be necessarily approved through the cooperation of the Sardinian regional administration and a municipality as a necessary precondition for a municipality to exert its ruling power over the local transformation processes related to the municipal spatial jurisdiction, which implies a considerable pressure on the local administrators in order to implement valuable and effective planning processes concerning the municipal historic centers. Fig. 1 shows a schematic representation of the Sardinian planning process concerning the approval of IPHCs.

<sup>1</sup> Bonaiuto indicates that "the quality of the very same urban environment can be evaluated from at least two different perspectives: the technical expert's assessment and the observer based layperson's assessment. The former is often referred to as objective because it involves tools and measures (e.g., metrics, weights) of scientific and technical disciplines [...]. The latter perspective may be referred to as subjective because it relies on self-report tools through which people express their own perceptions, observations, and impressions;" (Bonaiuto, 2004: 268).

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