



Delineation of spatial residential real estate submarket boundaries

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The residential real estate market is unlike other commodity markets both in terms of its complexity and dimensions. There is general support for the concept that the overall market is made up of a number of smaller submarkets, however there is little consensus as to what the model of a submarket looks like. It is important to understand the dimensions of the market through its submarket structure to more adequately support the urban planning and mass appraisal processes. The objective of this study is to establish a methodology for the spatial delineation of such submarkets in two stages. Firstly, a Residential Living Structure (RLS) is derived using principal component analysis. This technique is used to extract the underlying dimensions of the RLS from 65 attributes collected for each of the approximate 460,000 residential properties making up the metropolitan area of Adelaide, South Australia (study area). They include socio economic, property characteristic, road distance to various services, and a property and neighbourhood amenity score data for each property in the study area. From the initial 65 attributes, 15 principal components were extracted explaining approximately 74% of the variation in the original data. These components represent an enriched set of surrogate property characteristics for use in further analysis. Secondly, a geographically weighted regression model is to be calibrated with property market transaction price as the dependent variable and the derived principal components from the first stage as the independent variables. As the model moves across the study area changes in the markets interpretation of the underlying RLS are taken to signal a change in submarket. At this stage of the research the RLS has been constructed and initial analysis has begun on the calibration of the geographically weighted regression model.