Residencial Price Indexes using different sources of information

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Abstract

The issue of heterogeneity among samples of dwellings over time for calculating residential property price index is well known. One of the main approaches to circumvent it necessarily involves estimating a hedonic price model, which seeks to explain prices by means of a set of observable covariates related to intrinsic characteristics of homes [Eurostat (2013)]. Location is among the fundamental characteristics within this set of variables, and recent developments in computation have made it easy to associate exact geographic coordinates to each record in a dataset of homes. Consideration of this information involves flexibility in the functional form of the estimated hedonic models [Hill and Sholz (2013)]. Picchetti [(2017)] contributes to this context, by considering an increasingly adopted estimation algorithm originated in the fast growing machine-learning literature. Central to the application of these estimation strategies to hedonic models and subsequent price index calculations is the availability of data on individual dwellings and their characteristics. In Brazil, the available sources of reliable and timely information are contained in appraisals, required by prudential regulation as part of the documentation for financing homes, and advertised prices. Each of these sources has relative strengths and weaknesses. On the one hand, appraisals contain very detailed information on individual homes, but their availability is constrained by financing operations. Advertisements for dwellings, on the other hand, have a much larger density of information across space and time, but have limited detailed information on the characteristics of units. Here, we propose a methodology for combining these datasets using statistical methods to leverage their relative strengths, improving the precision of the hedonic model employed in the calculation of a residential price index for Brazil.

References

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