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Articles

Sales comparison approach, multiple regression analysis and the implicit prices of housing

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By using approach and the plicit prices of housi s the close link e ession analy ighlights the diffe cs. Although the relat g marginal and imp can: 1) lead to an est l-predicted price; 2) iliation that characte arison

Approach. Finally, an empirical analysis provides evidence of the key role of implicit prices in estimating house value.

KEYWORDS: Implicit prices marginal prices house value sales comparison approach multiple regression analysis

Notes

1. The small change should be related to the unit of measurement of each housing characteristic. For example, in the case of the number of bathrooms, the monetary price change expresses the change in the house price when the number of bathrooms changes by one unit (unit change).

2. Recently, Pace and Zhu (2017) focus on the comparison between explicit and implicit prices. They define both in the same (and general) way, namely, the values of housing characteristics. The difference is that the implicit or latent prices are obtained by using mortgage data, while the explicit prices are based on the traditional approach that uses sale prices of housing. Those authors use the term of implicit price because house price does not explicitly appear in the model when using mortgage data (unlike in the standard

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than transaction prices. Precisely, Pace and Zhu (2017) find that their approach, based

on mortgage data, works at its best when default is more prevalent (such as in a bust) and works at its worst during a boom. In contrast, the traditional approach based on transaction data performs at its best when transaction volumes are high (such as in a boom) and performs at its worst in a bust. The two approaches, therefore, are not mutually exclusive. Moreover, they are highly correlated.

5. The method proposed by Lai et al. (2008), the so-called ‘replication method’, aims at determining the optimal weights of comparable property attributes that best duplicate the subject property. Lai et al. (2008) show that when the number of comparable properties is large compared to the number of attributes, the replication method weakly outperforms both the traditional general least squares regression and grid method.

6. This reasoning can be extended to the qualitative variables (such as the quality of the landscape), when they are transformed into discrete variables or into binary variables.

7. Haupt et al. (2010) show that the null hypothesis of the correct specification of the parametric model, proposed by Anglin and Gençay (1996), against the alternative of parametric misspecification, cannot be rejected at any reasonable level of significance. Also, they show that the parametric model proposed by Anglin and Gençay (1996) is a better predictor than the nonparametric specification proposed by Henderson et al. (2007).

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11. The n Equation (1) can b dataset used in t as well as switches les (housing features

12. Note that only in the case of a linear model, the regression coefficients are monetary price changes or marginal price.

13. Indeed, regression analysis is typically proceeded by univariate analyses to identify the degree of linear relationship between the dependent and independent variables, which helps the analyst to decide what kind of transformation is appropriate in order to improve the goodness of fit of the model.

14. On the important issue of the weights to be assigned to the selected comparable properties in the case of the weighted average, see for example, Colwell et al. (1983), Gau, Lai, and Wang (1992), Epley (1997).

15. A binary variable or dummy variable is a variable that is used in empirical models to represent a non-quantitative characteristic, such as gender, race or precisely location (see, e.g. Hill et al., 2011).

16. Bidanset and Lombard (2014) compare these two popular spatial regression models and shows that GWR achieves more uniform results (precisely, a lower coefficient of dispersion) overall than SLM.

17. Instead, the linear model does not overcome any fundamental statistical test, i.e. correct specification of the model, absence of heteroscedasticity and normal data.

18. In re ression coefficie e used in this anal ts on the correctn

19. The , are obtained at generates predi ithout the bias y) exponen mathem generating the price

20. As re rithmic model-p ed prices (see aga that is

(slightly) higher than the log-linear model (see the Appendix). It follows that the MRA suggests a different result, namely, that the logarithmic model should be preferred.

21. For the sake of simplicity, we do not use the ‘correction’ proposed by Halvorsen and Palmquist (1980) for the coefficients of the dummy variables. However, for a small value of the coefficient of the dummy variable, the ‘correction’ is irrelevant.

22. Note that vj corresponds to Xi in the case of continuous variables, to Zi in the case of discrete variables and to Di in the case of binary or dummy variables.

Additional information

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