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Combining Classification and Hedonic Quality Adjustment in Constructing a House Price Index

Abstract

Statistics Finland has relatively long experience in constructing indices of prices of old flats using both classification and time-dummy hedonic approaches. Each method has proved to have drawbacks. The feasible classification may be too rigid to capture relevant quality changes and the standard time-dummy hedonic approach is not easily interpretable in the context of traditional index number theory. To overcome the disadvantages of these methods the two approaches are combined. A hedonic-method quality adjustment is performed within each cell in a classification and then the index is computed by aggregating cell level quality adjusted prices using an index number formula. It is shown, that each step of the procedure has a very close analogue in the standard practice of statistical offices. A method for evaluating the aggregate contributions of the different characteristics on the overall quality adjustment is developed in order to make the hedonic method more transparent in the context of classical index number theory. Special attention in the discussion is paid to the interpretation of the age profile of house prices, since they are a mixture of two distinct, but empirically non-separable effects having different implication for the quality adjustment.

The method is applied for estimating quarterly indices for Finland during 1987-2000 using very large high-quality register data on all free-market transactions of dwellings in old blocks of flats and terraced houses. It turned out that the quality adjustment of the index was important in evaluation of short-term price movements on thin markets. In the long run the quality adjusted index series do not differ in any substantial way from the simple price averages trend, at least at aggregate levels. The reliability of the index is evaluated by simulation.

The method described in the paper is used in the Finnish official House Price Index 2000=100.

JEL Classification System:

C43, E31, R31