

Measuring the Capital Stock of Dwellings by using Hedonic Regression

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The traditional approach used by national statistical agencies for compiling capital stocks for dwellings is by applying the Perpetual Inventory Method (PIM), which uses long time series of gross fixed capital formation (GFCF) combined with assumptions on service lives and depreciation profiles as input. Statistics Denmark use a variation of the PIM approach for measuring the capital stocks for dwellings, which also incorporate information on the value of the stock, measured by the number of square meters multiplied with price per square meter.

The aim of this paper is to compare (partial) results of Statistics Denmark's current estimations of capital stocks for dwellings with an alternative measurement approach based on hedonic regression model. The idea behind the alternative approach is to calculate price per square meter of buildings (with suitable stratification) and multiply the price with the total number of square meters of buildings, and hereby get an alternative estimate of the value of the stock of dwellings.

The hedonic regression model use a dataset which contain information at individual level for dwellings owned by private households together with information on property price, type of dwelling, location (zip-code), number of square meters of buildings, number of square meters of land and year of construction. Property prices for dwellings at individual level are available from a register established by Statistics Denmark. The number of square meters of buildings and land at individual level are available from the Danish register on Buildings (BBR) which covers all buildings in Denmark.

The hedonic regression model has the number of square meter of buildings and the number of square meter of land as the independent variables and the property price of the dwelling as the dependent variable. The outputs of the model are price per square meter of buildings and price per square meter of land. The first price is used for compiling the alternative estimate for capital stock of dwellings.

Because Statistics Denmark's register on prices for dwellings might not cover all dwellings, in particular rented dwellings, the comparison will be limited to the portion of the dwelling stock which can be measured by the hedonic approach and independently identified in the traditional capital stock estimation.