Housing Price Dynamics: Comparative Study of 1980-1999 and the New Millenium

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Abstract : The understanding of housing price dynamics is of importance to a great number of agents: to portfolio investors, banks, real estate brokers and construction companies as well as to policy makers and households. A panel dataset is one that follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample. Panel data models include a variety of fixed and random effects models which form a wide range of linear models. A special case of panel data models is dynamic in nature. A complication regarding a dynamic panel data model that includes the lagged dependent variable is endogeneity bias of estimates. Several approaches have been developed to account for this problem. In this paper, the panel models were estimated using the Common Correlated Effects estimator (CCE) of dynamic panel data which also accounts for cross-sectional dependence which is caused by common structures of the economy. In presence of cross-sectional dependence standard OLS gives biased estimates. In this study, U.S housing price dynamics were examined empirically using the dynamic CCE estimator with first-difference of housing price as the dependent and first-differences of per capita income, interest rate, housing stock and lagged price together with deviation of housing prices from their long-run equilibrium level as independents. These deviations were also estimated from the data. The aim of the analysis was to provide estimates with comparisons of estimates between 1980-1999 and 2000-2012. Based on data of 50 U.S cities over 1980-2012 differences of short-run housing price dynamics estimates were mostly significant when two time periods were compared. Significance tests of differences were provided by the model containing interaction terms of independents and time dummy variable. Residual analysis showed very low cross-sectional correlation of the model residuals compared with the standard OLS approach. This means a good fit of CCE estimator model. Estimates of the dynamic panel data model were in line with the theory of housing price dynamics. Results also suggest that dynamics of a housing market is evolving over time.

Keywords : dynamic model, panel data, cross-sectional dependence, interaction model