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“Urban House Prices: A Tale of 48 Cities“

The authors present an empirical analysis of the determinants of apartment prices based on nominal asking prices per square metre in 48 cities across 24 countries. The price data are collected from online platforms, and city-specific average prices are regressed on potential explanatory (nominal) variables in a cross-section approach. Using OLS and quantile regressions the authors find significant effects of nominal GDP per capita, population density, the unemployment rate and a measure of income inequality. Also mortgage loans appear to have some explanatory power. Further, the authors use the fitted values for apartment prices from the regression as a measure of the fundamental apartment prices. The regression residuals at city-level are taken as a measure of over- or undervaluation of apartments.

Given the statistical problems which in many cases plague time-series data on house prices, adopting a cross-country perspective is a potentially fruitful approach and is a contribution to the literature. Focusing on cities is desirable as a comparison of national averages might not be very meaningful. Also, the classical approach to measuring deviations from fundamental residential property prices by the regression residuals is appreciated.

The analysis is based on a rich cross-sectional data set, which has the potential to yield important insights. The informational value-added from the cross-country variation comes at the expense of some important data limitations in other respects (asking prices vs. transaction prices, no quality adjustment of apartment prices, only approximate match of prices with regional explanatory variables, no standard way of adjusting for the general price level...). It is important to carefully address these issues for the analysis to be entirely convincing, especially with regard to the conclusions about over- and undervaluations of property.

On the regression analysis:

First, country-specific nominal apartment prices might reflect differences in past inflation rates, which might also affect nominal GDP per capita. A conversion to real/relative prices is advisable. Using the nominal exchange rate for non-euro area countries and no conversion at all for euro area countries implicitly assumes that purchasing power parity holds (real exchange rate = 1). For residential property this is highly questionable! Therefore a real exchange rate should be used to make nominal apartment prices across countries comparable.

Second, the approximation of city-specific explanatory variables by region-specific data or extrapolated national data is unsatisfactory. After all, the point of the analysis is to use city-specific data. In some cases, the city-specific share of the national variable could be extrapolated for a more reliable proxy.

Third, a measure for the supply of apartments is omitted in the regression equations, potentially biasing the coefficients on the remaining variables. A given increase of GDP per capita

might have differential effects on apartment prices depending on the existing stock of housing at the beginning of the period. Also, omitting the supply side in a cross-sectional regression of apartment prices might make the fitted values appear unduly high (the negative impact of housing supply on prices might be partly included in the residual), mistakenly producing signs of undervaluation of property.

Fourth, the (lagged) homeownership rate and mortgage loans per capita might be endogenous to apartment prices. (Past) Homeownership might be high due to high expected apartment prices. More generally, homeownership rates should reflect a tenure choice, which should be driven by the relative costs of renting vs. owning, but not by the levels of rents or prices. The national amount of mortgage financing partly reflects apartment prices in the big cities. Mortgage supply measures such as the loan-to-value ratio or qualitative supply conditions might be preferable.

Fifth, to get a feeling for the effects of the missing quality adjustment and of working with asking prices it is suggested to compare the price data with quality-adjusted transaction prices from other sources at least for some countries, possibly using the Eurostat data mentioned on p. 3.

On the valuation exercise:

Strictly speaking, the conclusions about over- and undervaluations refer to sellers' asking prices. The link to actual prices requires an assumption about the wedge between asking and transaction prices, which could vary across countries and which might be related to the explanatory factors.

Ideally, to construct the fundamental value, only cities which do not display over- nor undervaluation of property should be included in the reference sample. This requires an *a priori* judgment which should be complemented by a variety of sensitivity checks (i.e. systematically varying the reference sample).