

Answer to the referee report 1 to the paper

Urban House Prices: A Tale of 48 Cities

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- While being an interesting question in general, the authors do not pay enough attention to fundamentals explaining house price differences. Instead of constructing the expected price for a standard apartment (same size, location, age, distance from city center, furnishing, schools in neighborhood, etc.) they use the average price which certainly is distorted. Hedonic regressions might help to extract “standard” apartments.

Our answer: We can definitely do some quality adjustment of the house prices. In particular, we can account for the size and location — the two major determinants of the purchase price of dwellings. Nevertheless, many of the above mentioned determinants (the furnishing as well as amenities such as schools and parks in the neighborhood) are not available and extremely difficult to obtain for such a huge of number cities. This could be a topic of future research. We did such a detailed analysis for Berlin (see Mense and Kholodilin, 2014 and Kholodilin and Michelsen, 2014) and it took several months to collect all this information just for one city.

- Furthermore, it is difficult to interpret average OLS fitted values as fundamental prices. A number of other definitions for fundamental prices exists, such as the relationship between

the costs of renting versus the price of buying or the number of years required to refinance an apartment purchase via rents, etc.

Our answer: The importance of rental sector varies largely across cities and countries. For instance, in Berlin, the homeownership rate is about 14%, while in Barcelona it exceeds 80%. So, the rent-based price is extremely relevant for Berlin but rather irrelevant for Barcelona. Moreover, we do not dispose of these data. In order to obtain them we would have to download them from the respective internet real-estate portals. We did not do this 2012 and now it is virtually impossible to get the historical data. Furthermore, other studies addressing similar question for Germany—a country known for its large housing rental sector—do not do this, see Kajuth et al. (2013).

- The authors abstract from macroeconomic circumstances, different tax policies and housing and income subsidies, as well as from monetary policy settings. Housing subsidies/tax subsidies are important and missing in an international comparison. How many apartments are owned by the government, or by housing co-operatives?

Our answer: This is only partly true. The macroeconomic factors were taken into account: for example, a city-level GDP per capita. The institutional factors might be important and their impact on house price levels could be a nice topic for a future research. Our objective in this study was just to compute the price levels and estimate their deviations from some rough measure of fundamental price. Moreover, the institutions are extremely difficult to measure as our own experience shows, see Kholodilin and Ulbricht (2014). As far as we know no ready measures for them exist in the literature at the city level, for the policies can differ not only across countries but also across municipalities. We would be

really grateful to the referee if he could indicate us a relevant study.

- In a number of studies user costs have been named to be an important driver for house price levels. The authors do not include user costs in their study. If mortgage rates are not included a significant determinant of house price developments is missing. The amount of mortgage loans is not sufficient. The authors use population density as a measure for the demand for housing. Often high house prices can be observed if a mismatch between supply in housing and demand for housing exists. Therefore it might be helpful to also include the mismatch between supply and demand for instance by the number of new residents moving to a city and the number of newly constructed apartments or by the vacancy rate. Some reported overvaluations might become obsolete if user costs and the mismatch between supply and demand are controlled for.

Our answer: We tried to collect the data on the comparable average mortgage interest rates. However, it turned out to be very difficult due to a large variation in maturities, collateral, loan-to-value (LTV) ratios, and other crucial factors determining the financing costs. You may have data for, say, 10-year loans with a fixed interest rate for Norway and 2-year loans with a flexible interest rate and 110% LTV for Spain. What is the comparable interest rate? The mismatch between supply and demand of housing is a nice point and can be addressed.

- How are construction costs controlled for? Less material (heating, etc.) is required to build an average apartment house in Lisbon compared to Oslo.

Our answer: It is another nice point. Unfortunately, once again we are confronted with poor data availability for such a large international cross section. However, we could use

the temperature data as a proxy for climate conditions and hence building cost.

- The used price per square meter depends on the reported square meters. Are square meters measured in the same way in all covered European countries? For instance, how are sloping roofs, cellars and balconies accounted for? Otherwise a bias might be introduced. Our answer: No information on the measuring practices used by the internet users supplying their real-estate announcements is available to us. However, we don't think that the resulting bias would be large. A couple of square meters lost due to taking into account the sloping roof should not have any noticeable impact on the results. Moreover, it can be assumed that in many cases the living area is anyway estimated by the seller using some kind of a rule of thumb.

- A questions which comes into mind is how are city limits defined? Is Heathrow part of London? Is Potsdam part of Berlin?

Our answer: Typically, in the internet real estate ad portals, the administrative borders are clearly delineated. So, all the advertisements for Berlin should belong to the official administrative region of Berlin. Indeed, the satellite towns may be closely related to the metropolis. However, the task of identifying an "economic city" in a sense of a common market as opposed to the "administrative city" as defined by official documents and statistics is a paramount one and goes well beyond the limits of the paper. We are aware of the attempts of the OECD to define the metropolitan areas in the sense of the referee and to collect the corresponding statistics, see <http://www.oecd.org/regional/redefiningurbananewwaytomeasuremetropolitanareas.htm>. However, the database does not include all the cities from our sample: In particular, the cities in the former

USSR countries are missing. Furthermore, to assign single observations (dwellings) to these areas would require the knowledge of their coordinates. Tackling this challenge could be a nice extension for this paper in some future research.

- The overall price level in the economy and exchange rates should be controlled for. Comparisons of house prices across European countries are difficult given different exchange rate regimes. To check for the robustness of results for London, Istanbul, Moskva purchasing price parities and others might be used. For instance, given the strong currency depreciations of the Russian Ruble, the housing market in Moskva might be undervalued these days instead of overvalued as the results suggest for 2012. The same holds true for Odessa and others. The Turkish Lira has lost one third of its value against the Euro from 2005 to the first months of 2012. Therefore the stated undervaluation of flat prices in Istanbul is no surprise and can partly be attributed to the exchange rate effect.

Our answer: This is a very good point and we will definitely address it.

- Can the authors provide more descriptive statistics on the data (explanatory variables)?

Our answer: We can and will do it.

- The authors claim that one major contribution of their work is the construction of a European regional dataset on house prices. Yet the dataset is biased towards German (7), Russian (7) and Ukrainian (4) cities. All other countries are represented by only one or two cities.

Our answer: This is simply not true! France is represented by 3 cities (Paris, Lyon, Marseille), Italy is represented by 4 cities (Milan, Naples, Rome, Turin), Spain is represented by 4 cities (Barcelona, Madrid, Seville, Valencia). Our major selection criterion was the

city size: only cities with population exceeding 500,000 or in their absence the capital cities were included in the sample.

- It would be nice if the authors could report how many and what kind of outliers have been removed. Do the outliers share common features? The results have so far only been compared to results on German house price levels. It would be nice to extend the comparison with findings in the literature also for other real estate markets.

Our answer: In order to recognize outliers a standard statistical criterion was used: If an observation is higher (lower) than the median by 1.5 times interquartile range, it is dropped from the sample. This was done for each city separately. The characteristics of the dropped observations can be reported.

References

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