Answer to the invited reader report 2 to the paper

Urban House Prices: A Tale of 48 Cities

March 31, 2015

1   Major comments:

1. If I'm not mistaken Fig. 1 suggests that there is substantial heteroskedasticity. I assume all standard errors have HAC correction.

   Our answer: Yes. For OLS regression, we used the Newey-West Bartlett HAC standard errors, while for quantile regression the bootstrapped standard errors were used.

2. I would like to see a plot of the total price vs total size to be convinced that price per m^2 is a good indicator. Moreover the scaling might differ across cities, and this can drive some of the results.

   Our answer: See Figure 1.

2   Minor comments:

3. Fig.1 seems to suggest a normal distribution of prices, or at least some unimodal symmetric distribution. I would be curious to see its shape and some tests of Normality. I

Figure 1: Total price vs. total area
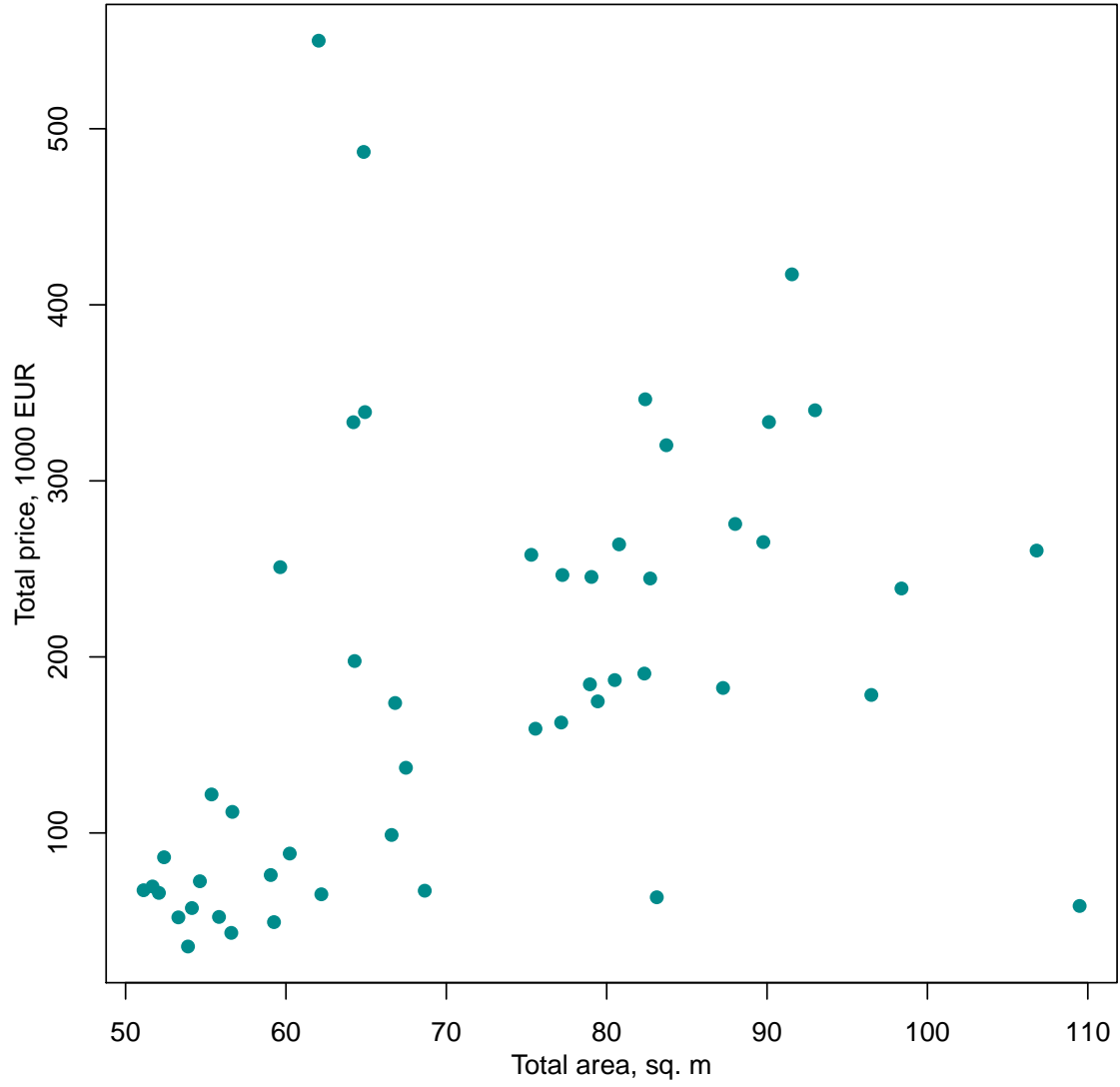
was expecting some skewness, perhaps a lognormal, so I find it interesting. (I am not arguing the authors must do it, and it is appreciated that the authors are sharing their data).

Our answer: Table 1 reports the p-values of three different normality tests for prices and logs of prices for each city. According to all tests, the distribution of offer prices in all cities, except Oslo, is not normal. In Dublin, the prices appear to follow a log-normal distribution. Figure 2 depicts the empirical density function of offer prices for each city. Most of the distributions are unimodal. However, in several cities, such as Tallinn, Athens, Düsseldorf, Frankfurt, and Kazan the prices seem to follow a bimodal distribution. In many cities, the price distribution is right (positively) skewed.

4. Is there any evidence of price difference between months (seasonal effects)?

Our answer: Our general experience with this kind of data shows us that there are hardly any seasonal effects in the offer prices for dwellings. By contrast, the number of dwellings offered for sale might be subject to seasonal effects.

5. If a flat is not sold in January, are you recollecting it in February?

Our answer: Yes. Typically, we dropped only double advertisements (using the unique identification numbers) if they were found within a month.

6. section 2 p.2: How do you justify using 7.5%/3% to correct for the fee in the French and Dutch system?

Our answer: In France the price is expressed as *FAI* (*frais d'agence inclus*), that is, including the realtor's fee. The fee can vary between 5% and 10% of the dwelling's value. To make the things more complicated, it is subject to changes depending on the economic

Figure 2: Offer price distribution by city
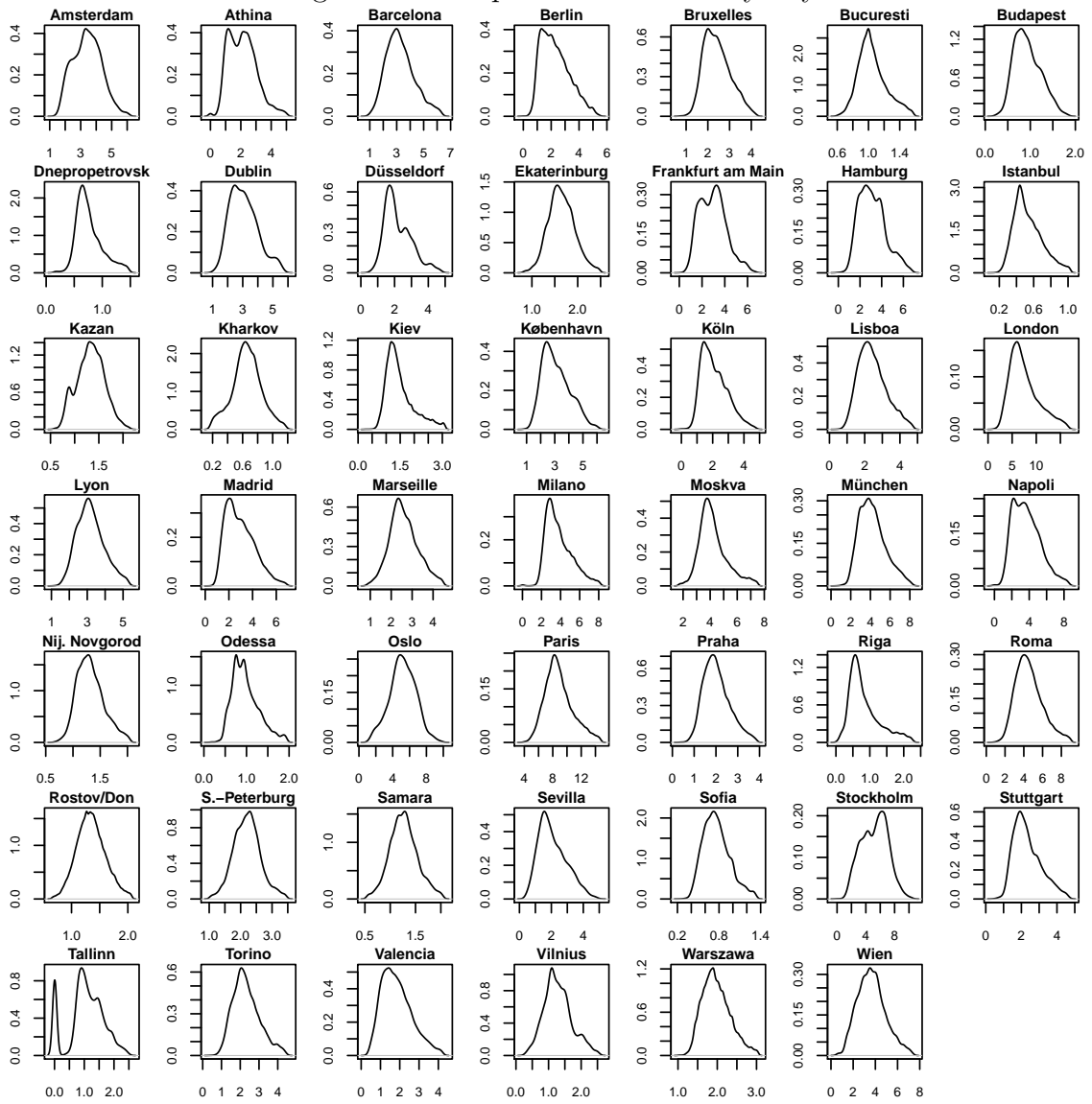
situation. In the middle of a speculative bubble, the realtors have a stronger bargaining power and can charge even higher fees. When the housing market is in downturn, the fees decline. In the Netherlands, almost 90% of ads are *k.k.* (*kosten koper*), i.e., they contain the transaction costs, which can achieve 7.5% of the original dwelling's value and include property tax, realtor' fee, and land registry payment. The rest of flats —usually the new ones— are *v.o.n.* (*vrij op naam*), that is, include the loan-related costs, which represent 3% of the flat's value[1].

7. "The small model and keeps": delete "and"?

Our answer: Thank you, we will change that.

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[1]The transaction costs in that case are paid by the seller.

Table 1: Tests for normality of the dwelling offer prices: p-values

City	Price			Log of price		
	Anderson-Darling	Cramer von Mises	Lilliefors	Anderson-Darling	Cramer von Mises	Lilliefors
Amsterdam	0	0	0	0	0	0
Athina	0	0	0	0	0	0
Barcelona	0	0	0	0	0	0
Berlin	0	0	0	0	0	0
Bruxelles	0	0	0	0	0	0
Bucuresti	0	0	0	0	0	0
Budapest	0	0	0	0	0.003	0.003
Dnepropetrovsk	0	0	0	0	0	0
Dublin	0	0	0	0.118	0.141	0.357
Düsseldorf	0	0	0	0	0	0
Ekaterinburg	0	0	0	0	0	0
Frankfurt am Main	0	0	0	0	0	0
Hamburg	0	0	0	0	0	0
Istanbul	0	0	0	0	0	0
Kazan	0	0	0	0	0	0
Kharkov	0	0	0	0	0	0
Kiev	0	0	0	0	0	0
København	0	0	0	0	0	0
Köln	0	0	0	0	0	0
Lisboa	0	0	0	0	0	0
London	0	0	0	0	0	0
Lyon	0	0	0	0	0	0
Madrid	0	0	0	0	0	0
Marseille	0	0	0	0	0	0
Milano	0	0	0	0	0	0
Moskva	0	0	0	0	0	0
München	0	0	0	0	0	0.001
Napoli	0	0	0	0	0	0
Nij. Novgorod	0	0	0	0	0	0
Odessa	0	0	0	0	0	0
Oslo	0.031	0.162	0.192	0	0	0
Paris	0	0	0	0	0	0
Praha	0	0	0	0	0	0.001
Riga	0	0	0	0	0	0
Roma	0	0	0	0	0	0
Rostov/Don	0	0	0	0	0	0
S.-Peterburg	0	0	0	0	0	0
Samara	0	0	0	0	0	0
Sevilla	0	0	0	0	0	0
Sofia	0	0	0	0	0	0
Stockholm	0	0	0	0	0	0
Stuttgart	0	0	0	0	0	0
Tallinn	0	0	0	0	0	0
Torino	0	0	0	0	0	0
Valencia	0	0	0	0	0	0
Vilnius	0	0	0	0	0	0
Warszawa	0	0	0	0	0	0
Wien	0	0	0	0	0	0