

Levels and development of real estate prices in different Austrian regions

After a period of more or less stable real estate prices at the beginning of the 21st century, the prices have shown a sharp rise since around 2007 especially in Vienna, the other federal capitals and its surroundings, whereas in the rural periphery and also in the alpine regions prices remained stable. A hedonic model is used for four different types of regions and the results (single family houses and owner occupied apartments) are compared to a descriptive analysis.

Descriptive Analysis

Owner Occupied Apartments (OOA)

Prices in Euro per sqm floor space

Year	Vienna	Agglomerations	Alpine Regions	Rural Periphery
2007	2512,2349	1964,4089	1982,6653	1679,0365
2008	2423,3649	1877,1749	1863,3359	1468,5353
2009	2419,2188	1766,7044	1548,6482	1314,8034
2010	2771,6487	1989,7801	1762,5661	1335,0912
2011	3213,8976	2326,4212	2056,2911	1523,1885
2012	3613,5042	2566,1785	2184,6693	1540,5219
2013	3900,8116	2694,6450	2289,7707	1782,4728
2014	3834,8112	2743,8463	2346,2231	1914,5340
2015	4174,8258	2925,6426	2742,8142	1927,0977

[Click Here to upgrade to Unlimited Pages and Expanded Features](#)

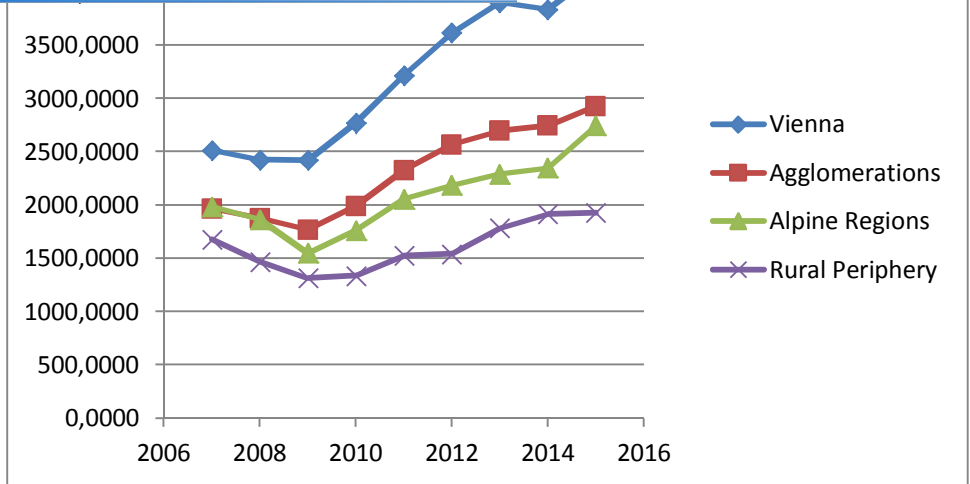


Fig. 1 Price levels of OOA

Single Family Houses (SFH)

Prices in Euro per sqm floor space

Year	Vienna	Agglomerations	Alpine Regions	Rural Periphery
2007	3228,1548	2249,4776	1850,3657	1442,5537
2008	3246,4512	2082,2781	1762,7028	1457,5265
2009	3226,5000	2095,9728	1484,0082	1368,9732
2010	3401,2582	2238,6561	1556,8036	1392,4867
2011	3757,2121	2296,5214	1621,1784	1368,6601
2012	4531,0738	2467,5677	1857,1878	1470,3455
2013	5179,2837	2540,7185	1827,1237	1473,2289
2014	4298,4884	2607,8120	2030,4381	1585,7547
2015	4185,8900	2689,2429	2069,3400	1545,0695

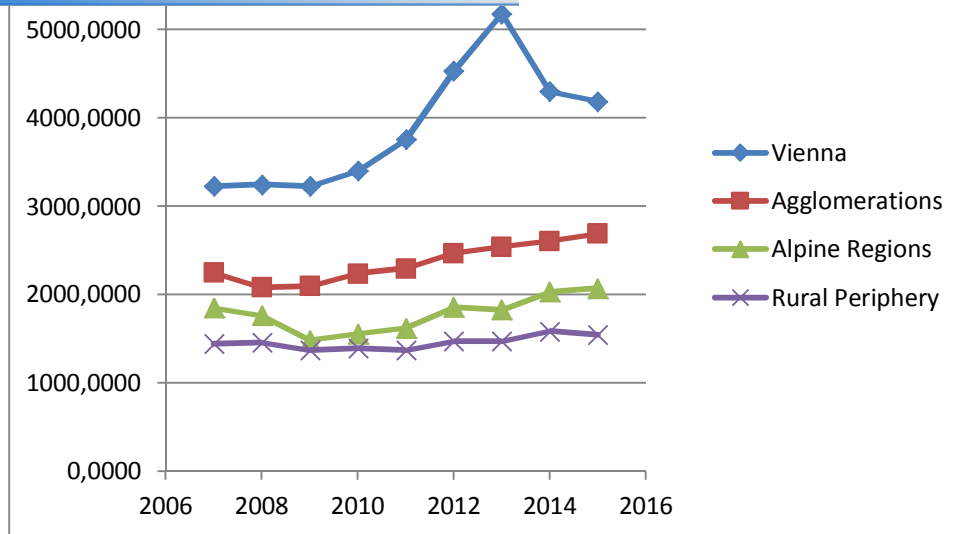


Fig. 2 Price levels of SFH

Hedonic Models

In order to analyse the development of the prices a „Time Dummy“ index is calculated.

Owner occupied Apartments

UNIANOVA

```
lnp BY zust1 alter jind bez WITH lnm gar bad terrf balk /METHOD = SSTYPE(3)
/INTERCEPT = INCLUDE
```

- lnp log of price
- zust1 state of repair (5 categories)
- alter age (10 categories)
- jind time dummy (year)
- bez district
- lnm log of floor space
- gar number of garages
- bad number of bathrooms
- balk number of balconies
- terr Space of terraces

Analysis of Variance

Abhängige Variable: Inp

Quelle	Typ III Quadratsu mme	df	Quadratischer Mittelwert	F	Sig.
Korrigiertes Modell	152,172 ^a	56	2,717	43,362	,000
Konstanter Term	117,442	1	117,442	1874,086	,000
zust1	5,132	3	1,711	27,299	,000
jind	2,964	8	,370	5,912	,000
alter	8,823	9	,980	15,644	,000
bez	43,149	31	1,392	22,211	,000
lnm	21,742	1	21,742	346,947	,000
gar	1,467	1	1,467	23,404	,000
bad	,004	1	,004	,069	,793
terr	,227	1	,227	3,615	,058
balk	,755	1	,755	12,045	,001
Fehler	33,840	540	,063		
Gesamtsumme	89360,482	597			
Korrigierter Gesamtwert	186,012	596			

a. R-Quadrat = ,818 (Angepasstes R-Quadrat = ,799)

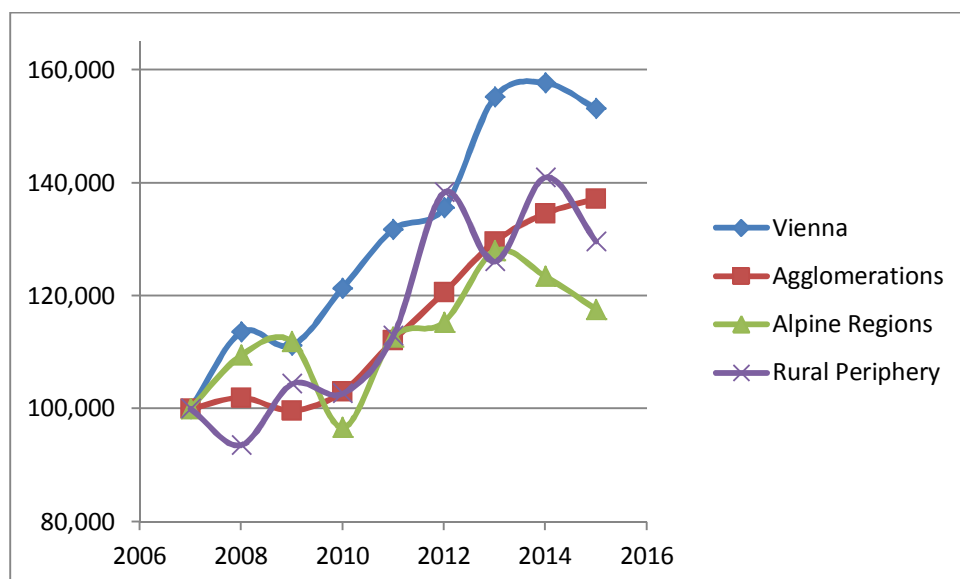


Fig. 3 Development of the prices of OOA (2007=100)



Your complimentary
use period has ended.
Thank you for using
PDF Complete.

[Click Here to upgrade to
Unlimited Pages and Expanded Features](#)

UNIANOVA

```
lnp BY zust1 alter jind bez WITH lnm lngru gar bad terrf balk /METHOD = SSTYPE(3)  
/INTERCEPT = INCLUDE
```

lnp log of price
zust1 state of repair (5 categories)
alter age (10 categories)
jind time dummy (year)
bez district
lnm log of floor space
lngru log of plot space
gar number of garages
bad number of bathrooms
balk number of balconies
terr Space of terraces

Analysis of Variance

Abhängige Variable: Inp

Quelle	Typ III Quadratsumme	df	Quadratischer Mittelwert	F	Sig.
Korrigiertes Modell	1935,310 ^a	49	39,496	318,638	,000
Konstanter Term	1130,952	1	1130,952	9124,036	,000
zust1	23,484	4	5,871	47,364	,000
jind	50,256	8	6,282	50,680	,000
alter	9,162	9	1,018	8,213	,000
bez	233,139	22	10,597	85,494	,000
lnm	391,830	1	391,830	3161,118	,000
Ingru	41,288	1	41,288	333,097	,000
gar	16,388	1	16,388	132,212	,000
bad	,010	1	,010	,081	,776
terrf	9,455	1	9,455	76,275	,000
balk	,500	1	,500	4,033	,045
Fehler	495,069	3994	,124		
Gesamtsumme	699170,775	4044			
Korrigierter Gesamtwert	2430,379	4043			

a. R-Quadrat = ,796 (Angepasstes R-Quadrat = ,794)

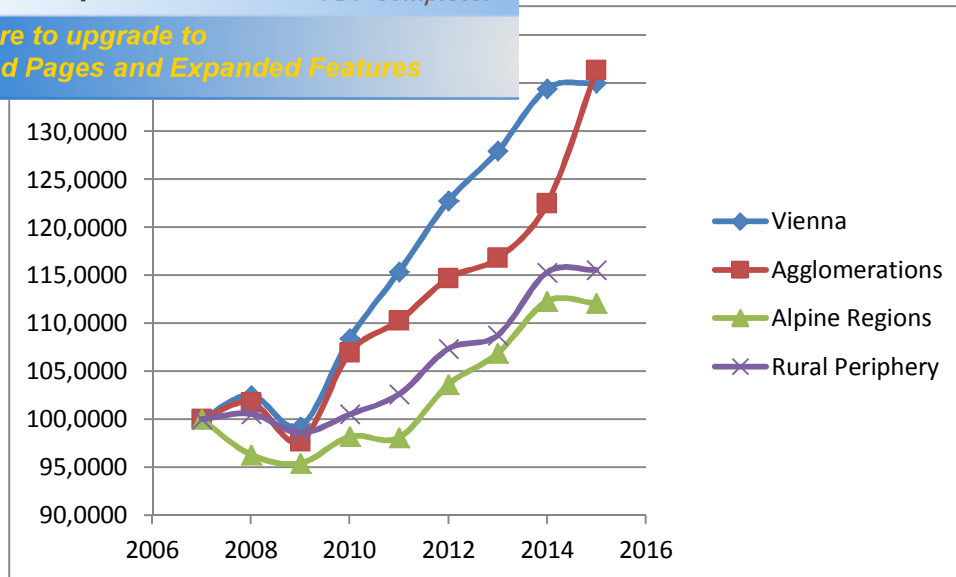


Fig. 4 Development of the prices of SFH

Findings

Descriptive analysis and the hedonic models show different behaviour concerning OOA (fig. 1 and fig. 3). For Vienna the hedonic model shows a slight decline and the rural periphery increases stronger than the alpine region in the hedonic model.

On the other hand hedonic models show a stronger increase in all regions compared to the descriptive analysis

References

- Altissimo, F., E. Georgiou, T. Sastre, M. T. Valderrama, G. Sterne, M. Stocker, M. Weth, K. Whelan und A. Willman. 2005.** Wealth and Asset Price Effects on Economic Activity. Occasional Paper Series 29. EZB. Juni.
- Ando, A. und F. Modigliani. 1963.** The Life-Cycle Hypothesis of Saving: Aggregate Implications and Tests. In: American Economic Review 103. 55–84.
- Brunauer, W., S. Lang, P. Wechselberger und S. Bienert. 2010.** Additive Hedonic Regression Models with Spatial Scaling Factors: An Application for Rents in Vienna. In: Journal of Real Estate Finance and Economics 41(4). 390–411.
- Case, K., J. Quigley und R. Shiller. 2005.** Comparing Wealth Effects: The Stock Market Versus the Housing Market. In: Advances in Macroeconomics 5(1).
- Europäische Kommission. 2010.** Experimental House Price Indices for the Euro Area and the European Union.



*Your complimentary
use period has ended.
Thank you for using
PDF Complete.*

[Click Here to upgrade to
Unlimited Pages and Expanded Features](#)

age/portal/hicp/documents_meth/OOH_HPI/HPI_Research
.Februar 2013).

Europäische Kommission. 2011. Handbook on Residential Property Prices Indices. November.
http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/methodology/owner_occupied_housing_hpi/rppi_handbook (recherchiert am 13.Februar 2013).

Knight, J. 2002. Listing Price, Time on Market, and Ultimate Selling Price: Causes and Effects of Listing Price Changes. In: Real Estate Economics 30(2). 212–237.

Wood, S. 2006a. An Introduction to Generalized Additive Models with R. Boca Raton: Chapman and Hall.

Wood, S. 2006b. Low-Rank Scale-Invariant Tensor Product Smooths for Generalized Additive Mixed Models. In: Biometrics 62(4). 1025–1036.

Thank You for Your attention !