

# Online Appendix

“Anatomy of regional price differentials: evidence from micro price data”

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## Appendix A

As outlined in Section “Methodology”, the compilation of the regional price levels proceeds in four stages. At Stages 2 to 4, weighted CPD regressions are applied. Each of these regressions aggregates the price vectors of the previous stage. This multi-stage approach allows us to include, at each stage, price vectors from external data sources along with price vectors computed by various methods (e.g. hedonic regression). This Appendix describes Stages 1 and 2 in more detail. Furthermore, it documents the estimation results of the hedonic regression.

### Stage 1: Regional Price Levels Relating to the Same Basic Heading and Outlet Type

For individual products neither quantity information nor weights are available. Therefore, we use the unweighted CPD regression (1), where each dummy variable  $object_j$  represents an individual product. Beforehand, however, we split the price data set of each basic heading  $b$  ( $b = 1, \dots, B$ ) into  $L_b$  price data sets each of which relates to a different outlet type  $l$ . For example, Table 4 contains a price data set related to the basic heading  $b =$  rice. Since only two different outlet types occur, one may split that price data set into one relating to the outlet type discount stores and a second one relating to the outlet type supermarket, that is,  $L_{rice} = 2$ .

The price matrix of Table 4 exhibits a peculiarity leading to a modified splitting procedure. In the terminology of the [World Bank \(2013, p. 98\)](#) the price matrix is “not connected”, because regions A, B, and C form one block of regions and regions D and E form a second block of regions and price comparisons between the two blocks are not possible. The standard approach to deal with such price matrices is to exclude the price observations related to one of the two blocks or, even more radical, to exclude the complete basic heading. Clearly, both variants lead to a loss of valuable information. Therefore, we introduce a different approach. Instead of splitting the price matrix into two blocks (one for supermarkets and one for discount stores), we would assign Products 1 and 2 to outlet type “discount store (regions A, B, C)”, Products 3 and 4 to outlet type “discount store (regions D, E)”, and Products 5 and 6 to outlet type “supermarket”. As a consequence,

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<sup>1</sup> See <http://dx.doi.org/10.1080/17421772.2020.1729998>.

we obtain  $L_{\text{rice}} = 3$  data sets. The regions within each of these data sets are connected. This splitting approach extracts the maximum information from Table 4. We apply this approach to all basic headings.

The number of resulting outlet types,  $L_b$ , differs between the basic headings of our price data set. Within each basic heading, we conduct  $L_b$  separate CPD regressions. Each of them aggregates all price observations relating to the same basic heading,  $b$ , and the same outlet type,  $l$ , into a vector of  $R = 402$  estimated regional logarithmic price levels:  $\widehat{\ln P}_{bl} = \left( \widehat{\ln P}_{bl}^1 \dots \widehat{\ln P}_{bl}^{402} \right)$ . Due to the gaps in our price data set, some of the  $R = 402$  regional logarithmic price levels,  $\ln P_{bl}^r$ , cannot be estimated such that the corresponding vector,  $\widehat{\ln P}_{bl}$ , is incomplete.

## Stage 2: Regional Price Levels Relating to the Same Basic Heading

*Rent Levels:* Our rent data allow us to compute the regional rent levels by the hedonic regression approach. The data base comprises 15,267 flats that are located in 381 of the 402 regions. For 643 observations, the data are incomplete. As a consequence, the number of observations available for the hedonic regression falls to  $N = 14,624$  and the number of regions to  $R = 366$ .

To indicate the region of a flat, we use dummy variables,  $\text{region}_i^r$  ( $r = 1, \dots, 366$ ), with  $\text{region}_i^r = 1$ , if flat  $i$  is located in region  $r$ , and  $\text{region}_i^r = 0$  otherwise. Besides its region, each flat is characterised by  $K = 6$  additional variables: living space in square metres ( $\text{sqm}_i$ ), length of tenancy in years ( $\text{len}_i$ ), quality of equipment ( $\text{equ}_i$ , three levels: low, medium, high), quality of the residential area ( $\text{area}_i$ , four levels: low, medium, high, very high), private versus social housing ( $\text{priv}_i$ ), and existence of a built-in kitchen ( $\text{kit}_i$ ).

To account for regional heterogeneity we incorporate interaction terms for the intercept. A simple Box-Cox test suggests that a logarithmic specification of the regression model is more appropriate than a fully linear or a log-linear specification. Furthermore, a linear specification would most likely suffer from heteroskedasticity. Our hedonic regression model has the following form:

$$\begin{aligned} \ln \text{rent}_i &= \alpha + \sum_{r=1}^{366} \beta_{0r} \text{region}_i^r + \beta_1 \ln \text{sqm}_i \\ &\quad + \beta_2 \text{priv}_i + \beta_3 \ln \text{len}_i + \beta_4 \text{priv}_i \ln \text{len}_i \\ &\quad + \sum_{e=1}^2 \beta_{5e} \text{equ}_e + \sum_{a=1}^3 \beta_{6a} \text{area}_a + \beta_7 \text{kit}_i + u_i . \end{aligned} \tag{A.1}$$

The error term  $u_i$  is assumed to be normally distributed with expected value 0 and variance  $\sigma^2$ .<sup>2</sup> To avoid perfect multicollinearity, we impose the restriction that  $\sum_{r=1}^{366} \widehat{\beta}_{0r} = 0$ .

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<sup>2</sup> Weinand and Auer (2019, p. 34-35) show that the predicted rent,  $\widehat{\ln \text{rent}}^r$ , is not affected when in

Table 1 contains the summary statistics of the hedonic regression (A.1).<sup>3</sup>

Dependent variable: $\ln(rent_i)$	
Intercept	2.621 (0.031) ***
$region_i^r = \text{Frankfurt}$	0.556 (0.043) ***
$region_i^r = \text{Munich}$	0.511 (0.012) ***
⋮	⋮
$region_i^r = \text{Stuttgart}$	0.414 (0.013) ***
⋮	⋮
$region_i^r = \text{Hamburg}$	0.301 (0.041) ***
⋮	⋮
$region_i^r = \text{Cologne}$	0.282 (0.015) ***
⋮	⋮
$region_i^r = \text{Dusseldorf}$	0.257 (0.017) ***
⋮	⋮
$region_i^r = \text{Berlin}$	0.185 (0.008) ***
⋮	⋮
$region_i^r = \text{Wunsiedel}$	-0.389 (0.055) ***
$\ln(sqm_i)$	0.846 (0.007) ***
$priv_i = \text{social housing}$	-0.254 (0.040) ***
$\ln(len_i)$	-0.046 (0.001) ***
$\ln(len_i) priv_i = \text{social housing}$	0.019 (0.005) ***
$equ_{1i} = \text{low}$	-0.039 (0.004) ***
$equ_{2i} = \text{high}$	0.107 (0.006) ***
$area_{1i} = \text{low}$	-0.042 (0.006) ***
$area_{2i} = \text{high}$	0.052 (0.004) ***
$area_{3i} = \text{very high}$	0.141 (0.008) ***
$kit_i = \text{no}$	-0.044 (0.004) ***
Number of observations	= 14624
Residual standard error	= 0.183
Adjusted $R^2$	= 0.748
$F$ -statistic:	116.9 on 375 and 14248 degrees of freedom, $p$ -value: < 0%
Significance level:	*** < 0.1%, ** < 1%, * < 5%

**Table 1:** Estimated coefficients of hedonic regression model (A.1) with White's (1980) heteroskedasticity-robust standard errors in brackets. Regional fixed effects for variable  $region_i^r$  in descending order from highest ( $r = \text{Frankfurt}$ ) to lowest ( $r = \text{Wunsiedel}$ ).

To compute each region's rent level, we define a reference flat and compile for each region the logarithm of the rent that, according to our hedonic regression, must be paid for this reference flat,  $\widehat{\ln rent^r}$ .<sup>4</sup> Our reference flat is privately financed and it has a built-in

(A.1) instead of  $\ln(rent_i)$  the endogenous variable  $\ln(rent_i/sqm_i)$  is used.

<sup>3</sup> For the interpretation of coefficients relating to dummy variables some care is warranted, because the endogenous variable is logarithmic. Elaborating a comment by Halvorsen and Palmquist (1980, p. 474), Kennedy (1981, p. 801) recommends to compute the adjusted coefficient

$$\hat{\beta}^* = e^{\hat{\beta} - 0.5\text{var}(\hat{\beta})} - 1 .$$

This adjusted coefficient indicates the percentage change in the rent caused by a change of the dummy variable from the value 0 to the value 1.

<sup>4</sup> Clearly, as no interaction terms between the regional dummy variables and the other variables are

kitchen. The quality of the equipment and the residential area are classified as medium. Additionally, we assume for the reference flat a living space of 65 square metres and a length of tenancy of 7 years. Both values nearly coincide with the respective median of all flats in the rent data. For each of the 366 regions included in the hedonic regression, we are able to compute the predicted logarithmic rent that must be paid for the reference flat.

As pointed out before, the rent data of 15 other regions were incomplete. For these regions, we merely know the rent and the size of the flats. Therefore, we do not include these regions in the hedonic regression. Instead, we calculate the region's average rent per square metre as a simple geometric mean and we multiply this number by 65, the size of the reference flat. Finally, we combine the logarithms of these 15 average rents ( $\ln \overline{rent}^r$ ) with the predicted logarithmic rents from the hedonic regression ( $\widehat{\ln rent}^r$ ) to the vector  $\ln rent^r$ . The normalised logarithmic rent levels are

$$\widehat{\ln P_{\text{rent}}^r} = \ln rent^r - \ln rent^1, \quad \text{for } r = 1, \dots, 381. \quad (\text{A.2})$$

All regional rent levels are combined in the vector  $\widehat{\ln P_{\text{rent}}} = (\widehat{\ln P_{\text{rent}}^1} \dots \widehat{\ln P_{\text{rent}}^{402}})$ , with 21 values missing. This vector represents the five basic headings covered by the rent data set of the Federal Statistical Office.

As pointed out in Section “Data”, we received from the BBSR a complementary data set. It shows the regional logarithmic rent levels,  $\widetilde{\ln rent}^r$ , related to tenant changeovers in existing buildings and newly completed buildings. The normalised logarithmic rent levels

$$\ln \widetilde{P}_{\text{rent}}^r = \ln \widetilde{rent}^r - \ln \widetilde{rent}^1, \quad \text{for } r = 1, \dots, 402, \quad (\text{A.3})$$

are combined in the vector  $\ln \widetilde{P}_{\text{rent}} = (\ln \widetilde{P}_{\text{rent}}^1 \dots \ln \widetilde{P}_{\text{rent}}^{402})$ .

We split the total expenditure weight of rents (20.99%) into the weight of transactional rents (19.10%) and the weight of quoted rents (1.89%).<sup>5</sup> The rent level vectors  $\widehat{\ln P_{\text{rent}}}$  and  $\ln \widetilde{P}_{\text{rent}}$  complement the 645 vectors  $\widehat{\ln P_b}$  relating to goods and services that are estimated from the price data set. Consequently, their total weight is 79.01%.<sup>6</sup>

*Price Levels:* We aggregate the  $L_b$  estimated vectors  $\widehat{\ln P_{bl}} = (\widehat{\ln P_{bl}^1} \dots \widehat{\ln P_{bl}^{402}})$  relating to basic heading  $b$ , into the basic heading's vector of estimated regional logarithmic price levels,  $\widehat{\ln P_b} = (\widehat{\ln P_b^1} \dots \widehat{\ln P_b^{402}})$ . For example, according to our price data, milk is

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included in our hedonic regression (A.1), we could directly use the estimated regional rent levels  $\widehat{\beta}_{0r}$ . Our “reference flat”-approach, however, yields the same rent levels and, in addition, offers some more flexibility as shown in the following.

<sup>5</sup> This decomposition reflects the average tenant changeover rate in Germany in 2016. This rate was nearly 9% (Techem, 2017):  $(9/100) \cdot 20.99\% = 1.89\%$ .

<sup>6</sup> 47 of these basic headings exhibit a uniform price in all regions (e.g. books and cigarettes). Their combined expenditure weight is 12.25%.

sold in three different outlet types, namely in hypermarkets, supermarkets, and discount stores. Accordingly, in Stage 1 we computed three vectors  $\widehat{\ln P_{bl}}$ , with  $b = \text{milk}$  and  $l = (\text{hypermarket}, \text{supermarket}, \text{discount store})$ . For these three outlet types, expenditure weights are available. Therefore, we apply the weighted CPD regression model (2), where the logarithmic price levels  $\widehat{\ln P_{bl}^r}$  replace the logarithmic prices  $p_i^r$  and the dummy variables  $object_j$  represent outlet types, with  $object_j = 1$  when  $l = j$  and  $object_j = 0$  otherwise. The weights  $w_l$  replace the weights  $w_i$  and reflect the expenditure share of outlet type  $l$  within basic heading  $b$ .<sup>7</sup>

For each basic heading  $b$  ( $b = 1, \dots, B$ ) we conduct a separate weighted CPD regression (2) and compute from the estimated coefficients the regional logarithmic price levels  $\widehat{\ln P_b^r}$ . Adding to each vector the logarithmic price level of the reference region  $r = 1$ , we end up with  $B = 645$  different vectors  $\widehat{\ln P_b} = (\widehat{\ln P_b^1} \dots \widehat{\ln P_b^{402}})$ . Again, some of the logarithmic regional price levels,  $\ln P_b^r$ , cannot be estimated such that the corresponding vector,  $\widehat{\ln P_b}$ , is incomplete.

## Appendix B

The following table shows the price index numbers compiled for the 402 counties and cities. The column “TOTAL” shows for each region its overall regional price index number. The following three columns show the decomposed price index numbers for housing, goods and services. All price index numbers are normalised by their respective population weighted average. The corresponding txt-file is available on the journal’s homepage as supplementary material.

ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
01001	Flensburg	85,942	97.96	95.88	101.34	92.68
01002	Kiel	246,306	101.91	109.35	101.00	97.95
01003	Lübeck	216,253	102.96	109.91	100.73	102.19
01004	Neumünster	79,197	95.98	83.30	99.57	99.88
01051	Dithmarschen	132,917	98.12	97.52	99.83	95.02
01053	Herzogtum Lauenburg	192,999	99.54	104.05	98.53	98.04
01054	Nordfriesland	163,960	97.24	95.41	101.01	91.01
01055	Ostholstein	199,574	99.90	103.43	99.15	98.59
01056	Pinneberg	307,471	105.80	125.90	100.72	101.66
01057	Plön	128,304	98.94	96.69	100.06	98.43
01058	Rendsburg-Eckernförde	270,378	96.34	91.63	99.92	92.86
01059	Schleswig-Flensburg	196,839	97.14	89.40	99.62	98.61
01060	Segeberg	267,503	105.64	138.03	100.63	93.74
01061	Steinburg	131,457	96.92	92.50	99.47	95.31
01062	Stormarn	239,614	102.21	114.82	98.34	100.76
02000	Hamburg	1,787,408	106.70	129.90	101.08	101.66
03101	Braunschweig	251,364	101.05	104.87	99.93	100.32
03102	Salzgitter	101,079	96.14	86.14	99.18	98.57
03103	Wolfsburg	124,045	102.04	111.61	98.41	102.34
03151	Gifhorn	174,205	98.18	94.25	99.31	99.14
03152	Göttingen	255,653	98.66	95.98	100.71	96.58
03153	Goslar	138,236	95.55	86.25	99.98	94.40
03154	Helmstedt	91,500	93.77	84.08	98.62	92.17
03155	Northeim	134,896	94.14	82.81	99.16	93.72
03156	Osterode am Harz	73,885	94.30	82.92	99.37	93.85
03157	Peine	132,320	99.42	97.88	99.70	100.12
03158	Wolfenbüttel	120,981	97.74	92.68	99.51	98.33

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<sup>7</sup> A justification for the use of expenditure shares can be found in Rao (2005, footnote 4, p. 575).

ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
03241	Region Hannover	1,144,481	102.14	108.61	100.94	99.51
03251	Diepholz	213,976	97.29	87.85	99.13	101.79
03252	Hameln-Pyrmont	148,281	93.64	82.36	98.75	93.00
03254	Hildesheim	277,055	97.39	91.70	99.41	97.99
03255	Holzminden	71,659	97.74	91.26	99.76	99.08
03256	Nienburg (Weser)	120,632	98.10	95.79	99.81	96.42
03257	Schaumburg	156,206	93.89	86.15	98.82	90.37
03351	Celle	177,971	96.90	91.75	98.19	98.60
03352	Cuxhaven	198,103	96.89	85.85	99.99	100.22
03353	Harburg	248,122	106.43	132.97	98.43	104.52
03354	Lüchow-Dannenberg	50,128	94.96	84.21	99.05	95.91
03355	Lüneburg	180,719	103.05	123.48	99.51	95.48
03356	Osterholz	113,579	99.44	101.71	100.35	95.67
03357	Rotenburg (Wümme)	163,253	95.92	99.29	96.51	91.94
03358	Heidekreis	140,264	96.13	89.94	99.87	93.60
03359	Stade	200,054	101.46	112.06	97.32	102.15
03360	Uelzen	93,131	95.69	85.55	99.41	96.80
03361	Verden	134,645	99.00	101.33	100.49	94.02
03401	Delmenhorst	76,323	96.53	93.97	98.33	94.86
03402	Emden	50,694	92.87	81.90	98.03	91.84
03403	Oldenburg (Oldb)	163,830	101.58	109.09	100.66	97.59
03404	Osnabrück	162,403	100.48	99.35	100.91	100.51
03405	Wilhelmshaven	75,995	94.56	86.77	98.38	93.29
03451	Ammerland	121,435	92.78	82.92	95.81	95.10
03452	Aurich	189,199	94.89	86.26	97.50	96.95
03453	Cloppenburg	164,734	94.15	80.70	96.26	102.12
03454	Emsland	319,488	95.11	88.10	99.24	92.51
03455	Friesland	97,900	94.79	83.69	99.90	93.95
03456	Grafschaft Bentheim	135,662	96.69	83.61	101.67	98.03
03457	Leer	167,548	96.97	92.65	100.12	94.04
03458	Oldenburg	128,608	96.56	101.12	96.06	93.92
03459	Osnabrück	358,079	93.40	85.23	95.83	95.42
03460	Vechta	137,866	94.43	95.22	96.71	89.07
03461	Wesermarsch	89,239	92.80	83.31	96.48	93.38
03462	Wittmund	57,173	95.53	81.80	99.90	98.79
04011	Bremen	557,464	101.47	106.47	99.50	101.64
04012	Bremerhaven	114,025	96.74	83.44	99.59	102.86
05111	Düsseldorf	612,178	107.07	123.73	102.22	104.83
05112	Duisburg	491,231	101.82	95.96	99.87	111.58
05113	Essen	582,624	102.23	104.91	101.02	102.64
05114	Krefeld	225,144	101.54	98.66	99.16	109.50
05116	Mönchengladbach	259,996	101.82	106.45	99.92	102.18
05117	Mülheim an der Ruhr	169,278	100.47	105.00	99.25	99.41
05119	Oberhausen	210,934	98.25	91.69	99.56	101.19
05120	Remscheid	109,499	99.16	92.70	99.78	103.51
05122	Solingen	158,726	101.57	101.47	100.14	104.81
05124	Wuppertal	350,046	104.79	97.15	100.83	121.35
05154	Kleve	310,337	97.75	93.74	99.16	98.17
05158	Mettmann	483,279	102.62	111.63	99.67	101.85
05162	Rhein-Kreis Neuss	450,026	101.99	110.98	99.92	99.30
05166	Viersen	297,661	98.55	96.41	100.11	97.03
05170	Wesel	462,664	103.38	94.20	100.09	119.86
05314	Bonn	318,809	103.13	111.18	98.36	107.24
05315	Köln	1,060,582	107.90	126.63	101.41	107.84
05316	Leverkusen	163,487	104.82	113.24	100.03	108.67
05334	Städteregion Aachen	553,922	101.52	98.77	100.17	106.95
05358	Düren	262,828	98.80	87.30	101.31	103.85
05362	Rhein-Erft-Kreis	466,657	102.54	112.93	99.81	100.24
05366	Euskirchen	191,165	99.10	95.03	100.10	100.45
05370	Heinsberg	252,527	97.88	89.73	100.41	99.63
05374	Oberbergischer Kreis	273,452	96.67	89.28	99.49	97.13
05378	Rheinisch-Bergischer Kreis	282,729	103.69	114.19	99.99	103.41
05382	Rhein-Sieg-Kreis	596,213	100.45	108.38	100.02	95.11
05512	Bottrop	117,143	98.60	93.93	98.92	101.96
05513	Gelsenkirchen	260,368	98.13	90.76	100.30	99.95
05515	Münster	310,039	103.37	115.73	99.45	102.20
05554	Borken	369,666	98.16	88.81	101.12	100.12
05558	Coesfeld	218,401	98.92	92.33	101.69	98.73
05562	Recklinghausen	617,807	98.31	90.78	99.68	102.03
05566	Steinfurt	443,374	97.33	91.86	100.14	96.07
05570	Warendorf	277,431	100.17	88.28	98.93	114.41
05711	Bielefeld	333,090	99.86	98.57	100.06	100.53
05754	Gütersloh	360,642	98.81	97.21	99.95	97.70
05758	Herford	252,122	98.72	87.84	100.68	104.37
05762	Höxter	144,010	95.47	82.06	99.89	98.33
05766	Lippe	350,750	96.10	89.79	99.60	94.17
05770	Minden-Lübbecke	313,050	95.37	86.97	99.91	93.18
05774	Paderborn	304,332	96.97	87.44	100.12	98.69
05911	Bochum	364,742	99.90	94.86	99.81	104.52
05913	Dortmund	586,181	101.06	94.92	100.11	108.71
05914	Hagen	189,044	98.61	88.80	99.84	104.84
05915	Hamm	179,397	97.79	89.55	99.58	101.27
05916	Herne	155,851	97.15	88.47	99.22	100.44

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ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
05954	Ennepe-Ruhr-Kreis	325,954	98.80	94.20	99.70	100.83
05958	Hochsauerlandkreis	263,762	95.58	80.16	100.41	99.61
05962	Märkischer Kreis	416,171	96.66	82.86	100.05	102.13
05966	Olpe	136,365	96.68	85.85	99.69	99.97
05970	Siegen-Wittgenstein	280,800	98.14	88.58	99.67	103.45
05974	Soest	302,995	97.40	92.86	100.49	94.76
05978	Unna	396,035	100.38	90.68	100.52	108.98
06411	Darmstadt	155,353	110.24	152.32	102.42	98.53
06412	Frankfurt am Main	732,688	111.50	166.01	101.35	98.10
06413	Offenbach am Main	123,734	105.83	135.43	101.14	94.90
06414	Wiesbaden	276,218	110.72	144.69	103.01	103.37
06431	Bergstraße	266,928	100.28	99.63	100.27	100.86
06432	Darmstadt-Dieburg	292,773	100.01	89.43	102.12	105.01
06433	Groß-Gerau	266,042	105.44	125.89	100.54	100.68
06434	Hochtaunuskreis	233,427	108.96	143.84	100.16	103.53
06435	Main-Kinzig-Kreis	411,956	106.82	137.94	100.70	97.90
06436	Main-Taunus-Kreis	232,848	109.32	153.76	100.03	99.45
06437	Odenwaldkreis	97,000	99.13	97.82	99.98	98.41
06438	Offenbach	347,357	101.01	106.31	100.23	98.40
06439	Rheingau-Taunus-Kreis	184,114	102.58	112.61	100.17	99.84
06440	Wetteraukreis	301,931	103.02	114.39	100.14	100.31
06531	Gießen	262,505	98.58	98.47	100.78	94.08
06532	Lahn-Dill-Kreis	253,167	98.78	95.24	100.06	99.08
06533	Limburg-Weilburg	171,922	97.09	84.08	101.63	99.23
06534	Marburg-Biedenkopf	245,241	103.92	114.17	100.33	103.59
06535	Vogelsbergkreis	107,256	100.41	91.95	101.51	105.59
06611	Kassel	197,984	99.04	96.36	99.50	100.35
06631	Fulda	220,132	98.91	99.15	100.14	96.11
06632	Hersfeld-Rotenburg	121,166	93.26	73.58	98.92	100.21
06633	Kassel	235,813	100.23	97.52	102.29	98.17
06634	Schwalm-Eder-Kreis	180,310	94.94	81.86	100.50	95.08
06635	Waldeck-Frankenberg	157,592	95.45	79.88	100.54	99.06
06636	Werra-Meißner-Kreis	100,715	93.37	73.05	99.97	99.00
07111	Koblenz	112,586	103.54	108.71	101.02	104.81
07131	Ahrweiler	127,770	96.07	94.36	99.76	89.92
07132	Altenkirchen (Westerwald)	129,171	93.11	73.11	99.65	98.50
07133	Bad Kreuznach	156,821	97.61	90.54	100.15	98.36
07134	Birkenfeld	80,615	94.88	73.68	103.19	97.84
07135	Cochem-Zell	62,391	93.41	75.89	99.20	97.65
07137	Mayen-Koblenz	211,925	98.06	93.19	99.83	98.48
07138	Neuwied	180,655	98.58	95.07	99.70	99.17
07140	Rhein-Hunsrück-Kreis	102,529	92.12	69.75	99.44	98.65
07141	Rhein-Lahn-Kreis	123,543	94.84	78.60	102.45	93.99
07143	Westerwaldkreis	200,302	94.65	78.90	99.82	98.32
07211	Trier	114,914	101.59	107.61	102.26	95.43
07231	Bernkastel-Wittlich	111,828	94.16	77.09	99.93	97.94
07232	Eifelkreis Bitburg-Prüm	97,180	96.70	86.04	100.48	98.18
07233	Vulkaneifel	60,794	92.03	70.49	99.60	97.06
07235	Trier-Saarburg	147,999	100.44	98.39	102.54	97.71
07311	Frankenthal (Pfalz)	48,363	99.47	100.39	99.04	99.65
07312	Kaiserslautern	98,520	95.86	90.91	100.03	91.43
07313	Landau in der Pfalz	45,362	98.51	95.29	100.52	96.97
07314	Ludwigshafen am Rhein	164,718	100.48	99.14	101.15	100.16
07315	Mainz	209,779	108.38	132.35	100.77	107.25
07316	Neustadt an der Weinstraße	52,999	99.68	99.31	99.68	100.00
07317	Pirmasens	40,125	90.92	65.88	101.84	93.27
07318	Speyer	50,284	101.92	108.72	100.09	100.39
07319	Worms	82,102	100.90	104.01	100.02	100.25
07320	Zweibrücken	34,260	94.91	76.70	101.18	98.86
07331	Alzey-Worms	127,274	99.13	96.02	102.40	94.95
07332	Bad Dürkheim	132,203	99.23	98.58	99.82	98.52
07333	Donnersbergkreis	75,230	98.30	94.83	100.11	97.41
07334	Germersheim	127,303	98.99	98.15	99.70	98.17
07335	Kaiserslautern	104,966	94.60	75.84	100.64	99.66
07336	Kusel	70,997	92.23	70.25	100.28	96.77
07337	Südliche Weinstraße	110,526	97.59	92.11	99.60	98.05
07338	Rhein-Pfalz-Kreis	151,546	100.31	103.31	99.71	99.13
07339	Mainz-Bingen	208,749	100.89	106.13	100.55	97.41
07340	Südwestpfalz	96,474	92.80	71.49	100.02	98.25
08111	Stuttgart	623,738	109.81	145.00	100.69	104.87
08115	Böblingen	381,281	104.45	121.44	100.24	100.60
08116	Esslingen	524,127	103.20	116.42	99.85	100.17
08117	Göppingen	252,749	99.79	100.02	99.84	99.48
08118	Ludwigsburg	534,074	104.35	123.45	99.81	99.76
08119	Rems-Murr-Kreis	419,456	102.65	114.37	99.63	99.97
08121	Heilbronn	122,567	103.38	111.16	101.36	101.51
08125	Heilbronn	334,388	99.68	97.59	100.43	99.83
08126	Hohenlohekreis	110,181	99.48	97.69	100.21	99.44
08127	Schwäbisch Hall	191,614	97.32	81.77	100.55	104.98
08128	Main-Tauber-Kreis	132,181	97.30	82.06	101.56	102.34
08135	Heidenheim	130,527	102.87	104.78	101.72	103.78
08136	Ostalbkreis	312,650	98.64	95.01	99.97	98.91
08211	Baden-Baden	54,160	107.67	124.73	101.35	108.45

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ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
08212	Karlsruhe	307,755	102.69	112.86	99.90	100.66
08215	Karlsruhe	435,841	101.29	108.48	100.01	98.28
08216	Rastatt	227,474	101.62	107.50	100.30	99.72
08221	Heidelberg	156,267	106.63	123.74	101.02	105.75
08222	Mannheim	305,780	104.42	114.63	101.56	102.50
08225	Neckar-Odenwald-Kreis	142,936	97.20	90.85	99.88	96.99
08226	Rhein-Neckar-Kreis	541,859	100.69	106.00	99.63	98.67
08231	Pforzheim	122,247	104.32	110.53	102.16	103.99
08235	Calw	155,359	100.64	103.80	99.80	99.83
08236	Enzkreis	196,066	99.69	101.34	99.95	97.77
08237	Freudenstadt	116,233	96.73	85.17	100.27	99.60
08311	Freiburg im Breisgau	226,393	104.68	127.63	99.83	98.19
08315	Breisgau-Hochschwarzwald	257,343	99.71	99.56	100.01	99.20
08316	Emmendingen	162,082	99.68	101.94	99.41	98.41
08317	Ortenaukreis	420,106	99.50	96.80	100.71	99.19
08325	Rottweil	137,500	96.20	83.71	100.40	98.60
08326	Schwarzwald-Baar-Kreis	209,648	98.94	94.84	100.34	99.45
08327	Tuttlingen	136,606	98.00	93.96	99.91	97.37
08335	Konstanz	280,288	104.35	123.91	100.17	98.68
08336	Lörrach	226,708	102.08	107.93	101.09	99.49
08337	Waldshut	167,861	101.27	95.04	101.14	107.13
08415	Reutlingen	282,113	100.38	98.75	100.64	101.20
08416	Tübingen	221,837	107.35	129.56	100.96	104.65
08417	Zollernalbkreis	188,595	98.03	91.71	100.24	98.79
08421	Ulm	122,636	103.52	114.06	100.55	101.64
08425	Alb-Donau-Kreis	192,104	97.81	92.90	99.55	98.29
08426	Biberach	194,019	98.12	94.91	99.85	97.16
08435	Bodenseekreis	212,201	105.68	122.19	100.15	105.08
08436	Ravensburg	279,296	99.93	100.81	100.01	99.04
08437	Sigmaringen	130,772	96.71	87.57	99.94	97.93
09161	Ingolstadt	132,438	100.20	110.27	95.99	101.46
09162	München	1,450,381	114.90	162.34	101.43	112.54
09163	Rosenheim	61,844	107.24	127.23	100.14	107.69
09171	Altötting	108,485	95.78	84.07	100.18	96.96
09172	Berchtesgadener Land	103,907	99.02	95.58	100.68	98.41
09173	Bad Tölz-Wolfratshausen	124,930	103.56	121.21	100.02	97.81
09174	Dachau	149,370	104.12	127.24	99.26	97.56
09175	Ebersberg	137,421	107.32	142.96	99.54	99.26
09176	Eichstätt	128,805	94.19	78.39	99.96	96.63
09177	Erding	133,747	102.11	122.60	97.94	95.84
09178	Freising	173,225	104.70	135.54	97.75	97.75
09179	Fürstenfeldbruck	213,481	100.12	131.86	93.39	92.32
09180	Garmisch-Partenkirchen	87,385	101.23	123.43	97.62	92.71
09181	Landsberg am Lech	117,657	101.70	112.52	99.76	97.41
09182	Miesbach	98,286	103.24	118.77	99.85	98.64
09183	Mühldorf a. Inn	112,034	95.50	82.03	100.14	97.93
09184	München	340,003	107.41	142.96	99.96	98.69
09185	Neuburg-Schrobenhausen	94,654	96.20	93.12	97.04	97.03
09186	Pfaffenhofen a. d. Ilm	124,128	102.10	114.61	99.22	98.55
09187	Rosenheim	256,074	102.41	114.01	100.31	97.87
09188	Starnberg	133,621	109.68	153.76	99.85	101.15
09189	Traunstein	174,162	99.52	99.77	100.14	97.98
09190	Weilheim-Schongau	132,906	98.54	96.51	99.34	98.56
09261	Landshut	69,211	102.93	100.08	99.57	113.23
09262	Passau	50,566	96.35	84.94	99.58	99.73
09263	Straubing	46,806	94.80	78.51	99.05	101.03
09271	Deggendorf	116,596	95.07	80.92	99.15	99.42
09272	Freyung-Grafenau	78,122	91.94	70.73	99.43	96.77
09273	Kelheim	118,965	97.12	91.40	99.36	97.27
09274	Landshut	154,577	98.90	97.94	99.84	97.68
09275	Passau	188,336	93.90	77.09	99.89	96.96
09276	Regen	76,812	92.11	68.84	99.78	98.95
09277	Rottal-Inn	119,218	92.80	73.60	99.61	96.77
09278	Straubing-Bogen	98,806	90.40	65.24	99.19	97.30
09279	Dingolfing-Landau	94,104	96.81	97.31	96.20	97.74
09361	Amberg	41,861	96.94	96.19	96.96	97.52
09362	Regensburg	145,465	104.32	117.03	100.10	103.57
09363	Weiden i. d. OPf.	42,055	94.77	74.62	99.72	103.75
09371	Amberg-Sulzbach	103,568	92.12	70.25	100.46	95.93
09372	Cham	126,359	95.63	83.85	99.92	97.14
09373	Neumarkt i. d. OPf.	130,385	95.21	89.85	97.14	95.70
09374	Neustadt a. d. Waldnaab	95,078	92.48	71.43	100.52	95.94
09375	Regensburg	189,390	96.75	89.05	99.60	97.44
09376	Schwandorf	144,864	90.94	66.39	99.89	96.71
09377	Tirschenreuth	73,314	90.63	64.62	100.27	96.77
09461	Bamberg	73,331	102.36	104.88	100.40	104.58
09462	Bayreuth	72,148	96.75	86.01	99.97	99.49
09463	Coburg	41,257	95.40	82.05	100.46	96.84
09464	Hof	44,660	93.54	71.70	100.82	99.48
09471	Bamberg	145,570	96.36	87.48	100.31	95.81
09472	Bayreuth	104,306	92.28	71.69	99.54	96.86
09473	Coburg	86,599	91.56	68.27	100.20	96.41
09474	Forchheim	114,834	97.60	92.33	99.76	97.53

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ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
09475	Hof	96,429	91.83	67.98	100.48	97.31
09476	Kronach	67,916	94.69	77.53	101.31	96.78
09477	Kulmbach	72,468	93.55	76.80	99.47	96.72
09478	Lichtenfels	66,655	94.66	80.59	99.81	96.63
09479	Wunsiedel i. Fichtelgebirge	73,185	90.56	63.67	100.51	97.18
09561	Ansbach	41,159	99.29	88.42	102.19	102.83
09562	Erlangen	108,336	103.07	113.38	100.26	100.98
09563	Fürth	124,171	101.23	100.83	102.16	99.59
09564	Nürnberg	509,975	104.29	116.08	99.18	106.23
09565	Schwabach	40,428	100.06	96.26	101.72	99.77
09571	Ansbach	181,314	93.70	74.73	100.14	98.15
09572	Erlangen-Höchstadt	134,136	99.64	100.93	100.28	97.24
09573	Fürth	114,291	97.00	89.02	99.90	97.82
09574	Nürnberger Land	167,643	98.07	95.94	99.62	96.56
09575	Neustadt a.d. Aisch-Bad Windsheim	98,751	93.32	74.87	99.61	97.52
09576	Roth	125,140	95.15	81.92	99.75	97.42
09577	Weissenburg-Gunzenhausen	93,342	94.99	75.98	102.45	97.31
09661	Aschaffenburg	68,986	100.55	103.83	100.25	98.52
09662	Schweinfurt	51,969	96.78	91.34	99.66	95.36
09663	Würzburg	124,873	103.02	107.25	100.19	105.77
09671	Aschaffenburg	173,695	99.09	98.50	100.22	97.18
09672	Bad Kissingen	103,106	94.25	81.03	98.55	97.16
09673	Rhön-Grabfeld	79,723	92.22	71.25	99.85	96.45
09674	Haßberge	84,581	94.50	79.85	100.18	95.95
09675	Kitzingen	89,306	94.61	81.06	99.36	96.90
09676	Miltenberg	128,446	98.17	94.59	99.75	97.86
09677	Main-Spessart	126,123	97.72	85.63	101.01	101.67
09678	Schweinfurt	114,813	94.87	81.81	99.30	97.35
09679	Würzburg	160,427	98.64	98.24	99.64	96.86
09761	Augsburg	286,374	103.96	105.76	100.99	109.09
09762	Kaufbeuren	42,731	97.09	90.37	99.48	97.85
09763	Kempten (Allgäu)	66,947	99.17	98.17	99.46	99.39
09764	Memmingen	42,841	93.45	86.16	93.80	99.24
09771	Aichach-Friedberg	130,916	94.81	102.33	92.58	93.61
09772	Augsburg	245,600	98.79	97.94	99.77	97.40
09773	Dillingen a.d. Donau	94,575	91.80	73.27	97.23	97.99
09774	Günzburg	123,153	94.66	79.53	99.78	97.78
09775	Neu-Ulm	170,309	100.47	95.35	103.93	97.59
09776	Lindau (Bodensee)	80,429	102.91	109.27	101.54	100.71
09777	Ostallgäu	137,709	96.26	85.16	99.98	98.28
09778	Unterallgäu	140,419	97.67	92.50	99.60	97.99
09779	Donau-Ries	131,345	94.42	78.41	99.44	98.68
09780	Oberallgäu	152,672	99.15	98.61	99.30	99.29
10041	Regionalverband Saarbrücken	327,380	101.22	95.80	101.26	105.92
10042	Merzig-Wadern	103,997	99.38	89.73	101.40	103.66
10043	Neunkirchen	133,735	95.39	81.28	100.01	98.53
10044	Saarlouis	197,009	101.14	90.69	103.45	105.56
10045	Saarpfalz-Kreis	144,584	98.49	95.44	101.10	95.58
10046	St. Wendel	88,892	96.16	78.72	103.00	98.04
11000	Berlin	3,520,031	102.56	115.02	97.50	103.87
12051	Brandenburg an der Havel	71,574	97.44	88.05	99.95	100.43
12052	Cottbus	99,687	96.32	85.78	98.80	100.50
12053	Frankfurt (Oder)	58,092	95.32	83.98	98.96	97.76
12054	Potsdam	167,745	103.18	108.92	100.44	104.49
12060	Barnim	177,411	99.39	100.28	100.45	96.42
12061	Dahme-Spreewald	164,528	99.32	96.59	99.23	101.85
12062	Elbe-Elster	104,673	95.08	78.07	99.22	102.33
12063	Havelland	158,236	97.76	91.06	100.32	98.13
12064	Märkisch-Oderland	190,714	97.05	91.20	99.41	97.10
12065	Oberhavel	207,524	100.52	97.46	99.08	106.43
12066	Oberspreewald-Lausitz	112,450	94.62	80.02	100.53	95.54
12067	Oder-Spree	182,397	98.39	89.17	99.32	104.68
12068	Ostprignitz-Ruppin	99,110	96.73	87.20	100.85	96.42
12069	Potsdam-Mittelmark	210,910	99.62	101.11	100.22	97.11
12070	Prignitz	77,573	93.61	78.21	99.51	95.39
12071	Spree-Neiße	117,635	96.00	85.25	100.40	96.30
12072	Teltow-Fläming	163,553	101.89	101.65	101.11	103.80
12073	Uckermark	121,014	96.03	83.57	100.17	98.50
13003	Rostock	206,011	99.07	99.61	100.50	95.61
13004	Schwerin	96,800	97.36	86.89	100.46	100.11
13071	Mecklenburgische Seenplatte	262,517	95.90	86.21	101.11	93.54
13072	Rostock	213,473	97.20	92.81	100.25	94.53
13073	Vorpommern-Rügen	224,820	98.26	89.89	100.64	100.55
13074	Nordwestmecklenburg	156,270	97.23	92.64	99.50	96.32
13075	Vorpommern-Greifswald	238,358	96.29	84.59	99.47	100.06
13076	Ludwigslust-Parchim	214,113	93.95	82.17	98.08	95.81
14511	Chemnitz	248,645	96.47	86.40	101.08	95.67
14521	Erzgebirgskreis	347,665	94.57	77.34	100.51	98.16
14522	Mittelsachsen	312,450	94.30	82.35	99.72	93.64
14523	Vogtlandkreis	232,318	93.36	76.26	100.09	95.19
14524	Zwickau	324,534	95.80	83.91	101.64	94.25
14612	Dresden	543,825	101.01	102.64	100.45	100.85
14625	Bautzen	306,273	96.71	81.62	102.70	97.92

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ID	REGION	POPULATION	TOTAL	HOUSING	GOODS	SERVICES
14626	Görlitz	260,000	92.16	76.69	98.77	92.57
14627	Meißen	245,244	96.97	87.22	101.44	96.17
14628	Sächsische Schweiz-Osterzgebirge	247,412	95.81	87.31	99.21	96.06
14713	Leipzig	560,472	98.32	89.00	100.13	102.75
14729	Leipzig	258,408	94.37	84.50	99.55	92.27
14730	Nordsachsen	197,605	95.23	83.32	100.56	94.71
15001	Dessau-Roßlau	82,919	97.34	85.59	100.84	100.47
15002	Halle (Saale)	236,991	97.05	90.17	99.59	97.63
15003	Magdeburg	235,723	97.22	93.13	99.79	95.29
15081	Altmarkkreis Salzwedel	86,164	92.06	80.20	97.75	90.81
15082	Anhalt-Bitterfeld	164,817	96.81	85.43	102.60	94.86
15083	Börde	173,473	95.12	82.23	101.24	93.93
15084	Burgenlandkreis	184,081	99.31	90.79	102.88	99.23
15085	Harz	221,366	95.55	83.64	100.30	96.22
15086	Jerichower Land	91,693	93.81	81.23	100.09	92.04
15087	Mansfeld-Südharz	141,408	94.86	77.53	102.07	95.94
15088	Saalekreis	186,431	95.82	87.10	100.37	93.92
15089	Salzlandkreis	196,695	95.03	82.25	99.90	96.28
15090	Stendal	115,262	95.72	86.31	99.63	95.75
15091	Wittenberg	128,447	95.63	83.37	100.20	97.03
16051	Erfurt	210,118	98.32	92.96	99.90	99.57
16052	Gera	96,011	93.91	80.47	100.05	93.24
16053	Jena	109,527	99.14	98.01	101.23	95.69
16054	Suhl	36,778	95.55	80.71	100.88	97.92
16055	Weimar	64,131	96.58	89.86	100.53	94.10
16056	Eisenach	42,417	94.46	80.65	99.79	95.79
16061	Eichsfeld	101,325	92.31	73.43	99.31	95.53
16062	Nordhausen	85,355	94.56	78.41	100.95	96.08
16063	Wartburgkreis	125,655	92.80	73.33	99.91	96.42
16064	Unstrut-Hainich-Kreis	105,273	93.78	79.57	99.86	93.99
16065	Kyffhäuserkreis	77,110	94.05	79.23	100.07	94.98
16066	Schmalkalden-Meiningen	124,623	93.70	76.38	100.08	96.51
16067	Gotha	136,831	93.02	73.65	99.63	97.58
16068	Sömmerda	70,600	96.71	83.20	99.91	102.29
16069	Hildburghausen	64,524	93.25	74.71	100.05	96.50
16070	Ilm-Kreis	109,620	95.12	82.96	100.25	95.24
16071	Weimarer Land	82,127	95.18	82.38	100.40	95.76
16072	Sonneberg	56,818	93.87	80.58	101.00	91.10
16073	Saalfeld-Rudolstadt	109,278	93.06	80.68	100.25	89.32
16074	Saale-Holzland-Kreis	86,184	94.89	80.47	100.48	96.31
16075	Saale-Orla-Kreis	82,951	95.17	81.22	100.70	96.25
16076	Greiz	101,114	93.77	77.45	99.91	96.00
16077	Altenburger Land	92,344	95.82	80.66	101.40	97.99

**Table 2:** Overall price index, housing price index, price index for goods and price index for services, each normalised by its population weighted average price level.

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