Extracting geographical networks from online network resource: Building a spatial neighbourhood matrix of local municipalities using free online encyclopaedia information

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Recently, political science research has increasingly utilized statistical models which incorporate spatial auto-correlation. This is especially important for comparative research of local politics and public administration since its empirical data is highly likely to contain unobservable stochastic elements with spatial dependence. To model adequately this kind of stochastic elements, however, we need the matrix of spatial neighbourhood of individual units which does not belong to the standard available data sets. One of possibilities is to generate the neighbourhood matrix from the digitalized geographical map, which depends on availability of such kind of maps. In this paper, we evaluate another approach to generate the neighbourhood matrix of municipalities. In our approach, we utilize the information from an online encyclopaedia, Wikipedia, in which neighbourhood information of individual municipalities is collected in a relatively systematic way. This paper reports the basic procedure of our approach as well as an application result. The extracted neighbourhood information is validated with official cartographic information and the factors behind erroneous information are also investigated. Further we estimate some spatial models using the obtained neighbourhood matrix to examine the impact of errors from Wikipedia pages on estimates.

1 Introduction

Conventional comparative research of local politics and public administration has adopted only partially adequate statistical models for their observational data at e.g. municipality level. That is, these data contains unobservable stochastic elements which are not independent among individual observed units. The unobserved dependence among observations can be caused serially, which can be adequately modeled by using time-series models. Another important source of unobserved dependence is the spatial auto-correlation which is inherent for the geographic units as municipalities or regions. In econometrics as well as international political economy, statistical models accounting for this kind of auto-correlation have been increasingly applied for diverse

topics. These kind of statistical models require, however, a matrix of spatial neighbourhood which does not belong to the standard available data sets. One common solution is to generate the neighbourhood matrix from a digitalized geographical map containing information of the geographical units' border, which of cause depends on availability of such kind of maps.

In this paper, we evaluate another approach to generate the neighbourhood matrix of municipalities. In our approach, we utilize the information from an online encyclopaedia, Wikipedia, in which neighbourhood information of individual municipalities is collected in a relatively systematic way. This paper reports the basic procedure of our approach as well as an application result. In our application, we extracted the neighbourhood matrix of about 1000 municipalities in Baden-Württemberg, a federal state of the Federal Republic of Germany.

Using an official cartographic information source, we could validate that the most parts in the neighbourhood matrix generated from Wikipedia were correct. We also investigate the factor behind the erroneous information in Wikipedia-based neighbourhood matrix and also assess the effect of such slightly incomplete matrix on the estimation results of spatial regression models.

The remainder of this paper proceeds as follows: We first give a brief introduction in statistical models with spatial auto-correlation. In particular, the required neighbourhood matrix and its general availability will be discussed. In the third section we propose the use of online encyclopaedia as an alternative information source to build the neighbourhood matrix. The fourth section will present an application of our approach to extract the neighbourhood matrix of the municipalities in Baden-Württemberg, a south-west German federal state. We will close the paper with some concluding remarks.

2 Statistical models with spatial auto-correlation and neighbourhood matrix

Statistical model with spatial auto-correlation can be mainly divided into two classes of models: spatial error models and spatial lag models (see e.g. Anselin, 1988; Haining, 2003; Ward and Gleditsch, 2008). Both classes differ from each other concerning the element at which the spatial dependence is incorporated. More specifically spatial error models consider spatial dependence in the stochastic component while spatial lag models incorporate spatial dependence in the deterministic component using spatial lag.

Spatial error models of a random variable $y = \{y_1, \dots, y_n\}$ can be expressed as follows:

$$y = X'\beta + \epsilon \tag{1}$$

$$y = X'\beta + \epsilon \tag{1}$$

$$\epsilon = \lambda W \epsilon + \xi \tag{2}$$

Each element of the vector ϵ is modeled by using spatially weighted elements of $\epsilon - W\epsilon$ – and a general weight for spatial dependence λ , the spatial error coefficient relative to the uncorrelated error ξ .

The other class of spatial models, spatial lag models, can be expressed as follows:

$$y = \rho W y + X' \beta + \epsilon \tag{3}$$

Where Wy is the spatially lagged dependent variable which is weighted by ρ (spatial coefficient)

relative to the further independent variables in the deterministic component.

While ignoring such kind of spatial dependence can lead to severe inference problem (e.g. biased estimator) there is also a hurdle which still hinders wide use of this class of statistical models: That is, both classes of spatial models require the $n \times n$ -matrix W – with w_{ij} being the weight of the jth unit with the ith unit as neighbour. To estimate the models above W should be provided by the researcher. Constructing W is however a challenge for some research topics where this kind of information is not shared among researchers or simply does not exist.¹

How can we construct W-matrix? The most straightforward way is to visually inspect the geographical constellation of individual units and manually build a corresponding matrix. This might be feasible if one has only limited number of units. The effort increases however very quickly as W has n^2 elements for n units in total – for Germany e.g. n^2 results in 256 for federal states, 89,401 for electoral districts, and 125,372,809 for municipalities – and with the increasing effort also error-proneness rises as well.

An alternative to the manual coding is the use of a digitalized map. The digitalized map contains information of individual geographical units and their borders. There are several formats for digitalized maps among which the shape file format is one of the standard ones – ESRI's ArcGIS format. There are numerous programs available which automatically extract the neighbourhood matrix from shape files – e.g. ArcGIS, GeoDa, R. For this reason, this solution has been increasingly used to construct W. This approach, however, presumes availability of such kind of digitalized maps. Even though the number of free available digitalized map is increasing there are still a large number of specific geographic information whose cartographic information has not been digitalized and/or are only available for a very high price.

3 Extracting the neighbourhood matrix from the online encyclopaedia

As discussed in the last section, the neighbourhood matrix of geographical units is only scarcely available in particular at sub-national level. If a digitalized map of local level units exists it is often quite expensive. This situation is a big disadvantage for researchers of comparative local politics as well as those who are interested in e.g. electoral geography.

To overcome the problem we suggest to utilize instead of digitalized map free available information from Wikipedia. Wikipedia is a free online encyclopaedia which is collaboratively edited by a number of internet users. For the German Wikipedia pages of municipalities, there is a certain template with a common structure to which "Nachbargemeinden" (neighbour municipalities) also belong. Under this rubric, the municipalities neighbouring to the municipality of that page are listed up. Figure 1 is a snapshot of the Wikipedia page of the city Konstanz where one can find its neighbouring municipalities Reichenau, Allensbach and Meersburg.²

Since this rubric can be accessed e.g. for Konstanz via:

http://de.wikipedia.org/wiki/Konstanz#Nachbargemeinden

the information can be scraped quite easily.³ If one has further the complete set of the municipalities names the dyad of neighbouring municipalities can be automatically identified, based on

¹The W-matrix is useful not only for statistical model with spatial dependence, but also for the purpose of small area estimation based on the geographic proximity (see e.g. Selb and Munzert, 2011)

 $^{^2{\}rm The}$ other municipalities are neighbouring Swiss municipalities.

³R has numerous capabilities to download information from the web – most simple use readLines(URL) – and to cope with its contents – e.g. the stringr or XML package.



FIGURE 1: Wikipedia page of the city Konstanz. The rubric "Nachbargemeinden" contains neighbouring municipalities.

which we can obtain the neighbourhood matrix.⁴ Besides to the easily automated process this approach has another advantage: We can cross validate the neighbouring dyads by using the pages of both municipalities at stake. That is, if we have a dyad which is confirmed by only one municipality's page we can extra check this dyad manually so that the accuracy of neighbouring matrix can be improved.

4 Example application

4.1 Target neighbourhood matrix and concrete procedure

Our target is the neighbourhood matrix of all municipalities in Baden-Württemberg which is one of the largest federal states in Germany. Our choice of Baden-Württemberg has several reasons: First the state government has recently made available the official shape file of the borders of administrative units. From this file, we can extract the true neighbourhood matrix which can be used for validation of our data. Second, Baden-Württemberg has over 1000 municipalities, which could certify the use of our automated approach. Furthermore, these over 1000 municipalities include certain variance of characteristics so that we can also investigate the factor of accuracy of neighbourhood matrix extracted by our approach.

To extract information from Wikipedia pages of individual municipalities we first prepared the complete list of all municipalities in Baden-Württemberg which are available online from the state office of statistics to have a solid official list to compare our Wikipedia retrievals to.⁵ Using Wikipedia's own list of municipalities ⁶ we cycled through the links there automatically down-

⁴http://de.wikipedia.org/wiki/Liste_der_St%C3%A4dte_und_Gemeinden_in_Baden-W%C3%BCrttemberg on http://www.statistik.baden-wuerttemberg.de/Online-Verzeichnisse/Regionalgliederung/home.asp?
RB=0&RG=0&KR=0&GE=0 (Accessed at 1.May 2013)

⁵http://www.statistik.baden-wuerttemberg.de/Online-Verzeichnisse/Regionalgliederung/home.asp? RB=0&RG=0&KR=0&GE=0 (Accessed at 1.May 2013)

 $^{^6} http://de.wikipedia.org/wiki/Liste_der_St\%C3\%A4dte_und_Gemeinden_in_Baden-W\%C3\%BCrttemberg~(Achter) and the state of the state of$

```
require(stringr)
2
   # getting a list of municipality sides
  url <- "http://de.wikipedia.org/wiki/Liste_der_Gemeinden_in_Baden-W%C3%BCrttemberg_nach_
      Amtlichen_Gemeindeschl%C3%BCsseln"
4
  mlist
               <- readLines(url)
               <- mlist[grep("<li>[[:digit:]]{3}",mlist)]
5 mlist
               <- unlist(str_extract_all(mlist, "<a.*?>"))
6
  mlist
                                                 "")
  mlist
               <- str_replace(mlist," +title.*"
               <- str_replace(mlist, "<a href=","")
8 mlist
9
  mlist
               <- unique(mlist)
10
   # downloading Wikipedia page for Konstanz
              <- "http://de.wikipedia.org/wiki/Konstanz"</pre>
11 | nr1
12 konstanz
               <- readLines(url)
13
   # getting the municipality key
              <- "[[:digit:]]+&.*;[[:digit:]]+&.*;[[:digit:]]+&.*;[[:digit:]]+"
14 mKeyRegEx
15 mkey
               <- unlist(str_extract(konstanz, mKeyRegEx))</pre>
16
               <- str_replace_all(mkey[!is.na(mkey)], "&.*?;",</pre>
  mkev
17
  # getting neighbourhood part of html
               <- seq(konstanz)[ grep1("Abschnitt bearbeiten: Nachbargemeinden"</pre>
18 start
                            ,konstanz) & !grepl("toclevel",konstanz) ]
19
               <- seq(konstanz)[ grepl("Abschnitt bearbeiten: ",konstanz) &
20
   all
21
                           !grepl("toclevel",konstanz) ]
22
   end
               <- all[all > start][1]
               <- paste(konstanz[(start-1):(end-1)],sep="",collapse="\n")
23
   nbHtml
24
  # getting of neighbourhood part links
               <- unlist(str_extract_all(nbHtml, "<a.*?>"))
25
  nbLinks
26
  nbLinks
               <- str_replace(nbLinks," +title.*","")
               <- str_replace(nbLinks, "<a href="."")
27 nbLinks
28 # matching full list and nb links
29
  nbs <- NULL
30 for(i in seq(mlist)) nbs <- c( nbs,
                                   grep(nbLinks[i],mlist)[
31
32
                                        !is.na(grep(nbLinks[i],mlist)) ])
33 nbs
34 ##
      [1]
           829 1109
35 mlist[nbs]
      [1] "\"/wiki/Allensbach\"" "\"/wiki/Meersburg\""
36
   ##
```

Listing 1: Retrieving Wikipedia Information Example

loading corresponding Wikipedia pages via R — we accessed Wikipedia at 2. May 2013. Later on we extracted the relevant part corresponding to the rubric "Nachbargemeinden" and compared the links found to our list of municipalities of Baden-Württemberg from Wikipedia — if a municipality mentioned was also part of the list we assumed it to be a neighbour. Cycling through each page than resulted in an complete list of neighbourhood dyads contained in Wikipedia. To make the data compatible with other data-sets — municipality names sometimes are expressed in different forms — we also extracted a key identifying each municipality in Germany, the so called "Gemeindeschlüssel" — a series of digits encoding the hierarchical structure a municipal belongs to which e.g. for Konstanz looks like this "08 3 35 043". To get a general idea of the implementation in R we included a self contained simplified code snipped, see Listing 1, which exemplifies the process. Each dyad retrieved in this manner can show up twice since a dyad e.g. of cities A and B can be found on the Wikipedia page of A as well as on that of B. This dyadic information can now be simply converted into the desired W-matrix by giving w_{ij} with one if the ith municipality's Wikipedia page includes the jth municipality as neighbour and zero otherwise.

To validate the Wikipedia-based W-matrix we also generated a W-matrix from the official cartographic information of all municipalities of Baden-Württemberg.⁷ The information in shape file format was read into R via read.shapefile() from the maptools package and later on

cessed at 1.May 2013)

⁷https://www.lgl-bw.de/lgl-internet/web/sites/default/de/07_Produkte_und_Dienstleistungen/Galerien/Dokumente/Gemeindegrenzen.zip (Accessed at 1.May 2013)

transformed into a W-matrix via poly2nb and nb2listw from the spdep package.

To investigate differences between Wikipedia-based and offical-map-based W-matrix we further collect following information of individual municipalities from Wikipedia:

- geographic coordinates (to construct distance between municipalities)
- area size (in km^2)
- population
- days from the page's last edit to the date of access (2. May 2013)
- frequency of views in the last 90 days

4.2 Accuracy of Wikipedia-based neighbourhood matrix

We first begin with assessing accuracy of the Wikipedia-based neighbourhood matrix using information from the official map. The left panel of Table 1 presents the raw information where dyads in line with those derived by the official shape file can be found in the upper-left and lower-right corner of the tables – errors are respectively in the lower-left and upper-right corner. Accordingly, about 40% of the true neighborhood dyads are missing from the Wikipedia sides and 287 dyads even are given although they actually do not exist.

Table 1: Wikipedia Neighborhood Information Versus Official Information

	official neighbors					offici	nbors		
		0	1	Sum			0	1	Sum
	0	1205478	2579	1208057		0	1205235	1356	1206591
wiki nbs	1	271	3873	4144	sym. wiki nbs	1	514	5096	5610
w	Sum	1205749	5749 6452 1212201		sy w	Sum	514 1205749	6452	1212201

raw wikipedia information

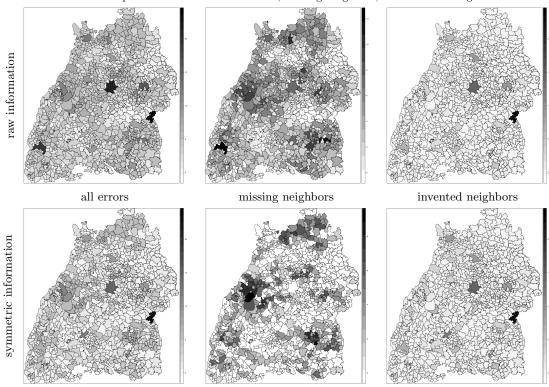
mirrored wikipedia information forced to be symmetric

Note; nbs, is shorthand for neighbourhood dyads with 1 (existing) and 0 (absent).

This raw information can be first improved by making the neighbourhood matrix mirrored. That is, all neighbourhood dyads can be given in two Wikipedia pages. Thus, there can exist inconsistency that municipality A's Wikipedia page name another municipality B and B's Wikipedia page does not name A. In such a case we assume that the latter information of B's Wikipedia page (missing dyad) is false and transform the corresponding element in W into 1. This symmetric neighbourhood matrix is now compared with the official information in the right panel of Table 1. Accordingly, the amount of erroneous dyads decreases from over 2800 to around 1800 whereby there exists about 6400 dyads in reality.

Figure 2 shows the spatial distribution of errornous neighborhood relations. While white represents no errors at all, completely black municipalities have an maximum of 23 erroneous neighbors (Stuttgart in the center and Ulm at the eastern border). From left to right the three maps present all errors, errors due to missing neighbours and errors due to invented neighbors. As one can see, there are very few municipalities that actually match the official data completely – 910 municipalities out of the total 1102 municipalities had at least one neighbour missing on their Wikipedia side while 171 municipalities had at least one invented neighbour. This number is apparently reduced if we transform the raw matrix into the symmetrix W-matrix. However, we still have certain cluster of municipalities with a higher number of missing neighbours: Main-

FIGURE 2: Spatial Distribution of all Errors, Missing Neighbors, and Invented Neighbors



Tauber and Neckar-Odenwald-Kreis (north-east), Baden-Baden and Landkreis Rastatt (west) and Landkreis Biberach (sourh.east).

Table 2: Descriptives for Errors

1										
dyadic perspectiv										
eighbor's e	error									
ented m	nissing									
7.0	15.8									
40.9	74.9									
564.4 79	9358.5									
25.7	17.2									
456.0 31	1990.3									
579.0	271.0									
54	1564.4 79 25.7									

Each row presents the mean of another variable for all municipalities, erroneous municipalities, all dyads and erroneous dyads (respectively error found on ego or neighbor).

Table 2 gives some descriptive statistics of municipalities and neighborhood dyads. Despite the fact that for nearly each variable and independent of the focus we use to look at differences we can see that slight up to strong differences exist between the average municipality and those that were missing or invented as well as between average municipalities and those that tend to have erroneous information at their Wikipedia page.

Table 3: Error Models – Municipality Perspective - Binary Data and Count Data

		logit mode	ls	ŗ	oisson mod	dels
	all	missing	invented	all	missing	invented
(Intercept)	3.79	5.32	-18.38***	-1.52	1.54	-21.86***
	(3.91)	(3.74)	(3.85)	(0.87)	(0.93)	(2.89)
distance	0.04	0.03	0.02	-0.01	-0.01	-0.07
	(0.08)	(0.08)	(0.08)	(0.02)	(0.02)	(0.07)
log(area)	0.36	0.45^*	-0.20	0.29^{***}	0.32^{***}	0.22
	(0.21)	(0.20)	(0.24)	(0.06)	(0.06)	(0.21)
$\log(\text{inhab})$	-0.10	-0.16	0.47^{***}	0.07^*	0.03	0.34^{**}
	(0.12)	(0.11)	(0.14)	(0.03)	(0.03)	(0.12)
lastedit	-0.01	-0.01	-0.01	0.00^*	0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
log(length)	-0.36	-0.47	0.90^{**}	0.01	-0.20^{*}	1.22^{***}
	(0.32)	(0.31)	(0.34)	(0.08)	(0.08)	(0.28)
log(views)	0.27^*	0.25^*	0.28^*	0.11^{***}	0.06^*	0.27^{**}
	(0.11)	(0.11)	(0.12)	(0.03)	(0.03)	(0.10)
baden	0.38	0.51	0.47	0.10	0.06	0.38
	(1.08)	(1.08)	(0.75)	(0.17)	(0.19)	(0.47)
hohenz	14.47	14.71	-0.11	-0.01	-0.02	-0.27
	(410.55)	(410.65)	(0.89)	(0.19)	(0.20)	(0.80)
wuerttemb	-0.41	-0.21	0.20	0.05	-0.01	0.61
	(1.09)	(1.08)	(0.75)	(0.17)	(0.18)	(0.47)
Deviance	870.61	925.23	778.75	1610.54	1583.73	707.82
Null Deviance	934.62	990.27	889.34	2056.45	1822.47	1265.48
Num. obs.	1083	1083	1083	1083	1083	1083
***	. 0 01 *	. 0.05				

^{***}p < 0.001, **p < 0.01, *p < 0.05

The table presents logistic regression results for the existence of errors and poisson regressions for the number of errors per municipality.

4.3 Municipality Centered Error Models

As indicated in Table 2 we can expect some systematic difference among municipalities with less errors and those with more errors. To investigate the difference we estimated two groups of statistical models: logit models with binary dependent variable (1: with at least one error; 0: no error) and poisson models with frequency of errors as dependent variable. As independent variables we included the following:

- average distance to neighbouring municipalities (distance)
- Area size (areaEgo)
- Population (inhabEgo)
- time after the last edit of the Wikipedia page (lastedit)
- word counts of the Wikipedia page (lengthEgo)
- frequency of page visits (viewsEgo)
- historical divides dummy (baden, hohenz and wuerttemb)

For missing neighbours, the area size of a municipality is a boosting factor while the length of the side and the frequency of page visits decrease probability of erroneous information on Wikipedia. For the invented neighbors, in contrast, the area size has no effect while the population size, the time after the last edit and the length of the page increase the probability of erroneous neighbors.

Despite the significance found in effects of several independent variables the error deviance suggest that including explanatory factors would only marginally increase accuracy in distinguishing between those municipalities with and those without the erroneous information.

4.4 Dyadic Error Models

Table 4: Error Models - Dyadic Perspective - Binary Data

(Intercept) 17.46*** 19.18*** -9.96* (1.37) (1.38) (3.97) ego variables: log(areaEgo) -0.12* 0.08 -1.02*** (0.05) (0.05) (0.15) log(inhabEgo) -0.10* 0.00 -0.41** (0.05) (0.05) (0.13) lasteditEgo 0.00 0.00 -0.02* (0.00) (0.00) (0.01) log(lengthEgo) -1.80*** -1.85*** 0.16 (0.12) (0.12) (0.32) log(viewsEgo) 0.22*** 0.19*** 0.20 (0.03) (0.03) (0.10) badenEgo 0.60* 0.52* 0.79 (0.24) (0.24) (0.74) hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) (0.24) (0.24) (0.73) neighbor variables: log(areaNB) -0.07 0.20*** -1.16*** 0.45* (0.05) (0.05) (0.16) log(inhabNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.15) lasteditNB -0.01** -0.01* (0.00) (0.00) (0.01) log(lengthNB) 0.19 0.08 0.38 (0.11) (0.09) (0.03) (0.10) dyadic variables: distance 0.10*** -0.02* 0.42*** distance (0.01) (0.01) (0.03) regiondiff -0.33** -0.32** -0.07 (0.10) (0.33) regiondife 8888.16 8683.74 2222.6 Num. obs. 6516 6516 6516				J
(1.37) (1.38) (3.97) ego variables log(areaEgo) -0.12* 0.08 -1.02*** log(inhabEgo) -0.10* 0.00 -0.41** (0.05) (0.05) (0.13) lasteditEgo 0.00 0.00 -0.02* (0.00) (0.00) (0.01) log(lengthEgo) -1.80*** -1.85*** 0.16 (0.12) (0.12) (0.32) log(viewsEgo) 0.22*** 0.19**** 0.20 log(viewsEgo) 0.22*** 0.19**** 0.20 log(viewsEgo) 0.22**** 0.19**** 0.20 log(viewsEgo) 0.22**** 0.19**** 0.20 log(viewsEgo) 0.60* 0.52* 0.79 (0.24) (0.24) (0.74) hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) wuerttembEgo 0.29 0.20 0.81 log(areaNB) -0.07 0.05**** 0.16**** <th></th> <th>all</th> <th>mising</th> <th>invented</th>		all	mising	invented
log(areaEgo)	(Intercept)	17.46***	19.18***	-9.96*
log(areaEgo) -0.12* 0.08 -1.02*** (0.05) (0.05) (0.15) log(inhabEgo) -0.10* 0.00 -0.41** (0.05) (0.05) (0.13) lasteditEgo 0.00 0.00 -0.02* (0.00) (0.00) (0.01) log(lengthEgo) -1.80*** -1.85*** 0.16 (0.12) (0.12) (0.32) log(viewsEgo) 0.22*** 0.19*** 0.20 (0.03) (0.03) (0.10) logdenEgo 0.60* 0.52* 0.79 (0.24) (0.24) (0.74) hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) wuerttembEgo 0.29 0.20 0.81 (0.24) (0.24) (0.73) neighbor variables log(areaNB) -0.07 0.20*** -1.16*** (0.05) (0.05) (0.16) log(inhabNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.15) lasteditNB -0.01* -0.01* -0.01 (0.00) (0.00) (0.01) log(lengthNB) 0.19 0.08 0.38 (0.11) (0.11) (0.32) log(viewsNB) 0.09** 0.03 0.18 (0.03) (0.03) (0.10) dyadic variables distance 0.10** -0.02* 0.42*** distance 0.10** -0.03** -0.03** -0.07* c.033** -0.32** -0.07* (0.10) (0.01) (0.03) regiondiff -0.33** -0.32** -0.07* (0.10) (0.10) (0.33) Deviance 8222.40 8196.37 1352.62 Null Deviance 8888.16 8683.74 2222.66 Null Deviance 8888.16 6516 6516 6516 6516 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00		(1.37)	(1.38)	(3.97)
(0.05) (0.05) (0.15)	ego variables	, ,	, ,	, ,
log(inhabEgo)	log(areaEgo)	$\textbf{-0.12}^*$	0.08	-1.02***
(0.05) (0.05) (0.13)		(0.05)	(0.05)	(0.15)
(0.05) (0.05) (0.13)	log(inhabEgo)	-0.10*	0.00	-0.41**
(0.00) (0.00) (0.01)	-,	(0.05)	(0.05)	(0.13)
log(lengthEgo)	lasteditEgo	0.00	0.00	-0.02^{*}
(0.12)		(0.00)	(0.00)	(0.01)
log(viewsEgo) 0.22*** 0.19*** 0.20 (0.03) (0.03) (0.10) (0.03) (0.10) (0.24) (0.24) (0.24) (0.24) (0.24) (0.26) (0.26) (0.26) (0.26) (0.26) (0.26) (0.26) (0.24) (0.24) (0.73) (0.24) (0.24) (0.73) (0.24) (0.24) (0.73) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.00) (0.00) (0.01) (0.00) (0.01) (0.01) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.	log(lengthEgo)	-1.80***	-1.85***	0.16
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badenEgo	log(viewsEgo)		0.19^{***}	0.20
badenEgo 0.60* 0.52* 0.79 (0.24) (0.24) (0.74) hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) wuerttembEgo 0.29 0.20 0.81 wuerttembEso (0.24) (0.24) (0.73) neighbor variables stage of the property of the pro	-, -,	(0.03)	(0.03)	(0.10)
hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) wuerttembEgo 0.29 0.20 0.81 (0.24) (0.24) (0.73) neighbor variables stog(areaNB) -0.07 0.20*** -1.16*** log(areaNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.05) (0.16) log(inhabNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.05) (0.15) lasteditNB -0.01** -0.01* -0.01 (0.00) (0.00) (0.01) (0.01) log(lengthNB) 0.19 0.08 0.38 (0.11) (0.11) (0.32) log(viewsNB) 0.09** 0.03 0.18 (0.03) (0.03) (0.10) dyadic variables distance 0.10**** -0.02* 0.42**** distance 0.10**** -0.32** -0.07 (0.10) (0.10) (0.33) <td>badenEgo</td> <td></td> <td></td> <td>0.79</td>	badenEgo			0.79
hohenzEgo 0.35 0.29 0.46 (0.26) (0.26) (0.81) wuerttembEgo 0.29 0.20 0.81 (0.24) (0.24) (0.73) neighbor variables stog(areaNB) -0.07 0.20*** -1.16*** log(areaNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.05) (0.16) log(inhabNB) -0.07 -0.18*** 0.45** (0.05) (0.05) (0.05) (0.15) lasteditNB -0.01** -0.01* -0.01 (0.00) (0.00) (0.01) (0.01) log(lengthNB) 0.19 0.08 0.38 (0.11) (0.11) (0.32) log(viewsNB) 0.09** 0.03 0.18 (0.03) (0.03) (0.10) dyadic variables distance 0.10**** -0.02* 0.42**** distance 0.10**** -0.32** -0.07 (0.10) (0.10) (0.33) <td>_</td> <td>(0.24)</td> <td>(0.24)</td> <td>(0.74)</td>	_	(0.24)	(0.24)	(0.74)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	hohenzEgo	0.35		0.46
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<u> </u>	(0.26)	(0.26)	(0.81)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	wuerttembEgo	0.29	0.20	0.81
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	_	(0.24)	(0.24)	(0.73)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	neighbor varia	ables	` ,	, ,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			0.20^{***}	-1.16***
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.05)	(0.05)	(0.16)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	log(inhabNB)	-0.07	-0.18***	0.45^{**}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.05)	(0.05)	(0.15)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	lasteditNB	-0.01**	-0.01*	-0.01
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.00)	(0.00)	(0.01)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	log(lengthNB)	0.19	0.08	0.38
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.11)	(0.11)	(0.32)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	log(viewsNB)	0.09^{**}	0.03	0.18
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.03)	(0.03)	(0.10)
$\begin{array}{cccccccc} \text{regiondiff} & \begin{pmatrix} (0.01) & (0.01) & (0.03) \\ \textbf{-0.33}^{**} & \textbf{-0.32}^{**} & \textbf{-0.07} \\ (0.10) & (0.10) & (0.33) \\ \hline \text{Deviance} & 8222.40 & 8196.37 & 1352.62 \\ \text{Null Deviance} & 8888.16 & 8683.74 & 2222.6 \\ \text{Num. obs.} & 6516 & 6516 & 6516 \\ \hline \end{array}$	dyadic variabl	es		
regiondiff	distance	0.10^{***}	$\textbf{-0.02}^*$	0.42^{***}
regiondiff -0.33** (0.10) -0.32** (0.33) -0.07 (0.33) Deviance 8222.40 8196.37 1352.62 Null Deviance 8888.16 8683.74 2222.6 Num. obs. 6516 6516 6516		(0.01)	(0.01)	(0.03)
Deviance 8222.40 8196.37 1352.62 Null Deviance 8888.16 8683.74 2222.6 Num. obs. 6516 6516 6516	regiondiff			
Deviance 8222.40 8196.37 1352.62 Null Deviance 8888.16 8683.74 2222.6 Num. obs. 6516 6516 6516	-	(0.10)	(0.10)	(0.33)
Null Deviance 8888.16 8683.74 2222.6 Num. obs. 6516 6516 6516	Dovingo		* *	
Num. obs. 6516 6516 6516				
				0010

p < 0.001, p < 0.01, p < 0.05

The table presents logistic regression results for errors in the specified neighbor-dyads. Include are all dyads which are either officially or in the wikipedia pages specified as errors – full models with all possible dyads were calculated but did not show considerable differences.

 ${\it TABLE~5:~Error~Models-Dyadic~Perspective-Binary~Data}$

	all	mising	invented
(Intercept)	17.32***	19.04***	-9.98*
	(1.37)	(1.38)	(3.96)
ego variables	, ,	, ,	, ,
log(areaEgo)	-0.13^{*}	0.07	-1.02***
	(0.05)	(0.05)	(0.15)
log(inhabEgo)	-0.10^{*}	-0.01	-0.41**
	(0.05)	(0.05)	(0.13)
lasteditEgo	0.00	0.00	-0.02^{*}
	(0.00)	(0.00)	(0.01)
$\log(\mathrm{lengthEgo})$	-1.78***	-1.83***	0.16
	(0.12)	(0.12)	(0.32)
log(viewsEgo)	0.21^{***}	0.19^{***}	0.20
	(0.03)	(0.03)	(0.10)
badenEgo	0.49^*	0.42	0.76
	(0.24)	(0.24)	(0.74)
hohenzEgo	0.12	0.07	0.41
	(0.24)	(0.24)	(0.76)
wuerttembEgo	0.17	0.09	0.78
	(0.24)	(0.23)	(0.73)
neighbor varia	$_{ m bles}$		
$\log(areaNB)$	-0.08	0.19^{***}	-1.17***
	(0.05)	(0.05)	(0.16)
$\log(\mathrm{inhabNB})$	-0.07	-0.17***	0.45^{**}
	(0.05)	(0.05)	(0.15)
lasteditNB	-0.01**	-0.01^*	-0.01
	(0.00)	(0.00)	(0.01)
$\log(\mathrm{lengthNB})$	0.20	0.09	0.38
	(0.11)	(0.11)	(0.32)
$\log(viewsNB)$	0.09^{**}	0.03	0.18
	(0.03)	(0.03)	(0.10)
dyadic variabl			
distance	0.10^{***}	-0.02^{*}	0.42^{***}
	(0.01)	(0.01)	(0.03)
regiondiff1	-0.19	-0.19	-0.03
	(0.11)	(0.11)	(0.35)
Deviance	8229.52	8202.94	1352.66
Null Deviance	8888.16	8683.74	2222.6
Num. obs.	6516	6516	6516
	-		

p < 0.001, p < 0.01, p < 0.05

The table presents logistic regression results for errors in the specified neighbor-dyads. Include are all dyads which are either officially or in the wikipedia pages specified as errors—full models with all possible dyads were calculated but did not show considerable differences

Table 6: Error Models – Dyadic Perspective – Binary Data

	all	mising	invented
(Intercept)	17.35^{***}	19.07^{***}	$\textbf{-9.97}^*$
	(1.37)	(1.38)	(3.97)
ego variables	, ,	, ,	,
log(areaEgo)	-0.13^{*}	0.07	-1.02***
	(0.05)	(0.05)	(0.15)
log(inhabEgo)	-0.10*	0.00	-0.41**
	(0.05)	(0.05)	(0.13)
lasteditEgo	0.00	0.00	-0.02^*
	(0.00)	(0.00)	(0.01)
log(lengthEgo)	-1.78***	-1.83***	0.15
	(0.12)	(0.12)	(0.32)
log(viewsEgo)	0.21^{***}	0.19^{***}	0.20
	(0.03)	(0.03)	(0.10)
badenEgo	0.47^*	0.39	0.84
	(0.24)	(0.23)	(0.74)
hohenzEgo	0.07	0.02	0.45
	(0.24)	(0.24)	(0.74)
wuerttembEgo	0.15	0.07	0.86
	(0.23)	(0.23)	(0.73)
neighbor varia	bles		
log(areaNB)	-0.08	0.19^{***}	-1.16***
	(0.05)	(0.05)	(0.16)
$\log(\mathrm{inhabNB})$	-0.07	-0.17***	0.45^{**}
	(0.05)	(0.05)	(0.15)
lasteditNB	-0.01**	-0.01^*	-0.01
	(0.00)	(0.00)	(0.01)
$\log(\mathrm{lengthNB})$	0.20	0.09	0.38
	(0.11)	(0.11)	(0.32)
$\log(viewsNB)$	0.09^{**}	0.03	0.19
	(0.03)	(0.03)	(0.10)
dyadic variabl			
distance	0.10^{***}	-0.02^{*}	0.42^{***}
	(0.01)	(0.01)	(0.03)
regiondiff2	-0.18	-0.18	-0.16
	(0.12)	(0.12)	(0.37)
Deviance	8230.06	8203.56	1352.48
Null Deviance	8888.16	8683.74	2222.6
Num. obs.	6516	6516	6516

The table presents logistic regression results for errors in the specified neighbor-dyads. Include are all dyads which are either officially or in the wikipedia pages specified as errors – full models with all possible dyads were calculated but did not show considerable differences

Table 6 turns the perspective from municipalities to neighborhood dyads to check whether indeed not the characteristics municipalities but of dyads are relevant for errors. An interesting result is that the distance between two municipalities is associated with the likelihood of error whereby the missing dyads is more likely for the pair of close municipalities, and vice versa. Another interesting result is that dyads along the historic divide (regiondiff) seem be less prone to errors, which does not correspond to intuition if one considers still existing resentment of inhabitant in Baden against Württemberg (Shikano, 2012). Concerning invented neighbors, the most important factors are area size and population: small municipalities tend to invent neighborhood to other small municipalities especially when they have few inhabitants. Also, the number of times a page is viewed might lead to more opportunity for uninformed changes leading to errors.

Also here, the error deviances suggest that independent variables only marginally contribute to distinguish true dyads and erroneous dyads. This may suggest that most of errors may be quasi-random character which would not have substantial impact on estimation of spatial regression

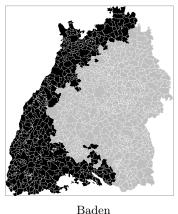
^{***} p < 0.001, ** p < 0.01, * p < 0.05

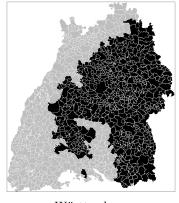
models. To evaluate this point the next section reanalyzes some spatial models using different neighbourhood matrices.

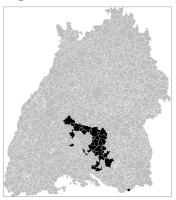
4.5 Consequences of erroneous information in Wikipedia

This section examines whether and to which degree the difference between the Wikipedia-based and official-map-based W-matrices has impact on estimation results of spatial regression models. For this purpose we reanalyze data of Shikano (2012) who investigated official municipality-level results of referendum on Stuttgart 21 at 27. November 2011. Stuttgart 21 is a huge railway project including reconstruction of Stuttgart central station (capital of Baden-Württemberg) and new high-speed route Stuttgart – Ulm. Due to an intensive civil protest against the project the state government decided to held a referendum. At the referendum, stop of the project was at stake. Therefore, yes vote prefers stop of the project and no vote support for the project.

Figure 3: Historical Separation of Baden-Württemberg





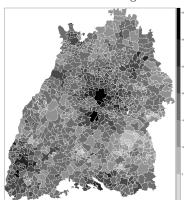


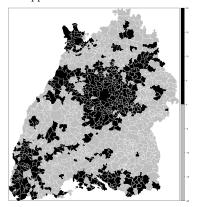
len Württemberg

Hohenzollern

Shikano (2012) suggested that behind the referendum result a still existing historical divide in Baden-Württemberg is at work. There are three former separate parts of Baden-Württemberg Baden, Württemberg and Hohenzollern, but in particular the dualism between Baden and Württemberg/Hohenzollern is expected to still slightly shape attitudes towards on-another. In particular, the prestige project Stuttgart 21 should be perceived by the inhabitant in Baden as symbol of unequal resource distribution between Baden and Württemberg since Stuttgart is not only the capital of Baden-Württemberg, but also was the residence of the King of Württemberg. Figure 3 shows the corresponding regional parts which currently constitute Baden-Württemberg.

Figure 4: Stuttgart21 Average Disapproval and Deviation

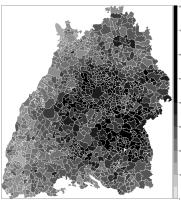


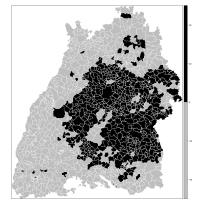


Stuttgart21 resentiments

Stuttgart21 deviation from mean

Figure 5: Stuttgart21 Average Approval and Deviation



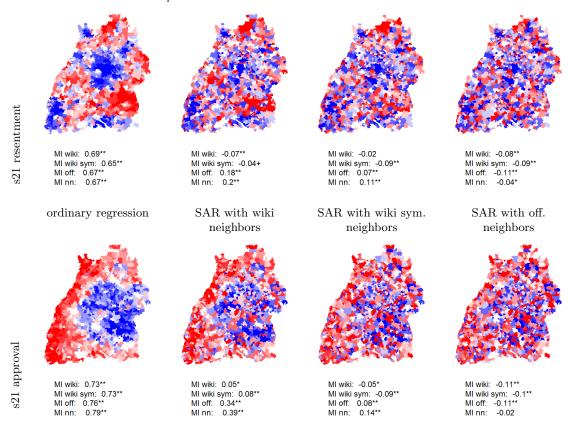


Stuttgart21 approval

Stuttgart21 deviation from mean

In Figure 4 the spatial distribution of resentments – percentage of 'yes'-votes compared to the eligible voters in a municipality meaning disapproval of the project – are presented as well as the distribution of the deviation from the overall average. Especially the distribution of deviations shows that the resentment against the Stuttgart 21 project spatially clusters and therefore any regression model trying to explain approval or disapproval is prone to be biased unless it adequately controls for spatial autocorrelation. This statement holds as well for figure 5 where the spatial distribution of approval of the Stuttgart 21 project – percentage of voting 'no' in the referendum compared to all eligible voters within a municipality – as well as the deviation from the overall average are presented.

Figure 6: Spatial Distribution of Residuals of Modells without Predictors



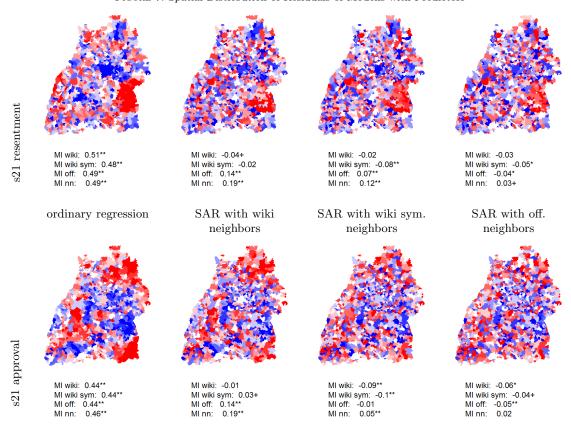
The figure presents ordinary and spatial simultaneous autoregressive regression residuals with no further independent variables – red: negative residuals; blue: positive residuals. The lines refer to different dependent variables – resentment and approval of the s21 project – while columns organize the different regression models. In the upper left corner Moran's I statistics are presented for neighborhood relations derived from the information found on the Wikipedia sides, their symmetric form, the official shape files, and the six nearest neighbors. The significances refer to a two-sided test of Moran's I statistic – Monte Carlo chain adjusted – with: + < 0.1, * < 0.05, * < 0.01, * < 0.001.

Figure 6 shows the spatial distribution of residuals of the models without predictors. Unsurprisingly, the ordinary regression has substantial spatial patterning in its residuals as already shown in figures 4 and 5. More interestingly the use of the raw neighborhood information from Wikipedia does not seem to help to get rid of spatial dependencies resulting in highly significant Moran's I statistics when tested with the other available neighborhood information. Using the mirrored information from Wikipedia, in contrast, results in much less spatial clustering – as can be easily spotted in the maps in the third column and is furthermore reflected by a drop in the Moran's I statistic from around 0.75 to 0.1. The spatial clustering is still significant but this is also the case for the null models using official shape files. We further constructed the neighbourhood matrix using the distance between municipalities where 6-nearest municipalities are coded as neighbour Ward and Gleditsch (see e.g. 2002). Also Moran's I of this approach does not differ substantially from that of symmetric W-matrix. Let us in a next step see how the models compare when confronted with further explanatory variables.

⁸As the average number of neighbours is 5.8 we choose 6 as the k-parameter for the k-nearest neighbours.

⁹Results for official neighborhoods and six nearest neighbors were similar to that of the symmetric Wikipedia information. The results are available from the authors upon request.

Figure 7: Spatial Distribution of Residuals of Modells with Predictors



The figure presents ordinary and spatial simultaneous autoregressive regression residuals with independent variables – red: negative residuals; blue: positive residuals. The lines refer to different dependent variables – resentment and approval of the s21 project – while columns organize the different regression models. In the upper left corner Moran's I statistics are presented for neighborhood relations derived from the information found on the Wikipedia sides, the official shape files, and the six nearest neighbors. The significances refer to a two-sided test of Moran's I statistic – Monte Carlo chain adjusted – with: + < 0.1, * < 0.05, * * < 0.01, * * * < 0.001.

The residual maps for models with predictors 10 presented in Figure 7 reveal that the inclusion of explanatory variables decreases the problem of spatial clustering – Morans I statistics for the ordinary regressions are much lower – indicating that a good part of the spatial clustering can be captured by predictors. The raw Wikipedia neighborhood information fails to cope with spatial dependence while the symmetric Wikipedia neighbourhood matrix have Moran's I statistics around zero although they are still significant. Note that the symmetric neighbourhood matrix performs not too much less than those of official neighbors and nearest neighbors as can be seen in Tables 7 and 8.

Turning to the full models of resentment (Table 7) and approval (Table 8) of the Stuttgart 21 project we see that using the raw neighborhood information is not enough – while Morans I statistics for spatial correlation are still high for these models furthermore the estimates sometimes strongly differ from those using symmetric Wikipedia neighborhood matrix, official neighbors or nearest neighbours i.e. the intercept for both dependent variables, the effect estimates for greens for both dependent variables, the variance and effect estimates for debts for approval, or the effect estimate of Baden in the approval models.

¹⁰For description of the predictors see Shikano (2012).

Table 7: Full Models for Explaining S21 Resentment

	OLS	SAR wiki	SAR wiki sym	SAR off
(Intercept)	11.309***	10.403***	10.406***	9.842***
	(1.16)	(0.755)	(0.781)	(0.737)
gain	0.011	-0.012*	-0.013*	-0.012*
	(0.009)	(0.005)	(0.006)	(0.005)
rheinprj	-0.813**	-0.288	-0.662 +	-0.66 +
	(0.292)	(0.284)	(0.366)	(0.391)
cdu	-0.096***	-0.012	-0.017	0.002
	(0.017)	(0.016)	(0.016)	(0.015)
green	1.077***	1.066***	1.088***	1.091***
	(0.028)	(0.022)	(0.022)	(0.022)
debts1000	0.135	0.009	0.03	0.014
	(0.149)	(0.088)	(0.084)	(0.081)
catholic	-0.039***	-0.039***	-0.025***	-0.023***
	(0.004)	(0.004)	(0.005)	(0.005)
baden	0.415	0.53	-0.451	-0.608
	(0.733)	(0.392)	(0.394)	(0.385)
hz	1.009	1.037^{*}	$\boldsymbol{1.196^*}$	0.757
	(0.788)	(0.507)	(0.52)	(0.504)
wb	-0.386	0.224	0.514	0.449
	(0.747)	(0.369)	(0.366)	(0.342)
MI wiki	0.51**	-0.04+	-0.02	-0.03
MI wiki sym	0.48**	-0.02	-0.08**	-0.05*
MI off	0.49**	0.14**	0.07**	-0.04+
Lambda	-	0.88	0.76	0.79
LL	-	-2575.19	-2561.31	-2492.19
N	1101	1101	1101	1101

Table 8: Full Models for Explaining S21 Approval

	OLS	SAR wiki	SAR wiki sym	SAR off
(Intercept)	17.697***	12.911***	9.696***	9.777***
	(1.836)	(1.178)	(1.12)	(1.097)
gain	-0.105***	-0.051***	-0.042***	-0.031***
	(0.015)	(0.008)	(0.008)	(0.008)
rheinprj	-1.676***	-2.526***	-1.728**	-2.261***
	(0.462)	(0.427)	(0.541)	(0.585)
cdu	0.839***	0.898***	0.87^{***}	0.856***
	(0.027)	(0.025)	(0.023)	(0.023)
green	0.243***	0.204***	0.208***	0.192***
	(0.045)	(0.033)	(0.032)	(0.032)
debts1000	-0.578*	-0.45**	-0.404***	-0.325**
	(0.237)	(0.14)	(0.119)	(0.121)
catholic	-0.068***	-0.072***	-0.051***	-0.051***
	(0.006)	(0.006)	(0.007)	(0.007)
baden	-5.203***	-4.632***	-2.584***	-1.913***
	(1.16)	(0.611)	(0.564)	(0.573)
hz	1.179	1.869*	1.621*	1.493*
	(1.247)	(0.806)	(0.738)	(0.749)
wb	1.693	1.389*	1.468**	$\boldsymbol{1.024^*}$
	(1.182)	(0.587)	(0.521)	(0.508)
MI wiki	0.44**	-0.01	-0.09**	-0.06*
MI wiki sym	0.44**	0.03	-0.1**	-0.04*
MI off	0.44**	0.14**	-0.01	-0.05**
Lambda	-	0.73	0.79	0.79
LL	-	-3054.05	-2957.78	-2929.5
N	1101	1101	1101	1101

5 Concluding remarks

In this paper, we explored an unusual way of building neighbourhood weight matrix when official data is not available or simply to costly. In particular, we suggested an approach to extract the neighbourhood matrix of municipalities from an online encyclopedia, Wikipedia. About the content quality of Wikipedia, there have been various concerns due to the open nature of Wikipedia. Comparison of the neighbourhood matrix based on Wikipedia with the true matrix based on official data showed that the Wiki pages of most municipalities have at least one missing or wrong neighbour municipality. Thus we have to handle the information carefully. Our statistical models of erroneous information reveals some systematic factors of missing and/or invented neighbourhood dyads of municipalities. However, we also found that at least the improved symmetric W-matrix can be of use in estimation of spatial regression models.

Also as benchmark we also utilized the neighbourhood matrix based on the k-nearest neighbours (see e.g. Ward and Gleditsch, 2002). As future research agenda this alternative can be thoroughly investigated. For our analysis, for example, we used 6 closest municipalities as neighbour since we already did know a municipality has in average 6 neighbours from the information based on the official map. In praxis, it is often the case that such kind of information is not available and the wrong number for k of k-nearest neighbours can lead to a severe inference problem. The impact of this kind of misspecification on estimation results would be certainly worth to investigate.

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6 Appendix

	name	В	W	Н	key	err	mis	inv	esym	esymm	esymi
1	Kämpfelbach	1	0	0	08236074	3	3	0	0	0	0
2	Grundsheim	0	1	0	08425052	2	2	0	1	0	1
3	Deggenhausertal	1	0	0	08435067	4	4	0	4	4	0
4	Ballrechten-Dottingen	1	0	0	08315008	0	0	0	1	0	1
5	Sachsenheim	0	1	0	08118076	4	4	0	1	1	0
6	Nellingen	0	1	0	08425084	1	1	0	0	0	0
7	Krauchenwies	0	0	1	08437065	2	2	0	2	2	0
8	Dußlingen	0	1	0	08416011	0	0	0	5	0	5
9	Wendlingen am Neckar	0	1	0	08116071	3	3	0	0	0	0
10	Bad Wildbad	0	1	0	08235079	6	5	1	6	5	1
11	Hinterzarten	1	0	0	08315052	3	3	0	0	0	0
12	Lauf (Baden)	1	0	0	08317068	2	1	1	2	1	1
13	Baiersbronn	0	1	0	08237004	6	6	0	6	6	0
14	Ingoldingen	0	1	0	08426062	4	4	0	4	4	0
15	Mönsheim	0	1	0	08236039	4	4	0	4	4	0
16	Rottenacker	0	1	0	08425104	0	0	0	0	0	0
17	Biberach an der Riß	0	1	0	08426021	12	11	1	3	1	2
18	Drackenstein	0	1	0	08117016	2	2	0	1	0	1
19	Alfdorf	0	1	0	08119001	4	4	0	0	0	0
20	Schlaitdorf	0	1	0	08116063	0	0	0	0	0	0
21	Kappelrodeck	1	0	0	08317056	1	1	0	2	0	2
22	Murrhardt	0	1	0	08119044	3	3	0	3	3	0
23	Neckartenzlingen	0	1	0	08116042	1	0	1	1	0	1
24	Glatten	0	1	0	08237030	3	3	0	0	0	0
25	Straubenhardt	1	1	0	08236072	6	6	0	6	6	0
26	Uhldingen-Mühlhofen	1	0	0	08435066	2	2	0	2	2	0
27	Bühlertann	0	1	0	08127012	0	0	0	0	0	0
28	Linkenheim-Hochstetten	1	0	0	08215105	3	3	0	3	3	0
29	Utzenfeld	$1 \\ 0$	0	0	08336090	0	0 0	0	0	0	0
30	Nehren (Württemberg) Binau	_	$\frac{1}{0}$	0	08416026	$\frac{0}{2}$	2	0	$0 \\ 2$	$0 \\ 2$	0 0
$\frac{31}{32}$	Villingendorf	1 0		0	08225010	0	0	0	0	0	0
33	Meißenheim	1	1 0	0	08325060 08317075	2	2	0	0	0	0
34	Neulingen	1	0	0	08236073	3	3	0	1	0	1
$\frac{34}{35}$	Keltern (Baden)	1	1	0	08236073	2	2	0	2	2	0
36	Bad Schussenried	0	1	0	08426014	4	4	0	4	4	0
37	Unterwachingen	0	1	0	08425125	1	1	0	0	0	0
38	Wutöschingen	1	0	0	08337123	2	2	0	0	0	0
39	Graben-Neudorf	1	0	0	08215099	4	4	0	4	4	0
40	Mosbach	1	0	0	08225058	11	10	1	1	0	1
41	Heidenheim an der Brenz	0	1	0	08135019	4	4	0	0	0	0
42	Löchgau	0	1	0	08118047	4	4	0	4	4	0
43	Ehingen (Donau)	0	1	0	08425033	8	5	3	6	3	3
44	Westerstetten	0	1	0	08425135	1	1	0	1	0	1
45	Breitingen	0	1	0	08425024	0	0	0	0	0	0
46	Durmersheim	1	0	0	08216009	5	5	0	5	5	0
47	Volkertshausen	1	0	0	08335081	0	0	0	0	0	0
48	Freiamt (Schwarzwald)	1	0	0	08316054	6	6	0	1	1	0
49	Sipplingen	1	0	0	08435053	1	1	0	1	1	0
50	Singen (Hohentwiel)	1	1	0	08335075	6	2	4	4	0	4
51	Maulburg	1	0	0	08336057	1	1	0	0	0	0
52	Schwaigern	0	1	0	08125086	0	0	0	0	0	0
53	Böblingen	0	1	0	08115003	6	4	2	3	1	2
54	Mötzingen	0	1	0	08115034	3	3	0	3	3	0
55	Bad Liebenzell	0	1	0	08235008	4	3	1	4	3	1
56	Mannheim	1	0	0	08222000	4	3	1	2	0	2
57	Warthausen	0	1	0	08426128	1	1	0	1	1	0
58	Efringen-Kirchen	1	0	0	08336014	2	2	0	1	1	0
59	Rheinstetten	1	0	0	08215108	2	2	0	0	0	0
60	Kanzach	0	1	0	08426064	7	7	0	7	7	0
61	Malsch (Landkreis Karlsruhe)	1	0	0	08215046	6	6	0	6	6	0
62	Allmersbach im Tal	0	1	0	08119003	4	4	0	4	4	0
63	Au am Rhein	1	0	0	08216002	2	2	0	2	2	0
64	Schlier (Gemeinde)	0	1	0	08436069	2	2	0	0	0	0
65	Konstanz	1	0	0	08335043	1	1	0	1	0	1
66	Bad Überkingen	0	1	0	08117007	5	5	0	5	5	0
67	Mössingen	0	1	0	08416025	2	1	1	1	0	1
68	Calw	0	1	0	08235085	5	4	1	3	0	3

69	Gernsbach	1	0	0	08216017	0	8	0	8	8	0
70	Dornhan	0	1	0	08325012	8 4	4	0	3	0	$0 \\ 3$
70 71	Dobel	0	1	0	08235012	5	5	0	5 5	5	0
72	Gutach im Breisgau	1	0	0	08235018	5	5	0	3 1	3 1	0
73	Ravenstein	1	0	0	08225114	5	5	0	5	5	0
73 74	Simmozheim			0							
74 75		0	1 1		08235067	1	1	0	1	1	0
76	Dautmergen Baltmannsweiler	0	1	$0 \\ 0$	08417014	$\frac{1}{2}$	$\frac{1}{2}$	0	0	0	0
		0			08116007				0		0
77	Kuppenheim	1	0	0	08216024	3	3	0	0	0	0
78	Simmersfeld	0	1	0	08235066	3	3	0	1	0	1
79	Wellendingen	0	1	1	08325064	1	1	0	2	0	2
80	Eislingen/Fils	0	1	0	08117019	1	1	0	1	1	0
81	Lichtenstein (Württemberg)	0	1	0	08415092	1	1	0	1	1	0
82	Ilvesheim	1	0	0	08226036	2	2	0	1	0	1
83	Salach	0	1	0	08117042	3	3	0	1	0	1
84	Alpirsbach	0	1	0	08237002	3	3	0	3	3	0
85	Tuttlingen	0	1	0	08327050	9	3	6	6	0	6
86	Neustetten	0	1	0	08416049	1	1	0	0	0	0
87	Eningen unter Achalm	0	1	0	08415019	1	1	0	1	1	0
88	Dettenhausen	0	1	0	08416009	1	1	0	1	0	1
89	Ittlingen	1	0	0	08125047	1	0	1	5	0	5
90	Rauenberg	1	0	0	08226065	2	2	0	2	2	0
91	Öllingen	0	1	0	08425092	1	1	0	1	0	1
92	Börtlingen	0	1	0	08117011	2	2	0	2	2	0
93	Meckesheim	1	0	0	08226049	5	5	0	0	0	0
94	Starzach	0	1	0	08416050	1	1	0	1	1	0
95	Haßmersheim	1	0	0	08225033	3	3	0	3	3	0
96	Dettighofen	1	0	0	08337030	0	0	0	1	0	1
97	Knittlingen	0	1	0	08236033	4	3	1	4	3	1
98	Böttingen	0	1	0	08327006	2	2	0	2	2	0
99	Geisingen	1	0	0	08327018	3	3	0	0	0	0
100	Radolfzell am Bodensee	1	0	0	08335063	4	4	0	0	0	0
101	Aulendorf	0	1	0	08436008	4	3	1	1	0	1
102	Walldürn	1	0	0	08225109	4	4	0	4	4	0
103	Hessigheim	0	1	0	08118028	1	1	0	1	1	0
104	Häusern	1	0	0	08337045	0	0	0	0	0	0
105	Öhningen	1	0	0	08335061	0	0	0	0	0	0
106	Oberrot	0	1	0	08127062	2	2	0	0	0	0
107	Owingen	1	0	0	08435047	3	3	0	3	3	0
108	Wallhausen (Württemberg)	0	1	0	08127091	0	0	0	0	0	0
109	Hohenstein (Landkreis Reutlingen)	0	1	0	08415090	0	0	0	0	0	0
110	Bad Mergentheim	0	1	0	08128007	6	6	0	0	0	0
111	Marxzell	1	0	0	08215047	5	5	0	5	5	0
112	Waldenbuch	0	1	0	08115048	2	2	0	2	2	0
113	Obrigheim (Baden)	1	0	0	08225074	6	6	0	6	6	0
114	Gottenheim	1	0	0	08315043	1	1	0	0	0	0
115	St. Peter (Hochschwarzwald)	1	0	0	08315095	3	3	0	3	3	0
116	Meßstetten	0	1	0	08417044	4	4	0	4	4	0
117	Welzheim	0	1	0	08119084	3	2	1	3	2	1
118	Königseggwald	0	1	0	08436053	2	2	0	0	0	0
119	Bad Ditzenbach	0	1	0	08117006	5	5	0	0	0	0
120	Tettnang	0	1	0	08435057	6	5	1	6	5	1
121	Essingen (Württemberg)	0	1	0	08136021	4	4	0	0	0	0
122	March (Breisgau)	1	0	0	08315132	4	4	0	0	0	0
123	Kürnbach	1	0	0	08215040	4	3	1	4	3	1
124	Wald (Hohenzollern)	0	0	1	08437118	$\overline{2}$	2	0	0	0	0
125	Grenzach-Wyhlen	1	0	0	08336105	1	1	0	0	0	0
126	Korntal-Münchingen	0	1	0	08118080	0	0	0	0	0	0
127	Frittlingen	0	1	0	08327017	0	0	0	0	0	0
128	Vogt (Gemeinde)	0	1	o 0	08436078	1	1	0	$\overset{\circ}{2}$	1	1
129	Dunningen	0	1	o 0	08325014	0	0	0	1	0	1
130	Kreßberg	0	1	o 0	08127101	0	0	0	0	0	0
131	Göppingen	0	1	0	08117026	11	9	2	$\frac{\circ}{2}$	0	2
132	Langenbrettach	0	1	0	08125113	1	1	0	0	0	0
133	Königsbach-Stein	1	0	0	08236076	1	1	0	1	0	1
134	Nordrach	1	0	0	08230070	3	3	0	3	1	2
135	Rottenburg am Neckar	0	1	0	08416036	5 5	5	0	3 1	1	0
136	Herdwangen-Schönach	1	0	1	08437124	3	3	0	$\frac{1}{2}$	0	2
137	Sigmaringendorf	0	0	1	08437124	1	1	0	0	0	0
138	Moosburg (Federsee)	0	1	0	08426078	4	4	0	4	4	0
139	Alleshausen	0	1	0	08426005	6	6	0	6	6	0
140	Bahlingen am Kaiserstuhl	1	0	0	08420003	4	3	1	3	1	2
141	Notzingen am Kaiserstum Notzingen	0	1	0	08116048	2	2	0	0	0	0
111	1.002mgon	3	-	5	30110040	4	_	9	J	3	Ü

142	Rammingen (Württemberg)	0	1	0	08425097	1	1	0	0	0	0
143	Weisweil	1	0	0	08425037	2	2	0	0	0	0
143 144	Mahlberg	1	0	0	08317073	2	2	0	3	1	2
144	Biederbach	1	0	0	08316003	3	3	0	3	3	0
146	Kupferzell	0	1	0	08126047	2	2	0	$\frac{3}{2}$	$\frac{3}{2}$	0
140 147	Heiningen (Landkreis Göppingen)	0	1	0	08120047	2	2	0	1	1	0
148	Bräunlingen Bräunlingen	1	0	0	08326006	2	2	0	$\overset{1}{2}$	2	0
148	Karlsbad (Baden)	1	0	0	08215096		4	0	4	4	0
						4		0			
150	Waldenburg (Württemberg)	0	1	0	08126085	1	1	-	1	1	0
151	Großrinderfeld	1	0	0	08128045	4	4	0	4	4	0
152	Fleischwangen	0	1	0	08436032	3	3	0	3	3	0
153	Zimmern unter der Burg	0	1	0	08417078	0	0	0	0	0	0
154	Stetten am kalten Markt	1	0	1	08437107	4	4	0	4	4	0
155	Neckartailfingen	0	1	0	08116041	0	0	0	1	0	1
156	Dogern	1	0	0	08337032	1	1	0	0	0	0
157	Forchtenberg	0	1	0	08126028	3	3	0	3	3	0
158	Merklingen	0	1	0	08425079	1	1	0	0	0	0
159	Scheer	0	1	0	08437101	2	2	0	0	0	0
160	Bernau im Schwarzwald	1	0	0	08337013	2	2	0	1	1	0
161	Villingen-Schwenningen	1	1	0	08326074	3	1	2	2	0	2
162	Kohlberg (Württemberg)	0	1	0	08116036	0	0	0	0	0	0
163	Endingen am Kaiserstuhl	1	0	0	08316012	2	2	0	0	0	0
164	Großbottwar	0	1	0	08118021	1	1	0	1	1	0
165	Beuron	0	0	1	08437005	4	4	0	0	0	0
166	Mulfingen	0	1	0	08126056	4	4	0	4	4	0
167	Winden im Elztal	1	0	0	08316055	2	2	0	2	2	0
168	Eichstegen	0	1	0	08436027	5	5	0	3	1	2
169	Schriesheim	1	0	0	08226082	3	3	0	0	0	0
170	Loffenau	0	1	0	08216029	3	3	0	3	3	0
171	Dielheim	1	0	0	08226010	2	2	0	0	0	0
172	Eberhardzell	0	1	0	08426038	6	6	0	6	6	0
173	Rutesheim	0	1	0	08115042	4	3	1	4	3	1
174	Schömberg (Zollernalbkreis)	0	1	0	08417057	3	3	0	0	0	0
175	Meersburg	1	0	0	08435036	5	4	1	5	4	1
176	Steinenbronn	0	1	0	08115046	4	4	0	4	4	0
177	Bietigheim	1	0	0	08216005	6	6	0	6	6	0
178	Bonndorf im Schwarzwald	1	0	0	08337022	2	2	0	0	0	0
179	Unterstadion	0	1	0	08425124	1	1	0	0	0	0
180	Markgröningen	0	1	0	08118050	3	3	0	2	0	2
181	Eberdingen	0	1	0	08118012	2	2	0	2	2	0
182	Aspach (bei Backnang)	0	1	0	08119087	9	9	0	0	0	0
183	Immenstaad am Bodensee	1	0	0	08435024	2	2	0	2	2	0
184	Neubulach	0	1	0	08235047	3	3	0	3	3	0
185	Wilhelmsdorf (Württemberg)	0	1	0	08436083	4	4	0	1	1	0
186	Achberg	0	0	1	08436001	1	1	0	1	1	0
187	Remchingen	1	0	0	08236071	3	3	0	1	1	0
188	Ditzingen	0	1	0	08118011	5	5	0	1	1	0
189	Eppelheim	1	0	0	08226018	0	0	0	0	0	0
190	Nattheim	0	1	0	08135026	1	1	0	1	1	0
191	Dietenheim	0	1	0	08425028	$\overline{4}$	4	0	1	1	0
192	Schwenningen (Heuberg)	1	0	0	08437102	3	3	0	3	3	0
193	Zell im Wiesental	1	0	0	08336103	4	4	0	4	4	0
194	Untermarchtal	0	1	0	08425123	0	0	0	0	0	0
195	Sasbachwalden	1	0	0	08317118	2	2	0	$\overset{\circ}{2}$	1	1
196	Emerkingen	0	1	0	08425036	2	2	0	2	1	1
197	Ketsch	1	0	0	08226037	$\overset{-}{2}$	1	1	$\overline{2}$	1	1
198	Herrenberg	0	1	0	08115021	7	7	0	0	0	0
199	Weinstadt	0	1	0	08119091	3	3	0	1	0	1
200	Elztal (Odenwald)	1	0	0	08225117	3	3	0	3	3	0
201	Donzdorf	0	1	0	08117015	6	6	0	6	6	0
202	Römerstein (Gemeinde)	0	1	0	08415088	0	0	0	0	0	0
203	Ispringen	1	0	0	08236030	2	1	1	2	1	1
204	Süßen	0	1	0	08230030	5	5	0	5	5	0
204 205	Kißlegg	0	1	0	08436052	1	1	0	0	0	0
$\frac{205}{206}$	Wain	0	1	0	08436032 08426125	1	1	0	0	0	0
207	Berkheim	0	1	0		3	3	0	3	3	0
207	Neidlingen	0	1	0	08426019 08116043	3 1	3 1	0	3 0	3 0	0
$\frac{208}{209}$	Ötisheim			0		2	2	0	$\frac{0}{2}$	$\frac{0}{2}$	0
	Gerstetten	0 0	1 1	0	08236050		4	0	$\frac{2}{4}$	4	0
$\frac{210}{211}$	Gerstetten Amtzell	0			08135015	4	3	0	3		0
$\frac{211}{212}$	Amtzell Bopfingen	0	1 1	0	08436006 08136010	3 1	3 1		3 1	3 1	
$\frac{212}{213}$	Triberg im Schwarzwald	0 1	0	0	08136010	$\frac{1}{2}$	$\frac{1}{2}$	0	0	0	$0 \\ 0$
$\frac{213}{214}$	Affalterbach	0	1	0	08326060	2 5	5	0	5	5	0
414	Analterbach	U	1	U	00110001	Ð	Ð	U	J	J	U

215	Hügelsheim	1	0	0	08216022	3	3	0	3	3	0
216	Rudersberg	0	1	0	08119061	5	5	0	0	0	0
217	Edingen-Neckarhausen	1	0	0	08226105	3	3	0	3	3	0
218	Heddesheim	1	0	0	08226028	1	1	0	1	1	0
219	Heiligkreuzsteinach	1	0	0	08226029	3	2	1	1	0	1
220	Seebach (Baden)	1	0	0	08317126	4	4	0	3	3	0
$\frac{220}{221}$	Horben	1	0	0	08315056	1	1	0	2	1	1
$\frac{221}{222}$		0	1	0		2	1	1	1	0	1
	Talheim (Landkreis Tuttlingen)				08327048						
223	Ettenheim	1	0	0	08317026	0	0	0	1	0	1
224	Unterwaldhausen	0	1	0	08436077	2	2	0	2	2	0
225	Uberlingen	1	0	0	08435059	7	6	1	1	0	1
226	Stuttgart	0	1	0	08111000	21	7	14	14	0	14
227	Reilingen	1	0	0	08226068	4	3	1	1	0	1
228	Frickenhausen (Württemberg)	0	1	0	08116020	0	0	0	0	0	0
229	Hohberg	1	0	0	08317047	3	3	0	$\overset{\circ}{2}$	2	0
230	Pfronstetten	0	1	0		2	2	0	1	0	1
					08415058			-			
231	Asperg	0	1	0	08118003	2	2	0	2	2	0
232	Altheim (bei Riedlingen)	0	1	0	08426008	4	4	0	4	4	0
233	Wiesenbach (Baden)	1	0	0	08226097	4	3	1	1	0	1
234	Illmensee	1	0	0	08437056	3	3	0	0	0	0
235	Hohenstadt	0	1	0	08117031	0	0	0	0	0	0
236	Heubach	0	1	0	08136028	0	0	0	0	0	0
237	Straßberg (Zollernalbkreis)	0	0	1	08417063	2	2	0	2	1	1
238	Kappel-Grafenhausen	1	0	0	08317152	1	1	0	1	1	0
239	Schwetzingen	1	0	0	08226084	4	4	0	1	1	0
								-			
240	Sulzfeld (Baden)	1	0	0	08215082	2	2	0	2	2	0
241	Rangendingen	0	0	1	08417051	3	3	0	3	3	0
242	Marbach am Neckar	0	1	0	08118049	5	5	0	5	5	0
243	Seitingen-Oberflacht	0	1	0	08327055	0	0	0	0	0	0
244	Lörrach	1	0	0	08336050	5	1	4	5	1	4
245	Helmstadt-Bargen	1	0	0	08226106	6	6	0	0	0	0
246	Küssaberg	1	0	0	08337125	1	1	0	1	1	0
247	Fischerbach	1	0	0	08317029	1	1	0	0	0	0
248	Schwarzach (Odenwald)	1	0	0	08225116	3	3	0	3	3	0
	,							-			
249	Bodelshausen	0	1	0	08416006	0	0	0	0	0	0
250	Hettingen	0	0	1	08437047	3	3	0	3	3	0
251	Loßburg	0	1	0	08237045	1	1	0	1	1	0
252	Biberach (Baden)	1	0	0	08317011	3	2	1	2	1	1
253	Grabenstetten	0	1	0	08415028	0	0	0	0	0	0
254	Blumberg	1	0	0	08326005	2	2	0	2	2	0
255	Schwäbisch Hall	0	1	0	08127076	4	4	0	0	0	0
256	Ottersweier	1	0	0	08216041	4	4	0	4	4	0
257	Oberstadion	0	1	0	08425091	3	3	0	2	0	2
258	Schramberg	0	1	0	08325053	3	2	1	1	0	1
	9										
259	Eisingen (Baden)	1	0	0	08236011	1	1	0	1	1	0
260	Wolfschlugen	0	1	0	08116073	0	0	0	0	0	0
261	Möglingen	0	1	0	08118051	3	3	0	0	0	0
262	Schlierbach (Württemberg)	0	1	0	08117044	3	3	0	3	3	0
263	Erlenmoos	0	1	0	08426043	4	4	0	4	4	0
264	Freiburg im Breisgau	1	0	0	08311000	19	12	7	7	0	7
265	Dietingen	0	1	0	08325011	2	2	0	0	0	0
266	Königsfeld im Schwarzwald	1	0	0	08326031	1	1	0	0	0	0
267	Stutensee	1	0	0	08215109	5	5	0	0	0	0
268	Gingen an der Fils	0	1	0	08117025	4	4	0	4	4	0
269	Ummendorf (bei Biberach)	0		0		3	3	0	3	3	0
	,		1		08426120						
270	Backnang	0	1	0	08119008	6	6	0	6	6	0
271	Schönbrunn (Baden)	1	0	0	08226081	6	6	0	6	6	0
272	Bad Waldsee	0	1	0	08436009	4	4	0	0	0	0
273	Schwieberdingen	0	1	0	08118067	2	2	0	0	0	0
274	Deizisau	0	1	0	08116014	0	0	0	0	0	0
275	Markdorf	1	0	0	08435034	7	7	0	3	2	1
276	Hausen im Wiesental	1	0	0	08336036	1	1	0	1	1	0
277	Kippenheim	1	0	0	08317059	$\overline{2}$	$\overset{-}{2}$	0	0	0	0
278	Wüstenrot	0	1	0	08125107	4	4	0	0	0	0
	Böhmenkirch						4			4	
279		0	1	0	08117010	4		0	4		0
280	Riegel am Kaiserstuhl	1	0	0	08316037	4	3	1	4	3	1
281	Wolfach	1	0	0	08317145	4	4	0	0	0	0
282	Schiltach	1	0	0	08325051	0	0	0	0	0	0
283	Gütenbach	1	0	0	08326020	1	1	0	0	0	0
284	Schelklingen	0	1	0	08425108	0	0	0	0	0	0
285	Wurmberg	0	1	0	08236068	3	3	0	3	3	0
286	Ostelsheim	0	1	0	08235057	$^{\circ}$	2	0	0	0	0
287	Staufen im Breisgau	1	0	0	08315108	2	2	0	1	1	0
201	Diologua	1		J	55510100	_	-	V	_	_	U

288	Buggingen	1	0	0	08315022	1	1	0	0	0	0
289	Burgrieden	0	1	0	08426028	3	3	0	3	3	0
	0				08416023		0				
290	Kusterdingen	0	1	0		0	-	0	0	0	0
291	Bubsheim	0	1	0	08327007	0	0	0	0	0	0
292	Eriskirch	0	1	0	08435013	3	3	0	3	3	0
293	Nagold (Stadt)	0	1	0	08235046	6	6	0	0	0	0
294	Gechingen	0	1	0	08235029	4	3	1	5	$\overset{\circ}{2}$	3
295	Rohrdorf (Landkreis Calw)	0	1	0	08235060	3	3	0	3	3	0
296	Böllen	1	0	0	08336010	3	3	0	2	1	1
297	Bad Dürrheim	1	0	0	08326003	0	0	0	0	0	0
298	Neidenstein	1	0	0	08226058	3	3	0	0	0	0
299	Munderkingen	0	1	0	08425081	1	0	1	2	0	2
300	Pforzheim	1	0	0	08231000	9	6	3	3	0	3
301	Unterreichenbach	0	1	0	08235073	3	3	0	3	3	0
302	Auggen	1	0	0	08315004	1	1	0	1	1	0
303	Limbach (Baden)	1	0	0	08225052	7	7	0	7	7	0
								-			
304	Gäufelden	0	1	0	08115016	3	3	0	3	3	0
305	Sasbach am Kaiserstuhl	1	0	0	08316038	0	0	0	4	0	4
306	Mehrstetten	0	1	0	08415048	1	1	0	1	1	0
307	Heuchlingen	0	1	0	08136029	1	1	0	1	0	1
								-			
308	Denzlingen	1	0	0	08316009	8	8	0	1	1	0
309	Flein	0	1	0	08125030	0	0	0	0	0	0
310	Kirchheim am Ries	0	1	0	08136037	0	0	0	0	0	0
311	Schemmerhofen	0	1	0	08426134	4	4	0	4	4	0
312								0			
	Ettlingen	1	0	0	08215017	5	5	-	1	1	0
313	Simonswald	1	0	0	08316042	5	5	0	5	5	0
314	Neufra	0	0	1	08437082	5	5	0	0	0	0
315	Hülben	0	1	0	08415039	0	0	0	0	0	0
316	Wolpertshausen	0	1	0	08127099	0	0	0	1	0	1
								-			
317	Steinach (Ortenaukreis)	1	0	0	08317129	0	0	0	0	0	0
318	Friolzheim	0	1	0	08236019	3	3	0	2	0	2
319	Aidlingen	0	1	0	08115001	4	4	0	4	4	0
320	Wilhelmsfeld	1	0	0	08226099	0	0	0	0	0	0
321	Mühlheim an der Donau	0	1	0	08327036	3	1	2	3	0	3
322	Meckenbeuren	0	1	0	08435035	2	2	0	2	2	0
323	Bollschweil	1	0	0	08315014	4	4	0	4	4	0
324	Schönau (Odenwald)	1	0	0	08226080	2	2	0	0	0	0
								-			
325	Steinen (Baden)	1	0	0	08336084	3	3	0	0	0	0
326	Ehrenkirchen	1	0	0	08315131	3	3	0	3	3	0
327	Bad Herrenalb	0	1	0	08235033	7	7	0	7	7	0
328	Walddorfhäslach	0	1	0	08415087	1	1	0	3	0	3
		0								1	
329	Mittelbiberach	_	1	0	08426074	1	1	0	1		0
330	Obergröningen	0	1	0	08136049	0	0	0	1	0	1
331	Gosheim	0	1	0	08327019	0	0	0	0	0	0
332	Rastatt	1	0	0	08216043	7	5	2	2	0	2
333	Lonsee	0	1	0	08425075	0	0	0	$\overline{2}$	0	2
334	Wurmlingen (Landkreis Tuttlingen)	0	1	0	08327054	2	1	1	1	0	1
335	Bühlertal	1	0	0	08216008	3	3	0	3	3	0
336	Riedlingen	0	1	0	08426097	9	8	1	9	8	1
337	Eschenbach (Württemberg)	0	1	0	08117020	2	1	1	2	1	1
338	Friedenweiler	1	0	0	08315039	3	3	0	1	1	0
339	Neuweiler	0	1	0	08235050	5	4	1	1	0	1
340	Gaildorf	0	1	0	08127025	0	0	0	0	0	0
341	Rechtenstein	0	1	0	08425098	1	1	0	2	0	2
342	Eschbronn	0	1	0	08325071	0	0	0	0	0	0
343	Weil am Rhein	1	0	0	08336091	3	2	1	1	0	1
344	Lauterbach (Schwarzwald)	0	1	0	08325036	1	1	0	1	0	1
345	Hausen ob Verena	0	1	0	08327023	3	2	1	2	0	2
346	Ottenhöfen im Schwarzwald	1	0	0	08317102	2	2	0	3	1	2
347	Hildrizhausen	0	1	0	08115022	4	4	0	4	4	0
348	Bad Friedrichshall	0	1	0	08125005	1	1	0	0	0	0
349	Jettingen	0	1	0	08115053	3	3	0	3	3	0
350	Künzelsau	0	1	0	08126046	4	4	0	4	4	0
351	Hermaringen	0	1	0	08135021	0	0	0	0	0	0
352	Todtmoos	1	0	0	08337108	4	4	0	2	2	0
353		0	1	0		6	6	0	6	6	
	Dürmentingen				08426035						0
354	Baindt	0	1	0	08436012	3	2	1	3	2	1
355	Neuenbürg	0	1	0	08236043	6	6	0	6	6	0
356	Illingen (Württemberg)	0	1	0	08236028	3	3	0	1	1	0
357	Hattenhofen (Württemberg)	0	1	0	08117029	3	3	0	3	3	0
358	(9)	1	0	0		2	2	0	1	1	
	Schwanau				08317150						0
359	Neuler	0	1	0	08136046	0	0	0	0	0	0
360	St. Märgen	1	0	0	08315094	4	4	0	1	0	1

361	Billigheim	1	0	0	08225009	2	2	0	2	2	0
362	Oftersheim	1	0	0	08226062	0	0	0	0	0	0
363	Holzmaden	0	1	0	08116029	1	1	0	0	0	0
364	Brigachtal	1	0	0	08326075	0	0	0	0	0	0
365	Dürbheim	0	1	0	08327011	1	1	0	1	0	1
366	Herrischried	1	0	0	08337049	0	0	0	0	0	0
367	Spiegelberg	0	1	0	08119069	4	4	0	4	4	0
368	Ballendorf	0	1	0		2	2	0	0	0	0
					08425013						
369	Willstätt	1	0	0	08317141	1	1	0	0	0	0
370	Hohenfels (bei Stockach)	0	0	1	08335096	2	2	0	0	0	0
371	Kirchardt	1	0	0	08125049	1	0	1	1	0	1
372	Adelmannsfelden	0	1	0	08136003	0	0	0	0	0	0
373	Tunau	1	0	0	08336089	1	1	0	1	1	0
374	Gutach (Schwarzwaldbahn)	1	0	0	08317039	3	2	1	3	2	1
375	Hirschberg an der Bergstraße	1	0	0	08226107	1	1	0	1	1	0
376	Dornstetten	0	1	0	08237019	4	4	0	4	4	0
377	Waldkirch	1	0	0	08316056	4	4	0	4	4	0
378	Bad Urach	0	1	0	08415078	0	0	0	0	0	0
379	Asselfingen	0	1	0	08425011	1	1	0	1	0	1
380	Dauchingen	1	0	0	08326010	0	0	0	0	0	0
381	Pfaffenweiler	1	0	0		3	3	0	0	0	0
					08315089						
382	Friedrichshafen	0	1	0	08435016	6	5	1	2	0	2
383	Metzingen	0	1	0	08415050	0	0	0	0	0	0
384	Bärenthal	0	0	1	08327004	2	2	0	0	0	0
385	Jagsthausen	0	1	0	08125048	3	1	2	2	0	2
386	Fridingen an der Donau	0	1	0	08327016	0	0	0	0	0	0
387	Neuhausen ob Eck	0	1	0	08327038	4	4	0	1	0	1
388	Bisingen	0	0	1	08417008	1	1	0	0	0	0
389	Gruibingen	0	1	0	08117028	3	3	0	3	3	0
390	Neckarzimmern	1	0	0	08225067	2	2	0	2	2	0
391	Leinzell	0	1	0	08136040	0	0	0	1	0	1
392	Iggingen	0	1	0	08136034	0	0	0	0	0	0
393	Rietheim-Weilheim	0	1	0	08327056	3	2	1	$\frac{\circ}{2}$	0	2
394	Wolfegg	0	1	0	08436085	1	1	0	0	0	0
	00							-		-	
395	Höchenschwand	1	0	0	08337051	1	1	0	2	0	2
396	Rickenbach (Hotzenwald)	1	0	0	08337090	2	2	0	0	0	0
397	Leutenbach (Württemberg)	0	1	0	08119042	5	5	0	2	2	0
398	Aichwald	0	1	0	08116076	1	1	0	1	1	0
399	Oberharmersbach	1	0	0	08317088	2	2	0	1	0	1
400	Hüffenhardt	1	0	0	08225042	2	2	0	2	2	0
401	Rust (Baden)	1	0	0	08317114	2	1	1	2	1	1
402	Ratshausen	0	1	0	08417052	1	1	0	1	1	0
403	Mögglingen	0	1	0	08136043	1	1	0	2	0	2
404	Bernstadt (Alb)	0	1	0	08425019	2	2	0	2	1	1
405	Neuenstadt am Kocher	0	1	0	08125069	0	0	0	0	0	0
406	Ebersbach an der Fils	0	1	0	08117018	4	4	0	4	4	0
407	Ladenburg	1	0	0	08226038	4	$\overline{4}$	0	0	0	0
408	Mietingen	0	1	0	08426073	2	2	0	$\overset{\circ}{2}$	$\overset{\circ}{2}$	0
409	Schöntal	0	1	0	08126072	6	6	0	0	0	0
410	Aichhalden	0	1	0	08325001	2	2	0	0	0	0
411	Michelbach an der Bilz	0	1	0	08127056	0	0	0	0	0	0
411	Elchesheim-Illingen	1	0	0			4	0	4	4	0
	9				08216012	4					
413	Neuhausen (Enzkreis)	1	0	0	08236044	2	2	0	0	0	0
414	Heuweiler	1	0	0	08315051	2	2	0	2	2	0
415	Berghaupten	1	0	0	08317009	2	2	0	0	0	0
416	Neuhausen auf den Fildern	0	1	0	08116047	0	0	0	0	0	0
417	Lauda-Königshofen	1	1	0	08128139	6	6	0	6	6	0
418	Nusplingen	1	0	0	08417045	3	3	0	3	3	0
419	Beimerstetten	0	1	0	08425014	1	1	0	0	0	0
420	Jagstzell	0	1	0	08136035	1	1	0	0	0	0
421	Freudenstadt	0	1	0	08237028	10	7	3	7	2	5
422	Haigerloch	0	0	1	08417025	5	5	0	0	0	0
423	Veringenstadt	0	0	1	08437114	2	2	0	2	2	0
424	Orsingen-Nenzingen	1	0	0	08335099	$\overline{2}$	$\overline{2}$	0	1	0	1
425	Freudental	0	1	0	08118016	3	3	0	0	0	0
426	Balzheim	0	1	0	08425140	3	3	0	$\frac{0}{2}$	1	1
$\frac{420}{427}$	Erbach (Donau)	0					3 4				
		-	1	0	08425039	4	$\frac{4}{2}$	0	1	1	0
428	Tübingen	0	1	0	08416041	3		1	1	0	1
429	Pfalzgrafenweiler	0	1	0	08237054	8	7	1	8	7	1
430	Eberstadt (Württemberg)	0	1	0	08125021	2	1	1	2	0	2
431	Obermarchtal	0	1	0	08425090	4	4	0	0	0	0
432	Althengstett	0	1	0	08235007	2	2	0	0	0	0
433	Herbolzheim	1	0	0	08316017	4	4	0	2	2	0

49.4	Through aire	0	1	0	00007010	0	0	0	1	1	0
434	Egesheim	0	1	0	08327013	2	$\frac{2}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$	0
435	Bergatreute	0	1	0	08436014	2		0			0
$436 \\ 437$	Lobbach	1 1	0	0	08226104	$\frac{3}{3}$	3 3	0	3 3	3	0
	Zaisenhausen	1	0	0	08215094		ა 3	0	3	3 3	0
438	Boxberg (Baden)				08128014 08135027	3					
439	Niederstotzingen	0	1	0		1	1	0	0	0	0
440	Esslingen am Neckar	0	1	0	08116019	7	7	0	0	0	0
441	Mengen	0	0	1	08437076	5	5	0	0	0	0
442	Bodman-Ludwigshafen	1	0	0	08335098	3	3	0	3	3	0
443	Fröhnd	1	0	0	08336025	5	5	0	1	1	0
444	Karlsruhe	1	0	0	08212000	8	5	3	4	1	3
445	Horb am Neckar	0	1	1	08237040	7	6	1	1	0	1
446	Langenburg	0	1	0	08127047	3	2	1	1	0	1
447	Ehningen	0	1	0	08115013	5	5	0	5	5	0
448	Wiernsheim	0	1	0	08236065	5	5	0	5	5	0
449	Neresheim	0	1	0	08136045	2	2	0	0	0	0
450	Rheinhausen (Breisgau)	1	0	0	08316053	3	2	1	3	1	2
451	Owen	0	1	0	08116054	0	0	0	0	0	0
452	Waibstadt	1	0	0	08226091	2	2	0	0	0	0
453	Birkenfeld (Württemberg)	0	1	0	08236004	4	4	0	0	0	0
454	Rheinau (Baden)	1	0	0	08317153	3	3	0	3	3	0
455	Bad Saulgau	0	1	0	08437100	9	9	0	0	0	0
456	Dachsberg (Südschwarzwald)	1	0	0	08337027	1	0	1	1	0	1
457	Gärtringen	0	1	0	08115015	$\overline{4}$	4	0	$\overline{4}$	4	0
458	Bodnegg	0	1	0	08436018	$\overline{2}$	$\overline{2}$	0	$\overline{2}$	$\overline{2}$	0
459	Ochsenhausen	0	1	0	08426087	5	5	0	5	5	0
460	Baden-Baden	1	0	0	08211000	11	8	3	11	8	3
461	Epfenbach	1	0	0	08226017	3	3	0	3	3	0
462	Kraichtal	1	0	0	08215097	1	1	0	4	0	4
463		0	1	0		5	5	0	5	5	0
	Schwendi				08426108						
464	Mühlingen	1	0	0	08335057	2	2	0	1	0	1
465	Sinsheim	1	0	0	08226085	2	1	1	2	0	2
466	Engen	1	0	0	08335022	3	2	1	3	2	1
467	Hechingen	0	0	1	08417031	4	3	1	1	0	1
468	Schorndorf	0	1	0	08119067	5	4	1	1	0	1
469	Kirchberg an der Murr	0	1	0	08119038	4	4	0	4	4	0
470	Gaiberg	1	0	0	08226022	1	1	0	0	0	0
471	Dettenheim	1	0	0	08215111	2	2	0	2	2	0
472	Krautheim (Jagst)	1	1	0	08126045	4	4	0	4	4	0
473	Gemmingen	1	0	0	08125034	2	0	2	2	0	2
474	Weingarten (Baden)	1	0	0	08215090	0	0	0	0	0	0
475	Berghülen	0	1	0	08425017	0	0	0	0	0	0
476	Wildberg (Schwarzwald)	0	1	0	08235080	6	6	0	6	6	0
477	Gschwend	0	1	0	08136027	2	2	0	1	0	1
478	Betzenweiler	0	1	0	08426020	5	5	0	5	5	0
479	Höpfingen	1	0	0	08225039	2	2	0	2	2	0
480	Bad Säckingen	1	0	0	08337096	1	0	1	1	0	1
481	Neenstetten	0	1	0	08425083	2	2	0	1	0	1
482	Blaubeuren	0	1	0	08425020	1	1	0	0	0	0
483	Kirchberg an der Jagst	0	1	0	08127046	0	0	0	0	0	0
484	Hartheim am Rhein	1	0	0	08315048	3	3	0	3	3	0
485	Kirchheim am Neckar	0	1	0	08118040	$\overset{\circ}{2}$	$^{\circ}$	0	$\overset{\circ}{2}$	0	$\overset{\circ}{2}$
486	Spaichingen	0	1	0	08327046	$\overline{2}$	$\overline{2}$	0	$\overline{2}$	$\overset{\circ}{2}$	0
487	Wangen (bei Göppingen)	0	1	0	08117055	3	3	0	0	0	0
488	Ohlsbach	1	0	0	08317097	1	1	0	1	1	0
489	Eichstetten am Kaiserstuhl	1	0	0	08315030	3	3	0	3	3	0
490	Mudau	1	0	0	08225060	4	4	0	4	4	0
491	Stegen	1	0	0	08225000	2	2	0	1	1	0
491	St. Johann (Württemberg)	0		0			0	0	0	0	0
			1		08415093	0					
493	Vellberg	0	1	0	08127089	0	0	0	0	0	0
494	Neuried (Baden)	1	0	0	08317151	3	3	0	1	0	1
495	Eggenstein-Leopoldshafen	1	0	0	08215102	1	1	0	1	1	0
496	Sandhausen	1	0	0	08226076	2	1	1	1	0	1
497	Bad Boll	0	1	0	08117012	1	1	0	1	1	0
498	St. Leon-Rot	1	0	0	08226103	4	3	1	4	3	1
499	Nordheim (Württemberg)	0	1	0	08125074	1	0	1	1	0	1
500	Ottenbach (Württemberg)	0	1	0	08117037	3	3	0	1	1	0
501	Rainau	0	1	0	08136089	1	1	0	0	0	0
502	Vörstetten	1	0	0	08316045	3	3	0	3	3	0
503	Kenzingen	1	0	0	08316020	4	4	0	4	4	0
504	Mühlenbach (Schwarzwald)	1	0	0	08317078	4	4	0	1	1	0
505	Abstatt	0	1	0	08125001	0	0	0	0	0	0
506	Reichartshausen	1	0	0	08226066	4	4	0	4	4	0

505	17"1 1 .	-	0	0	00100064	4		0	4	4	0
$507 \\ 508$	Külsheim Fischingen (Baden)	1 1	0	0	08128064 08336024	$\frac{4}{1}$	$\frac{4}{1}$	0	$\frac{4}{1}$	$\frac{4}{1}$	0
509	Kirchberg an der Iller	0	1	0	08426065	2	2	0	$\overset{1}{2}$	2	0
510	Zuzenhausen	1	0	0	08226101	1	1	0	0	0	0
511	Tannheim (Württemberg)	0	1	0	08426117	2	2	0	$\overset{\circ}{2}$	$\overset{\circ}{2}$	0
512	Rot an der Rot	0	1	0	08426100	5	5	0	5	5	0
513	Deilingen	0	1	0	08327009	2	1	1	1	0	1
514	Sulz am Neckar	0	1	0	08325057	3	3	0	3	3	0
515	Altdorf (Landkreis Esslingen)	0	1	0	08116005	0	0	0	0	0	0
516	Dörzbach	0	1	0	08126020	3	3	0	3	3	0
517	Fahrenbach	1	0	0	08225024	2	2	0	2	2	0
518	Roigheim	0	1	0	08125084	4	2	2	2	0	2
519	Forst (Baden)	1	0	0	08215021	2	1	1	2	1	1
520	Mühlacker	0	1	0	08236040	6	6	0	0	0	0
521	Bad Rappenau	1	0	0	08125006	3	3	0	0	0	0
522	Breisach am Rhein	1	0	0	08315015	3	3	0	3	3	0
523	Börslingen	0	1	0	08425022	2	2	0	2	2	0
524	Kirchentellinsfurt	0	1	0	08416022	0	0	0	0	0	0
$525 \\ 526$	Leonberg Daisendorf	$0 \\ 1$	$\frac{1}{0}$	0	08115028 08435010	$\frac{4}{2}$	$\frac{3}{2}$	$\frac{1}{0}$	$\frac{1}{2}$	$0 \\ 2$	$\frac{1}{0}$
520 527	Lauterstein	0	1	0	08433010	3	3	0	3	3	0
528	Kleines Wiesental	1	0	0	08336107	4	4	0	4	4	0
529	Freudenberg (Baden)	1	0	0	08128039	0	0	0	0	0	0
530	Bad Wurzach	0	1	0	08436010	3	3	0	0	0	0
531	Gondelsheim	1	0	0	08215025	0	0	0	0	0	0
532	Neukirch (bei Tettnang)	0	1	0	08435042	4	4	0	1	1	0
533	Friesenheim (Baden)	1	0	0	08317031	3	3	0	3	3	0
534	Wolpertswende	0	1	0	08436087	$\overset{\circ}{2}$	2	0	1	0	1
535	Altheim (bei Ehingen)	0	1	0	08425004	0	0	0	1	0	1
536	Bondorf	0	1	0	08115004	2	2	0	2	2	0
537	Aalen	0	1	0	08136088	7	5	2	2	0	2
538	Hornberg	1	0	0	08317051	2	2	0	0	0	0
539	Laichingen	0	1	0	08425071	3	3	0	2	1	1
540	Laudenbach (Bergstraße)	1	0	0	08226040	1	1	0	1	1	0
541	Eppingen	1	0	0	08125026	3	2	1	2	1	1
542	Iffezheim	1	0	0	08216023	2	2	0	2	2	0
543	Leibertingen	1	0	0	08437072	1	1	0	1	1	0
544	Ulm	0	1	0	08421000	23	0	23	23	0	23
545	Schliengen	1	0	0	08336078	3	3	0	2	1	1
546	Ortenberg (Baden)	1	0	0	08317100	0	0	0	0	0	0
547	Zwiefalten	0	1	0	08415085	3	3	0	0	0	0
548	Bad Buchau Wannweil	0	1 1	$0 \\ 0$	08426013	9 0	9	0	9	9 0	0
$549 \\ 550$	Steinhausen an der Rottum	0	1	0	08415080 08426113	4	4	0	4	4	0
551	Renquishausen	0	1	0	08327041	3	2	1	3	2	1
551	Giengen an der Brenz	0	1	0	08135016	4	4	0	0	0	0
553	Hausen am Bussen	0	1	0	08425055	1	1	0	1	0	1
554	Zimmern ob Rottweil	0	1	0	08325069	0	0	0	0	Ő	0
555	Cleebronn	0	1	0	08125017	1	1	0	0	0	0
556	Obersulm	0	1	0	08125110	1	1	0	0	0	0
557	Aichelberg (Landkreis Göppingen)	0	1	0	08117002	2	2	0	2	1	1
558	Kieselbronn	1	0	0	08236031	2	2	0	1	0	1
559	Aach (Hegau)	1	0	0	08335001	0	0	0	1	0	1
560	Lahr/Schwarzwald	1	0	0	08317065	3	2	1	3	2	1
561	Spechbach	1	0	0	08226086	3	3	0	3	0	3
562	Gerlingen	0	1	0	08118019	0	0	0	0	0	0
563	Albstadt	0	1	0	08417079	4	4	0	0	0	0
564	Zaberfeld	0	1	0	08125108	4	3	1	1	0	1
565	Bischweier	1	0	0	08216006	3	2	1	1	0	1
566	Güglingen	0	1	0	08125038	1	0	1	1	0	1
567	Neckargerach	1	0	0	08225064	5	5	0	5	5	0
$\frac{568}{569}$	Winterbach (Remstal)	$0 \\ 1$	$\frac{1}{0}$	$0 \\ 0$	08119086	$0 \\ 3$	$0 \\ 2$	0 1	0 6	0 0	0
570	Kronau Fichtenau	0	1	0	08215039 08127102	3 1	1	0	0	0	6 0
571	Malsburg-Marzell	1	0	0	08336104	3	3	0	1	1	0
572	Appenweier	1	0	0	08317005	1	1	0	1	1	0
573	Schönenberg (Schwarzwald)	1	0	0	08336080	3	3	0	1	1	0
574	Grafenberg (Landkreis Reutlingen)	0	1	0	08415029	0	0	0	0	0	0
575	Tamm	0	1	0	08118071	3	3	0	3	3	0
576	Philippsburg	1	0	0	08215066	5	5	0	0	0	0
577	Talheim (Landkreis Heilbronn)	0	1	0	08125094	0	0	0	0	0	0
578	Leimen (Baden)	1	0	0	08226041	4	4	0	0	0	0
579	Steinmauern	1	0	0	08216052	3	3	0	3	3	0

580	Wittnau (Breisgau)	1	0	0	08315125	1	1	0	0	0	0
581	Sasbach	1	0	0	08317116	5	5	0	3	3	0
582	Malterdingen			0			3			0	0
	Ü	1	0		08316024	3		0	0		
583	Ertingen	0	1	0	08426045	5	5	0	5	5	0
584	Inzlingen	1	0	0	08336043	2	2	0	0	0	0
585	Schopfloch (Schwarzwald)	0	1	0	08237061	3	3	0	3	3	0
586	Häg-Ehrsberg	1	0	0	08336106	1	1	0	1	1	0
								-			
587	Ahorn (Baden)	1	0	0	08128138	6	6	0	0	0	0
588	Niederstetten	0	1	0	08128082	2	2	0	2	2	0
589	Dotternhausen	0	1	0	08417016	0	0	0	0	0	0
590	Altshausen	0	1	0	08436005	2	1	1	$\overset{\circ}{2}$	1	1
591	Dürnau (Landkreis Biberach)	0	1	0	08426036	3	3	0	3	3	0
592	Weinsberg	0	1	0	08125102	1	1	0	1	0	1
593	Grömbach	0	1	0	08237032	5	4	1	1	0	1
594	Tengen	1	0	0	08335080	2	2	0	2	2	0
595	Wittighausen	1	0	0	08128137	4	4	0	4	$\frac{2}{4}$	
								-			0
596	Ibach (Schwarzwald)	1	0	0	08337059	0	0	0	0	0	0
597	Fichtenberg	0	1	0	08127023	1	1	0	0	0	0
598	Merdingen	1	0	0	08315072	1	1	0	1	1	0
599	Wittlingen	1	0	Õ	08336100	1	1	0	0	0	0
600	Empfingen	0	0	1	08237024	1	1	0	1	1	0
601	Neudenau	1	0	0	08125068	1	1	0	0	0	0
602	Seekirch	0	1	0	08426109	4	4	0	4	4	0
603	Allmendingen (Württemberg)	0	1	Õ	08425002	1	1	0	1	1	0
604	Vöhrenbach	1	0	0	08326068	3	3	0	0	0	0
605	Öpfingen	0	1	0	08425093	2	2	0	1	0	1
606	Buchen (Odenwald)	1	0	0	08225014	6	6	0	6	6	0
607	Gunningen	0	1	0	08327020	2	2	0	0	0	0
608	Schonach im Schwarzwald	1	0	0	08326055	3	2	1	1	0	1
609	Schechingen	0	1	0	08136062	0	0	0	1	0	1
610	Horgenzell	0	1	0	08436095	2	2	0	1	0	1
611	Langenenslingen	0	1	0	08426067	4	4	0	4	4	0
612	Hardthausen am Kocher	0	1	0	08125111	1	1	0	0	0	0
613	Meßkirch	1	0	0	08437078	4	4	0	0	0	0
614	Hockenheim	1	0	0	08226032	3	3	0	0	0	0
615	Bammental	1	0	0	08226006	1	1	0	1	1	0
616	Wimsheim	0	1	0	08236067	3	3	0	0	0	0
								-			
617	Bingen (bei Sigmaringen)	0	0	1	08437008	3	3	0	0	0	0
618	Löwenstein	0	1	0	08125059	2	2	0	0	0	0
619	Schömberg (Landkreis Calw)	0	1	0	08235065	6	6	0	6	6	0
620	Stetten (Bodenseekreis)	1	0	Õ	08435054	2	2	0	$\overset{\circ}{2}$	$\overset{\circ}{2}$	0
621	Königheim	1	0	0	08128061	4	4	0	4	4	0
622	Bad Peterstal-Griesbach	1	0	0	08317008	5	4	1	2	1	1
623	Dettingen an der Iller	0	1	0	08426031	1	1	0	1	1	0
624	Bösingen (bei Rottweil)	0	1	0	08325009	0	0	0	0	0	0
625	Lichtenwald	0	1	0	08116037	3	3	0	0	0	0
626	Niedernhall	0	1	0	08126060	4	4	0	4	4	0
627	Steißlingen	1	0	0	08335077	1	1	0	0	0	0
628	Binzen	1	0	0	08336008	3	3	0	1	1	0
629	Ammerbuch	0	1	Õ	08416048	2	$^{\circ}$	0	0	0	0
630	Stockach	1	0	0	08335079	2	2	0	2	2	0
631	Weissach im Tal	0	1	0	08119083	2	2	0	2	2	0
632	Walldorf (Baden)	1	0	0	08226095	3	2	1	1	0	1
633	Lauffen am Neckar	0	1	0	08125056	0	0	0	0	0	0
634	Lauchheim	0	1	0		1	1	0	$\overset{\circ}{2}$	0	2
					08136038						
635	Büsingen am Hochrhein	1	0	0	08335015	1	0	1	1	0	1
636	Setzingen	0	1	0	08425112	2	2	0	3	1	2
637	Gomadingen	0	1	0	08415027	0	0	0	0	0	0
638	Neckarwestheim	0	1	0	08125066	2	1	1	1	0	1
639	Trossingen	0	1	0	08327049	2	1	1	5	1	4
640	Berg (Schussental)	0	1	0	08436013	1	1	0	0	0	0
641	Grafenhausen	1	0	0	08337039	0	0	0	0	0	0
642	Neulußheim	1	0	0	08226059	2	1	1	2	1	1
643	Auenwald	0	1	0	08119006	$\frac{2}{4}$	4	0	0	0	0
644	Oberriexingen	0	1	0	08118059	0	0	0	0	0	0
645	Staig	0	1	0	08425138	2	2	0	0	0	0
646	Malsch (bei Wiesloch)	1	0	0	08226046	3	2	1	4	0	4
647	Lenzkirch	1	0	Õ	08315068	3	3	0	0	0	0
648	Mauer (Baden)	1	0	0	08226048	2	2	0	2	2	0
649	Kirchheim unter Teck	0	1	0	08116033	2	1	1	1	0	1
650	Hemsbach	1	0	0	08226031	1	1	0	1	1	0
651	Todtnau	1	0	0	08336087	4	4	0	1	1	0
652	Forchheim (Kaiserstuhl)	1	0	0	08316013	4	3	1	4	3	1
302	1 01 01111 (11 (11 (11 (11 (11 (11 (11 (1	J	J	00010010	-1	9	1	-	0	1

653	Pfaffenhofen (Württemberg)	0	1	0	08125081	0	0	0	0	0	0
654	Weissach	0	1	0	08115052	5	5	0	5	5	0
655	Maselheim	0	1	0	08426071	6	6	0	0	0	0
		0	1	0			0	0		0	
656	Engstingen				08415089	0		-	0		0
657	Sternenfels	0	1	0	08236061	5	4	1	5	4	1
658	Hardt (Schwarzwald)	0	1	0	08325024	0	0	0	1	0	1
659	Hohentengen (Oberschwaben)	0	1	0	08437053	2	2	0	2	2	0
660	Vaihingen an der Enz	0	1	0	08118073	2	2	0	1	1	0
661	Urbach (Baden-Württemberg)	0	1	0	08119076	1	1	0	1	1	ő
662	Neuffen	0	1	0	08116046	0	0	0	1	0	1
663	Gaienhofen	1	0	0	08335025	0	0	0	0	0	0
664	Waldburg (Württemberg)	0	1	0	08436079	2	2	0	2	0	2
665	Neuenstein (Hohenlohe)	0	1	0	08126058	6	6	0	0	0	0
666	Heddesbach	1	0	0	08226027	2	1	1	2	1	1
667	Engelsbrand	0	1	0	08236013	3	3	0	3	3	0
668	Offenburg	1	0	0	08317096	5	2	3	4	0	4
669	Täferrot	0	1	0	08136070	0	0	0	0	0	0
670	Albershausen	0	1	0	08117003	4	4	0	4	4	0
671	Emeringen	0	1	0	08425035	2	2	0	2	2	0
672	Gemmrigheim	0	1	0	08118018	3	3	0	2	0	2
673	Osterburken	1	0	0	08225075	5	5	0	5	5	0
674	Wutach (Gemeinde)	1	0	0	08337127	4	4	0	4	4	0
675	Niedereschach	1	0	0	08326041	0	0	0	1	0	1
676	Isny im Allgäu	0	1	0	08436049	1	1	0	1	1	0
677	Schwörstadt	1	0	0	08336082	1	1	0	1	0	1
678	Schefflenz	1	0	0	08225115	5	5	0	1	1	0
679	Tuningen	0	1	0	08326061	0	0	0	0	0	0
680	Spraitbach	0	1	0	08136066	0	0	0	1	0	1
681	Weißbach (Hohenlohe)	0	1	0	08126086	3	3	0	3	3	0
682	Bad Krozingen	1	0	0	08315006	5	5	0	0	0	0
683	Oberhausen-Rheinhausen	1	0	0	08215107	2	2	0	2	2	0
684	Widdern	0	1	0	08125103	$\overline{2}$	1	1	1	0	1
685	Heiligenberg (Bodenseekreis)	1	0	0	08435020	3	3	0	3	3	0
	Heingenberg (Bodenseekreis)							-			
686	Igersheim	0	1	0	08128058	2	2	0	2	2	0
687	Riedhausen	0	1	0	08436067	3	3	0	0	0	0
688	Rosengarten (Landkreis Schwäbisch Hall)	0	1	0	08127100	0	0	0	0	0	0
689	Steinheim an der Murr	0	1	0	08118070	3	3	0	2	2	0
690	Ellenberg (Württemberg)	0	1	0	08136018	0	0	0	0	0	0
691	Langenargen	0	1	0	08435030	$\frac{0}{2}$	2	0	$\frac{\circ}{2}$	2	0
								-			
692	Weilheim an der Teck	0	1	0	08116070	2	2	0	0	0	0
693	Riederich	0	1	0	08415062	0	0	0	0	0	0
694	Kolbingen	0	1	0	08327030	2	2	0	0	0	0
695	Ebenweiler	0	1	0	08436024	4	4	0	4	4	0
696	Aglasterhausen	1	0	0	08225002	5	5	0	5	5	0
697	Eschelbronn	1	0	0	08226020	1	1	0	1	1	0
								-			
698	Au (Breisgau)	1	0	0	08315003	1	1	0	1	0	1
699	Waghäusel	1	0	0	08215106	4	4	0	4	$_4$	0
700	Nürtingen	0	1	0	08116049	2	2	0	0	0	0
701	Lautenbach (Ortenaukreis)	1	0	0	08317067	1	1	0	0	0	0
702	Werbach	1	0	0	08128128	3	3	0	3	3	0
703	Seewald	0		0			4	0	4		0
			1		08237073	4				4	
704	Sulzbach an der Murr	0	1	0	08119075	5	5	0	5	5	0
705	Weidenstetten	0	1	0	08425130	0	0	0	1	0	1
706	Oberndorf am Neckar	0	1	0	08325045	4	3	1	1	0	1
707	Rottweil	0	1	0	08325049	7	1	6	12	0	12
708	Müllheim (Baden)	1	0	0	08315074	6	5	1	6	5	1
709	Reutlingen	0	1	0	08415061	5	$\overset{\circ}{2}$	3	4	0	4
	e e e e e e e e e e e e e e e e e e e										
710	Muggensturm	1	0	0	08216033	4	4	0	4	4	0
711	Fronreute	0	1	0	08436096	6	6	0	1	1	0
712	Steinheim am Albuch	0	1	0	08135032	4	4	0	4	$_4$	0
713	Dossenheim	1	0	0	08226012	1	1	0	1	1	0
714	Mühlhausen im Täle	0	1	0	08117035	1	1	0	1	1	0
715	Angelbachtal	1	0	0	08226102	0	0	0	0	0	ő
716	Heidelberg	1	0	0	08221000	12	7	5	9	0	9
717	Walheim	0	1	0	08118074	3	3	0	3	3	0
718	Sulzbach-Laufen	0	1	0	08127079	0	0	0	0	0	0
719	Mainhardt	0	1	0	08127052	2	2	0	0	0	0
720	Seelbach (Schutter)	1	0	0	08317127	4	4	0	1	1	0
721	Höfen an der Enz	0	1	0	08235035	3	3	0	3	3	0
722	Zell am Harmersbach	1	0	0	08317146	1	1	0	0	0	0
723		0							6		
	Tiefenbach (Federsee)		1	0	08426118	6	6	0		6	0
724	Aitern	1	0	0	08336004	1	1	0	1	0	1
725	Ölbronn-Dürrn	1	1	0	08236075	4	4	0	4	4	0

7 00	0.4611	0		0	00114000			0	4		0
726	Ostfildern	0	1	0	08116080	1	1	0	1	1	0
727	Schluchsee (Gemeinde)	1	0	0	08315102	3	3	0	0	0	0
728	Plüderhausen	0	1	0	08119055	3	3	0	0	0	0
729	Gomaringen	0	1	0	08416015	0	0	0	0	0	0
730	Wehr (Baden)	1	0	0	08337116	1	1	0	1	0	1
731	Durbach	1	0	0	08317021	3	3	0	1	1	0
732	Mundelsheim	0	1	0	08118053	3	3	0	1	0	1
733	Deckenpfronn	0	1	0	08115010	3	3	0	4	0	4
734	Mahlstetten	0	1	0	08327033	0	0	0	2	0	2
735	Gundelsheim (Württemberg)	0	1	0	08125039	3	3	0	1	0	1
736	Mutlangen	0	1	0	08136044	0	0	0	0	0	0
737	Dürnau (Landkreis Göppingen)	0	1	0	08117017	2	2	0	0	0	0
738	Untermünkheim	0	1	0	08127086	1	1	0	0	0	0
739	Ebersbach-Musbach	0	1	0	08436093	3	3	0	1	1	0
740	Grünsfeld	1	0	0	08128047	4	4	0	4	4	0
741	Eisenbach (Hochschwarzwald)	1	0	0	08315031	3	3	0	3	3	0
742	Uhingen	0	1	0	08117051	3	3	0	3	3	0
743	Wäschenbeuren	0	1	0	08117053	2	2	0	0	0	0
744	Plankstadt	1	0	0	08226063	2	2	0	0	0	0
745	Weingarten (Württemberg)	0	1	0	08436082	1	1	0	0	0	0
746	Dormettingen	0	1	0	08417015	0	0	0	0	0	0
747	Lorch (Württemberg)	0	1	0	08136042	2	2	0	1	0	1
748	Wörnersberg	0	1	0	08237072	2	2	0	2	2	0
749	Kornwestheim	0	1	0	08118046	1	1	0	0	0	0
750	Bretten	1	0	0	08215007	3	3	0	1	1	0
751	Königsheim	0	1	0	08327029	1	1	0	0	0	0
752	Karlsdorf-Neuthard	1	0	0	08215103	2	2	0	2	2	0
753	Obersontheim	0	1	0	08127063	0	0	0	0	0	0
754	Oberreichenbach (Schwarzwald)	0	1	0	08235055	4	4	0	0	0	0
755	Hofstetten (Baden)	1	0	0	08317046	2	2	0	0	0	0
756	Kaisersbach	0	1	0	08119037	2	2	0	2	2	0
757	Wembach	1	0	0	08336094	2	2	0	2	2	0
758	Schnürpflingen	0	1	0	08425110	4	4	0	4	4	0
759	Sauldorf	1	0	0	08437123	1	1	0	1	1	0
760	Vöhringen (Württemberg)	0	1	0	08325061	1	1	0	1	1	0
761	Schutterwald	1	0	0	08317122	1	1	0	1	1	0
762	Rümmingen	1	0	0	08336073	2	2	0	1	1	0
763	Waiblingen	0	1	0	08119079	8	8	0	2	2	0
764	Oppenweiler	0	1	0	08119053	3	3	0	3	3	0
765	Zwingenberg (Baden)	1	0	0	08225113	4	4	0	4	4	0
766	Wehingen	0	1	0	08327051	1	1	0	0	0	0
767	Besigheim	0	1	0	08118007	3	3	0	3	3	0
768	Leinfelden-Echterdingen	0	1	0	08116078	3	3	0	1	1	0
769	Schlat	0	1	0	08117043	5	5	0	5	5	0
770	Kressbronn am Bodensee	0	1	0	08435029	2	2	0	0	0	0
771	Unterkirnach	1	0	0	08326065	1	1	0	0	0	0
772	Görwihl	1	0	0	08337038	2	1	1	1	0	1
773	Tauberbischofsheim	1	0	0	08128115	6	6	0	6	6	0
774	Hochdorf (Riß)	0	1	0	08426058	3	3	0	3	3	0
775	Böbingen an der Rems	0	1	0	08136009	1	1	0	1	0	1
776	Ebhausen	0	1	0	08235020	3	3	0	3	3	0
777	Waldbrunn (Odenwald)	1	0	0	08225118	5	5	0	5	5	0
778	Achern	1	0	0	08317001	7	6	1	7	5	2
779	Schönaich	0	1	0	08115044	4	4	0	4	4	0
780	Altbach	0	1	0	08116004	0	0	0	0	0	0
781	Erlenbach (Landkreis Heilbronn)	0	1	0	08125027	0	0	0	1	0	1
782	Feldberg (Schwarzwald)	1	0	0	08315037	0	0	0	0	0	0
783	Neckarbischofsheim	1	0	0	08226055	0	0	0	0	0	0
784	Tannhausen	0	1	0	08136071	1	1	0	0	0	0
785	Burgstetten	0	1	0	08119018	3	3	0	3	3	0
786	Immendingen	1	0	0	08327025	1	1	0	0	0	0
787	Wört	0	1	0	08136084	1	1	0	1	0	1
788	Korb (Württemberg)	0	1	0	08119041	2	1	1	2	1	1
789	Hilzingen	1	0	0	08335035	3	3	0	0	0	0
790	Kandern	1	0	0	08336045	2	2	0	1	0	1
791	Geislingen an der Steige	0	1	0	08117024	7	6	1	1	0	1
792	Sersheim	0	1	0	08118068	0	0	0	0	0	0
793	Erdmannhausen	0	1	0	08118014	6	6	0	1	1	0
794	Rosenberg (Baden)	1	0	0	08225082	5	5	0	5	5	0
795	Winnenden	0	1	0	08119085	5	5	0	1	1	0
796	Hüttlingen (Württemberg)	0	1	0	08136033	0	0	0	0	0	0
797	Bempflingen	0	1	0	08116008	0	0	0	0	0	0
798	Denkingen	0	1	0	08327010	1	1	0	0	0	0

799	Kehl	1	0	0	08317057	3	2	1	1	0	1
800	Wiesensteig	0	1	0	08117058	3	3	0	0	0	0
801	Weil der Stadt	0	1	0	08115050	5	5	0	0	0	0
802	Erkenbrechtsweiler	0	1	0	08116018	0	0	0	0	0	0
803	Westerheim (Württemberg)	0	1	0	08425134	1	1	0	1	0	1
804	Laufenburg (Baden)	1	0	0	08337066	0	0	0	0	0	0
805	Schrozberg	0	1	0	08127075	3	3	0	0	0	0
806	Bruchsal	1	0	0	08215009	6	6	0	0	0	0
807	Creglingen	0	1	Õ	08128020	1	1	0	1	1	0
808	Moos (am Bodensee)	1	0	0	08335055	0	0	0	0	0	0
809		1	0	0		3	3	0	1	1	0
	Vogtsburg im Kaiserstuhl				08315133						
810	Aitrach	0	1	0	08436004	3	3	0	1	0	1
811	Remshalden	0	1	0	08119090	1	1	0	2	0	2
812	Großbettlingen	0	1	0	08116022	1	1	0	0	0	0
813	Guggenhausen	0	1	0	08436040	4	4	0	4	4	0
814	Lauterach (Alb-Donau-Kreis)	0	1	0	08425073	1	1	0	0	0	0
815	Sindelfingen	0	1	0	08115045	6	5	1	1	0	1
816	Münsingen (Württemberg)	0	1	0	08415053	0	0	0	0	0	0
817	Blaustein	0	1	0	08425141	2	2	0	1	1	0
818	Brühl (Baden)	1	0	0	08226009	2	2	0	2	2	0
819	Zweiflingen	0	1	0	08126094	2	1	1	2	1	1
820	Hardheim	1	0	0	08225032	5	5	0	5	5	0
821	Weikersheim	0	1	0	08128126	3	3	0	0	0	0
822	Emmingen-Liptingen	1	0	0	08327057	2	1	1	2	1	1
823	Eutingen im Gäu	0	1	0	08237027	2	2	0	0	0	0
824	St. Blasien	1	0	0	08337097	4	4	0	3	3	0
825	Ofterdingen	0	1	0	08416031	0	0	0	0	0	0
826	Sigmaringen	0	0	1	08437104	8	7	1	1	0	1
827	Untergruppenbach	0	1	0	08125098	0	Ó	0	0	0	0
828	Östringen	1	0	0	08215064	2	0	2	2	0	2
	9										
829	Oberwolfach	1	0	0	08317093	2	2	0	0	0	0
830	Bötzingen	1	0	0	08315013	1	1	0	1	1	0
831	Emmendingen	1	0	0	08316011	4	3	1	4	3	1
832	Wertheim	1	0	0	08128131	3	3	0	0	0	0
833	Ringsheim	1	0	0	08317113	2	1	1	2	1	1
834	Pfullendorf	1	0	0	08437088	4	3	1	1	0	1
835	Weil im Schönbuch	0	1	0	08115051	5	5	0	1	1	0
836	Oberstenfeld	0	1	0	08118060	1	1	0	1	1	0
837	Hohentengen am Hochrhein	1	0	0	08337053	1	1	0	0	0	0
838	Durlangen	0	1	0	08136015	0	0	0	0	0	0
839	Tiefenbronn	1	0	0	08236062	1	1	0	3	1	2
840	Mühlhausen-Ehingen	1	0	0	08335097	2	2	0	1	1	0
841	Beuren (bei Nürtingen)	0	1	0	08116011	0	0	0	0	0	0
842	Untereisesheim	0	1	0	08125096	1	0	1	1	0	1
843	Geislingen (Zollernalbkreis)	0	1	0	08417022	5	5	0	0	0	0
844	Illerkirchberg	0	1	0	08425137	1	1	0	0	0	0
845	Ilsfeld	0	1	0	08125046	0	0	0	0	0	0
846	Gammertingen	0	0	1	08437031	3	3	0	3	3	0
847	Burladingen	0	0	1	08417013	1	1	0	1	1	0
848	Hochdorf (bei Plochingen)	0	1	0	08116027	2	2	0	2	0	2
849	Oedheim	0	1	0	08125078	1	0	1	1	0	1
850	Gerabronn	0	1	0	08127032	0	0	0	0	0	0
851	Gailingen am Hochrhein	1	0	0	08335026	0	0	0	1	0	1
852	Oberkochen	0	1	0	08136050	1	1	0	1	1	0
853	Rechberghausen	0	1	0	08117038	2	$\overline{2}$	0	$\overline{2}$	$\overline{2}$	0
854	Oggelshausen	0	1	0	08426090	3	3	0	3	3	0
855	Illerrieden	0	1	0	08425066	1	1	0	1	1	0
856	Achstetten	0	1	0	08426001	2	2	0	2	2	0
857	Hausach	1	0	0	08317041	1	1	0	1	1	0
858	Adelsheim	1	0	0	08225001	3	3	0	3	3	0
859	Umkirch	1	0	0	08225001	0	0	0	0	0	0
860	Oberderdingen	0	1	0	08215059	4	4	0	3	0	3
	9										
861	Elzach Wernau (Neckar)	1	0	0	08316010	4	4	0	4	4	0
862		0	1	0	08116072	0	0	0	1	0	1
863	Eberbach	1	0	0	08226013	6	6	0	6	6	0
864	Waldbronn	1	0	0	08215110	1	1	0	1	1	0
865	Waldshut-Tiengen	1	0	0	08337126	5	3	2	5	3	2
866	Walzbachtal	1	0	0	08215089	2	2	0	0	0	0
867	Gammelshausen	0	1	0	08117023	1	1	0	2	0	2
868	Pfedelbach	0	1	0	08126069	2	2	0	1	0	1
869	Bad Schönborn	1	0	0	08215100	2	2	0	0	0	0
870 871	Schwäbisch Gmünd	0	1 1	0	08136065	$\frac{15}{2}$	$\frac{6}{2}$	9	9	0	9
871	Amstetten (Württemberg)	0	1	0	08425008	2	2	0	1	0	1

872	Albbruck	1	0	0	08337002	3	3	0	1	1	0
873	Fellbach	0	1	0	08119020	1	1	0	0	0	0
874	Kirchdorf an der Iller	0	1	0	08426066	3	3	0	0	0	0
875	Großerlach	0	1	0	08119024	3	3	0	3	3	0
	Pleidelsheim	0	1	0		6	5	1	6	5	
876					08118063						1
877	Nerenstetten	0	1	0	08425085	1	1	0	1	0	1
878	Obernheim	0	1	0	08417047	3	3	0	3	3	0
879	Bretzfeld	0	1	0	08126011	0	0	0	0	0	0
880	Remseck am Neckar	0	1	0	08118081	3	2	1	1	0	1
881	Heitersheim	1	0	0	08315050	3	2	1	2	1	1
882	Ihringen	1	0	0	08315059	2	2	0	1	0	1
883	Schenkenzell	1	0	0	08325050	3	3	0	1	1	0
884	Dornstadt	0	1	0	08425031	0	0	0	0	0	0
885	Ingelfingen	0	1	0	08126039	6	6	0	6	6	0
886	Baienfurt	0	1	0	08436011	3	2	1	3	2	1
887	Jungingen	0	0	1	08417036	1	1	0	0	0	0
888	Reichenbach am Heuberg	0	1	0	08327040	2	2	0	0	0	0
889	Lehrensteinsfeld	0	1	0	08125057	1	0	1	1	0	1
890	Hirrlingen	0	1	0	08416018	2	2	0	0	0	0
891	Plochingen	0	1	0	08116056	2	2	0	0	0	0
892	Weinheim	1	0	0	08226096	4	4	0	0	0	0
893	Köngen	0	1	0	08116035	0	0	0	0	0	0
894	Deggingen	0	1	0	08117014	2	2	0	2	2	0
895	Pfinztal	1	0	0	08215101	3	3	0	0	0	0
896	Adelberg	0	1	0	08117001	1	1	0	0	0	0
	9										
897	Öhringen	0	1	0	08126066	4	4	0	0	0	0
898	St. Georgen im Schwarzwald	1	0	0	08326052	1	1	0	0	0	0
899	Benningen am Neckar	0	1	0	08118006	4	4	0	4	4	0
900	Althütte	0	1	0	08119004	3	3	0	0	0	0
901	Ellwangen (Jagst)	0	1	0	08136019	4	3	1	1	0	1
902	Bühlerzell	0	1	0	08127013	0	0	0	0	0	0
903	Reichenbach an der Fils	0	1	0		1	1	0	1	1	0
					08116058						
904	Gundelfingen (Breisgau)	1	0	0	08315047	3	3	0	3	3	0
905	Ravensburg	0	1	0	08436064	9	5	4	6	0	6
906	Badenweiler	1	0	0	08315007	2	2	0	2	2	0
907	Furtwangen im Schwarzwald	1	0	0	08326017	3	3	0	1	0	1
908	Salem (Baden)	1	0	0	08435052	6	6	0	0	0	0
909	Wangen im Allgäu	0	1	0	08436081	4	3	1	1	0	1
910	Kernen im Remstal		1				1	0	1	_	0
		0		0	08119093	1				1	
911	Kuchen (Gemeinde)	0	1	0	08117033	3	3	0	3	3	0
912	Ilshofen	0	1	0	08127043	1	1	0	0	0	0
913	Eschach (bei Schwäbisch Gmünd)	0	1	0	08136020	0	0	0	1	0	1
914	Leutkirch im Allgäu	0	1	0	08436055	5	4	1	1	0	1
915	Murr (Gemeinde)	0	1	0	08118054	4	4	0	2	1	1
916	Altheim (Alb)	0	1	0	08425005	2	2	0	0	0	0
	, ,	0	1	0		0	0	0	1	0	
917	Rot am See				08127071						1
918	Zell unter Aichelberg	0	1	0	08117060	2	2	0	2	0	2
919	Waldachtal	0	1	0	08237074	4	4	0	4	4	0
920	Hemmingen (Württemberg)	0	1	0	08118027	2	2	0	0	0	0
921	Egenhausen	0	1	0	08235022	3	3	0	3	3	0
922	Sölden (Schwarzwald)	1	0	0	08315107	2	1	1	1	0	1
923	Hüttisheim	0	1	0	08425064	$\frac{2}{2}$	2	0	0	0	0
924		1		0		2	2	0	$\frac{0}{2}$	2	0
	Sexau		0		08316039						
925	Ebringen	1	0	0	08315028	4	4	0	0	0	0
926	Schönwald im Schwarzwald	1	0	0	08326054	1	1	0	0	0	0
927	Bissingen an der Teck	0	1	0	08116012	0	0	0	0	0	0
928	Rheinmünster	1	0	0	08216063	5	5	0	4	3	1
929	Balgheim	0	1	0	08327005	1	1	0	2	0	2
930	Altensteig	0	1	0	08235006	8	8	0	8	8	0
931	Maulbronn										
		0	1	0	08236038	4	4	0	4	4	0
932	Assamstadt	1	0	0	08128006	3	3	0	0	0	0
933	Schwaikheim	0	1	0	08119068	1	1	0	1	1	0
934	Bad Rippoldsau-Schapbach	1	0	0	08237075	3	3	0	3	3	0
935	Altenriet	0	1	0	08116006	1	1	0	1	1	0
936	Jestetten	1	0	0	08337060	0	0	0	0	0	0
937	Wyhl am Kaiserstuhl	1	0	0	08316051	$\overset{\circ}{2}$	$\overset{\circ}{2}$	0	$\overset{\circ}{2}$	0	2
938	Argenbühl	0	1	0	08436094	1	1	0	1	1	0
	Sinzheim						$\frac{1}{2}$		$\overset{1}{2}$		0
939		1	0	0	08216049	2		0		2	
940	Gaggenau	1	0	0	08216015	7	7	0	7	7	0
941	Hagnau am Bodensee	1	0	0	08435018	3	3	0	3	3	0
942	Teningen	1	0	0	08316043	7	7	0	7	7	0
943	Blaufelden	0	1	0	08127008	1	1	0	0	0	0
944	Eimeldingen	1	0	0	08336019	1	1	0	1	0	1
	~										

945	Lenningen	0	1	0	08116079	0	0	0	0	0	0
946	Ohmden	0	1	0	08116053	3	2	1	1	0	1
947	Ellhofen	0	1	0	08125024	2	1	1	$\overset{1}{2}$	0	2
948	Gottmadingen	1	0	0	08335028	1	1	0	0	0	0
949	Schallstadt	1	0	0	08315098	2	2	0	$\frac{0}{2}$	$\frac{0}{2}$	0
		0	1	0		1	1	0	0	0	0
950	Hayingen			-	08415034			-			
951	Altlußheim	1	0	0	08226003	3	3	0	1	1	0
952	Freiberg am Neckar	0	1	0	08118078	4	4	0	4	4	0
953	Hasel (Baden)	1	0	0	08336034	0	0	0	0	0	0
954	Attenweiler	0	1	0	08426011	3	3	0	3	3	0
955	Mönchweiler	1	0	0	08326037	0	0	0	0	0	0
956	Heilbronn	0	1	0	08121000	9	0	9	9	0	9
957	Erolzheim	0	1	0	08426044	6	6	0	0	0	0
958	Buchheim (Landkreis Tuttlingen)	1	0	0	08327008	2	2	0	0	0	0
959	Leingarten	1	1	0	08125058	0	0	0	0	0	0
960	Glottertal	1	0	0	08315041	6	6	0	6	6	0
961	Schuttertal	1	0	0	08317121	6	6	0	4	4	0
962	Aichstetten	0	1	0	08436003	0	0	0	0	0	0
963	Oppenau	1	0	0	08317098	2	2	0	2	2	0
964	Sulzburg	1	0	0	08315111	3	3	0	1	0	1
965	Massenbachhausen	0	1	0	08125061	0	0	0	0	0	0
966	Westhausen (Württemberg)	0	1	0	08136082	1	1	0	1	1	0
967	Hoßkirch	0	1	0	08436047	2	2	0	1	0	1
	Hausen am Tann		1	0		2	2	0	1	0	1
968		0			08417029						
969	Gutenzell-Hürbel	0	1	0	08426135	3	3	0	3	3	0
970	Crailsheim	0	1	0	08127014	2	1	1	1	0	1
971	Ingersheim (Neckar)	0	1	0	08118077	5	5	0	2	1	1
972	Hambrücken	1	0	0	08215029	2	1	1	2	0	2
973	Lichtenau (Baden)	1	0	0	08216028	2	1	1	3	0	3
974	Birenbach	0	1	0	08117009	2	2	0	2	2	0
975	Langenau	0	1	0	08425072	3	$\overline{2}$	1	$\overline{2}$	1	1
976	Kirchzarten	1	0	0	08315064	0	0	0	0	0	0
977	Oberkirch (Baden)	1	0	0	08317089	6	6	0	4	$\frac{0}{4}$	0
	,							-			
978	Inzigkofen	0	0	1	08437059	1	1	0	1	1	0
979	Allensbach	1	0	0	08335002	1	1	0	1	1	0
980	Epfendorf	0	1	0	08325015	0	0	0	1	0	1
981	Erligheim	0	1	0	08118015	2	2	0	2	2	0
982	Siegelsbach	1	0	0	08125087	3	2	1	1	0	1
983	Rosenberg (Württemberg)	0	1	0	08136060	0	0	0	0	0	0
984	Nußloch	1	0	0	08226060	2	1	1	2	0	2
985	Göggingen (Württemberg)	0	1	0	08136024	0	0	0	1	0	1
986	Wiesloch	1	0	0	08226098	4	3	1	4	3	1
987	Abtsgmünd	0	1	0	08136002	1	1	0	0	0	0
988	Beilstein (Württemberg)	0	1	0	08125008	1	1	0	0	0	0
989	Gengenbach	1	0	0	08317034	5	4	1	5	4	1
990	Trochtelfingen	0	0	1	08415073	2	2	0	0	0	0
991	Filderstadt	0	1	0	08116077	3	3	0	1	1	0
992	Rielasingen-Worblingen	1	0	0	08335100	0	0	0	0	0	0
993	Laupheim	0	1	0	08426070	6	6	0	0	0	0
994	Reichenau (Landkreis Konstanz)	1	0	0	08335066	1	1	0	0	0	0
995	Ostrach	0	0	1	08437086	2	2	0	2	2	0
996	Seckach	1	0	0	08225091	$\overline{4}$	$\overline{4}$	0	$\overline{4}$	$\overline{4}$	0
997	Hüfingen	1	0	0	08326027	4	4	0	1	1	0
998	Löffingen	1	0	0	08315070	3	3		3	3	
								0			0
999	Königsbronn	0	1	0	08135025	3	2	1	3	2	1
1000	Dettingen unter Teck	0	1	0	08116016	0	0	0	0	0	0
1001	Durchhausen	0	1	0	08327012	1	1	0	0	0	0
1002	Magstadt	0	1	0	08115029	1	1	0	1	1	0
1003	Haslach im Kinzigtal	1	0	0	08317040	1	1	0	1	0	1
1004	Murg (Hochrhein)	1	0	0	08337076	2	2	0	1	0	1
1005	Brackenheim	0	1	0	08125013	1	1	0	1	0	1
1006	Unterensingen	0	1	0	08116068	0	0	0	0	0	0
1007	Weilheim (Baden)	1	0	0	08337118	2	2	0	2	$\overset{\circ}{2}$	0
1007	Schönau im Schwarzwald	1	0	0	08336079	3	$\frac{2}{2}$	1	3	$\frac{2}{2}$	1
1009	Möckmühl	0	1	0	08125063	3	2	1	2	0	2
1010	Grünkraut	0	1	0	08436039	1	1	0	0	0	0
1011	Renningen	0	1	0	08115041	3	3	0	0	0	0
1012	Uttenweiler	0	1	0	08426124	8	8	0	8	8	0
1013	Bartholomä	0	1	0	08136007	4	4	0	2	0	2
1014	Neckargemünd	1	0	0	08226056	4	3	1	1	0	1
1015	Braunsbach	0	1	0	08127009	2	2	0	0	0	0
1016	Renchen	1	0	0	08317110	1	1	0	0	0	0
1017	Berglen	0	1	0	08119089	2	2	0	$\overset{\circ}{2}$	$\overset{\circ}{2}$	0
1011	20182011	U	_	J	30113003	_	_	J	4	_	U

1018	Riesbürg	0	1	0	08136087	0	0	0	0	0	0
1019	Reute (Breisgau)	1	0	0	08316036	4	4	0	4	4	0
1020	Oberried (Breisgau)	1	0	Õ	08315084	3	3	0	0	0	0
1020	Bad Wimpfen	1	1	0	08125007	1	1	0	0	0	0
1021 1022	Klettgau (Gemeinde)	1	0	0	08123007	2	2	0	1	1	0
1023	Rosenfeld	0	1	1	08417054	2	2	0	0	0	0
1024	Herbrechtingen	0	1	0	08135020	2	2	0	2	2	0
1025	Schallbach	1	0	0	08336075	1	1	0	2	0	2
1026	Sontheim an der Brenz	0	1	0	08135031	1	1	0	0	0	0
1027	Bitz	0	0	1	08417010	2	2	0	0	0	0
1028	Bönnigheim	0	1	0	08118010	3	3	0	3	3	0
1029	Denkendorf (Württemberg)	0	1	0	08116015	0	0	0	0	0	0
						-				-	
1030	Stödtlen	0	1	0	08136068	1	1	0	0	0	0
1031	Sonnenbühl	0	1	0	08415091	1	1	0	0	0	0
1032	Münstertal/Schwarzwald	1	0	0	08315130	5	5	0	5	5	0
1033	Nufringen	0	1	0	08115037	2	2	0	2	2	0
1034	Unlingen	0	1	0	08426121	3	3	0	3	3	0
1035	Oberteuringen	0	1	0	08435045	1	1	0	1	1	0
1036	Ühlingen-Birkendorf	1	0	0	08337128	4	4	0	0	0	0
1037	Niefern-Öschelbronn	1	0	0	08236046	2	2	0	2	2	0
1038	Stimpfach	0	1	0	08127104	0	0	0	0	0	0
1039	Bad Bellingen	1	0	0	08336006	0	0	0	2	0	2
1040	Ruppertshofen (Ostalbkreis)	0	1	0	08136061	0	0	0	1	0	1
1041	Waldstetten (Ostalbkreis)	0	1	0	08136079	4	3	1	4	3	1
1042	Neunkirchen (Baden)	1	0	0	08225068	7	7	0	7	7	0
1042		0	1	0		3	3	0	3	3	0
	Grafenau (Württemberg)				08115054			-			
1044	Titisee-Neustadt	1	0	0	08315113	3	3	0	3	3	0
1045	Herbertingen	0	1	0	08437044	3	3	0	3	3	0
1046	Frickingen	1	0	0	08435015	3	2	1	3	2	1
1047	Ludwigsburg	0	1	0	08118048	10	6	4	10	6	4
1048	Neckarsulm	0	1	0	08125065	1	1	0	0	0	0
1049	Offenau	0	1	Õ	08125079	1	0	1	1	0	1
1050	Oberdischingen	0	1	0	08425088	1	1	0	0	0	0
1051	Dischingen	0	1	0	08135010	1	1	0	1	1	0
1052	Grosselfingen	0	0	1	08417023	1	1	0	1	1	0
1053	Rheinfelden (Baden)	1	0	0	08336069	1	1	0	1	1	0
1054	Haiterbach	0	1	0	08235032	5	5	0	5	5	0
1055	Satteldorf	0	1	0	08127073	0	0	0	0	0	0
1056	Holzkirch	0	1	0	08425062	1	1	0	1	0	1
1057	Unterschneidheim	0	1	0	08136075	1	1	0	0	0	0
1058	Aldingen	0	1	0	08327002	1	1	0	0	0	0
1059	Irndorf	0	1	0	08327027	2	2	0	0	0	0
1060	Fluorn-Winzeln	0	1	0	08325070	1	1	0	0	0	0
1061	Eggingen	1	0	0	08337124	1	1	0	1	1	0
1062	Griesingen	0	1	0	08425050	0	0	0	1	0	1
1063	Bermatingen	1	0	0	08435005	2	2	0	2	2	0
	Boms		1	0	08436019	2	2	0	1		0
1064	Wieden (Schwarzwald)	0								1	
1065		1	0	0	08336096	1	1	0	0	0	0
1066	Balingen	0	1	0	08417002	5	2	3	3	0	3
1067	Winterlingen	0	0	1	08417075	2	2	0	2	2	0
1068	Enzklösterle	0	1	0	08235025	4	4	0	0	0	0
1069	Weilen unter den Rinnen	0	1	0	08417071	0	0	0	0	0	0
1070	Stühlingen	1	0	0	08337106	3	3	0	4	1	3
1071	Eschbach (Markgräflerland)	1	0	0	08315033	1	1	0	1	1	0
1072	Bietigheim-Bissingen	0	1	0	08118079	4	4	0	0	0	0
1073	Schopfheim	1	0	0	08336081	5	5	0	0	0	0
1074	Frankenhardt	0	1	0	08127103	0	0	0	0	0	0
1075	Mühlhausen (Kraichgau)	1	0	0	08226054	2	2	0	1	0	1
1076	Eigeltingen	1	0	0	08335021	3	3	0	1	1	0
1077	Dettingen an der Erms	0	1	0	08415014	0	0	0	0	0	0
1078	Weisenbach	1	0	0	08216059	3	3	0	3	3	0
1079	Ötigheim	1	0	0	08216039	3	3	0	3	3	0
1080	Merzhausen	1	0	0	08315073	0	0	0	0	0	0
1081	Forbach (Baden)	1	0	0	08216013	10	9	1	10	9	1
1082	Bad Teinach-Zavelstein	0	1	0	08235084	1	1	0	1	1	0
1083	Lauchringen	1	0	0	08337065	2	2	0	0	0	0
1084	Allmannsweiler	0	1	0	08426006	2	2	0	2	2	0
1085	Pliezhausen	0	1	0	08415060	1	1	0	1	1	0
1086	Aichtal	0	1	0	08116081	1	1	0	0	0	0
1087	Deißlingen	0	1	0	08325072	0	0	0	0	0	0
1088	Oberboihingen	0	1	0	08116050	0	0	0	0	0	0
1089	Ubstadt-Weiher	1	0	0	08215084	2	1	1	1	0	1
1090	Breitnau	1	0	0	08315016	1	1	0	1	1	0

1091	Neuenburg am Rhein	1	0	0	08315076	4	4	0	0	0	0
1092	Heimsheim	0	1	0	08236025	4	4	0	4	4	0
1093	Lottstetten	1	0	0	08337070	1	0	1	1	0	1
1094	Heroldstatt	0	1	0	08425139	0	0	0	1	0	1
1095	Bühl (Baden)	1	0	0	08216007	8	8	0	1	1	0
1096	Donaueschingen	1	0	0	08326012	4	1	3	3	0	3
1097	Michelfeld	0	1	0	08127059	1	1	0	0	0	0
1098	Pfullingen	0	1	0	08415059	0	0	0	0	0	0
1099	Buchenbach	1	0	0	08315020	2	2	0	0	0	0
1100	Holzgerlingen	0	1	0	08115024	3	3	0	3	3	0
1101	Altdorf (Landkreis Böblingen)	0	1	0	08115002	3	3	0	3	3	0