Online Appendix for
"Nonpartisan Ballots and the Partisanship of Who Serves in Office"

Appendix A. Procedures Used to Gather Information on the Municipal Officials

We collected the list of municipal officials in the spring and summer of 2017 by gathering membership directories from the organizations that represent cities in each state (e.g., the Florida League of Cities, Louisiana Municipal Association, etc.). In a handful of states, no directory existed and so research assistants searched for the information on city websites. For each city we identified the members of the city's elected, governing body (e.g., city council, board of Alderman, etc.) and its elected chief executive (e.g., mayor) if it has one. In some states, our list also includes unelected officials (e.g., city manager, chief of police, director of parks, etc.). Overall, our search identified 244,122 municipal officials from 22,070 municipalities.

Table A1 lists the type of search procedure used to get the data from each state. In cases where an electronic version was available, we obtained a copy in a .csv file format (either for free or by purchasing it). South Carolina and Tennessee were scraped from a website that provided this information as tables online. In cases where the data were free, we collected the information of all officials. When we had to pay for each name purchased, we purchased lists for three positions: the elected executive (i.e., the mayor or equivalent), the elected legislators (i.e., city councilors or equivalent), and the top appointed bureaucrat (i.e., the city manager or equivalent).

Table A1: Data Sources for City Officials

Data Source	States
Electronic Directory	AR, AZ, CA, CT, FL, GA, IN, IA, KS, KY, ME, MD, MO, NH, NJ, ND, OR, PA, RI, SD, TX, UT, VT, WA, WV, WI, WY
List Posted Online	DE (Mayors and Managers), HI*, SC, TN
PDF Directory	AL, AK, CO, ID, IL, LA, MA, MI, MN, MT, NE, NV, NM, NY (Towns), NC, OK
RA Online Search	DE (Councilors), HI, NY (Cities Villages) OH, VA

*Hawaii does not have sub-county general purpose governments like the rest of the US. Rather, counties in Hawaii operate similarly to municipalities in the rest of the US. We exclude Hawaii in this paper.

In states with PDF directories, we used OCR (Optical Character Recognition) software in Adobe Acrobat Reader to allow for text recognition in the PDFs and convert them to .csv files. RAs then went through either the PDFs or the .csv files to create a data set of officials' names, titles, and municipalities. For these states, we entered the information for all of the officials who were listed in the directory. We followed the same process with states that mailed us a hard copy directory after scanning the directories into PDF format.

Finally, in cases where no directory existed, we hired RAs to search for the names of municipal officials on their municipality's website. RAs did this by taking the list of municipalities in the state[1] and searching for their websites. For any website they found, they

[1] Our list of municipalities included sub-county and county-consolidated, general purpose governments as identified by the US Census Bureau. See the appendix for more details on how we identify municipalities as well as the following reference: U.S. Census Bureau. 2012. "Geographic Terms and Concepts – County Subdivision",

entered the name of the mayor (or equivalent elected executive), the city councilors (or equivalent elected legislator), and the name of the city manager (or equivalent top appointed bureaucrat if found).

Table A2 displays the number of elected executives (e.g., mayors) and legislators (city councilors) we found from each state and the total number of municipalities these officials represent broken down by whether the municipality uses non-partisan or partisan ballots.

Table A2: Number of Mayor and City Councilors by State and Ballot Type

	Non-Partisan Ballots		Partisan Ballots			Non-Partisan Ballots		Partisan Ballots	
State	# Munic.	# Officials	# Munic.	# Officials	State	# Munic.	# Officials	# Munic.	# Officials
AK	149	1097	0	0	MT	129	730	0	0
AL	461	2492	0	0	NC	547	3158	7	57
AR	62	495	14	112	ND	357	1758	0	0
AZ	90	607	1	7	NE	530	2516	0	0
CA	482	2496	0	0	NH	235	729	0	0
CO	272	1801	0	0	NJ	80	427	479	2985
CT	0	0	179	1118	NM	103	572	0	0
DE	56	180	1	13	NV	19	103	0	0
FL	411	2194	1	20	NY	107	485	1368	5971
GA	539	3056	0	0	OH	835	2968	86	531
HI*	NA	NA	NA	NA	OK	598	2647	0	0
IA	947	5638	0	0	OR	242	1494	0	0
ID	201	1072	0	0	PA	0	0	2562	12783
IL	614	3206	356	1510	RI	9	54	30	169
IN	0	0	567	2704	SC	264	776	6	14
KS	626	3524	0	0	SD	310	1091	0	0
KY	415	2351	9	87	TN	347	1994	0	0
LA	0	0	303	1620	TX	1219	7236	0	0
MA	350	1568	1	3	UT	246	1383	0	0
MD	156	731	3	6	VA	221	948	8	48
ME	223	355	3	16	VT	288	1117	1	13
MI	1546	3446	227	70	WA	281	1924	0	0
MN	2639	4331	1	14	WI	1853	4051	0	0
MO	947	3782	1	29	WV	210	1318	22	174
MS	0	0	300	1422	WY	99	532	0	0
US	**20,287**	**83,845**	**6,469**	**31,254**					

NOTE: This list of officials includes elected executives (the mayor or equivalent) and members of the governing legislative body (e.g., city council). It does not include the other elected or unelected officials we gathered from municipal directories.

*Hawaii does not have sub-county general purpose governments like the rest of the US. Rather, counties in Hawaii operate similarly to municipalities in the rest of the US. We have gathered the county officials from the same time

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http://www.census.gov/geo/reference/gtc/gtc_cousub.html (January 9, 2014)

period and will include them in the final version of the paper once we have completed the matching process for those officials.

Table A3 provides details on how our sample of cities used in our analyses and matched to the voter file lines up with the full list of US municipalities in the US broken down by state and the type of municipality. We identify the full population of US municipalities based on the US Census designation of the types of sub-county governments that serve as general-purpose local governments. These include all incorporated places (generally called cities, villages, and/or towns in most states) and consolidated cities, which are cities that have joined with a county government, like New York City. The US Census also considers Minor Civil Divisions (MCD) as general-purpose governments in CT, ME, MA, MI, MN, NH, NJ, NY, PA, RI, and VT. These local governments are usually called townships or towns in these states.

Overall, we found officials from 78% of the 27,958 municipalities in the US Census database. For the median state, we have the officials from 98% of the municipalities in that state. Among the 10,183 cities in the US (as opposed to towns, villages, or townships—other common municipality types), our data gathering process found all of the city councilors and mayors in 95% of cities across the US. The vast majority of municipalities missing data on officials are quite small, usually with populations below 1,000 and mostly from three states: MI, MN, and WI, where we did not obtain lists of officials for their MCDs, which in these states number in the thousands and are called towns in WI and townships in MI and MN. The MCDs in these states provide minimal services to residents, have very small populations, and usually lack an online presence. When we exclude them from the list of all cities in the US, we have officials from 92% of 23,678 municipalities in the US. As shown in Figure A1, the distribution of the population of cities that end up in our analyses is quite similar to the distribution of all US municipalities.

Figure A1. Density of Population by Sample Status

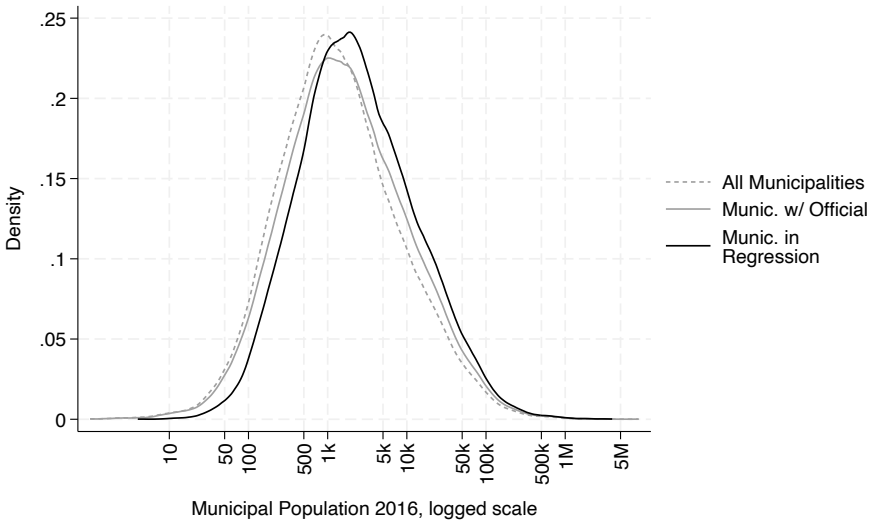


Table A3: Number of US municipalities in sample and full population by state and municipality type

State	Municipality Type (# of states w/ type)	Total Municipalities	# with at Least 1 Councilor or Mayor Found	%	# with All Councilors and Mayor Found	%	# with at Least 1 High Quality Match to L2	%	# in Regression (across all columns in Table 2)	%
US	**All types**	**27,958**	**21,816**	**78%**	**20,199**	**72%**	**17,863**	**64%**	**15,188**	**54%**
	Excluding MCDs in MI, MN, & WI	23,678	21,795	92%	20,187	85%	17,847	75%	15,177	64%
	Median state			**99%**		**94%**		**78%**		**71%**
	borough (3)	1,219	1,207	99%	1,189	98%	1,046	86%	1,034	85%
	charter township (1)	117	6	5%	6	5%	6	5%	6	5%
	city (49)	10,183	9,934	98%	9,658	95%	8,316	82%	7,087	70%
	city-county (6)	17	13	76%	13	76%	10	59%	9	53%
	corporation (1)	1	1	100%	1	100%	1	100%	1	100%
	independent city (1)	1	1	100%	1	100%	0	0%	0	0%
	municipality (2)	4	4	100%	4	100%	4	100%	4	100%
	plantation (1)	34	0	0%	0	0%	0	0%	0	0%
	town (38)	7,917	5,833	74%	5,252	66%	4,591	58%	3,928	50%
	township (4)	4,695	1,798	38%	1,736	37%	1,550	33%	1,542	33%
	village (19)	3,770	3,019	80%	2,339	62%	2,339	62%	1,577	42%
AK	**all types**	149	145	97%	145	97%	122	82%	96	64%
	city	145	144	99%	144	99%	121	83%	95	66%
	city-county	3	0	0%	0	0%	0	0%	0	0%
	municipality	1	1	100%	1	100%	1	100%	1	100%
AL	**all types**	461	432	94%	419	91%	365	79%	117	25%
	city	169	167	99%	161	95%	142	84%	94	56%
	town	292	265	91%	258	88%	223	76%	23	8%
AR	**all types**	503	501	100%	499	99%	421	84%	65	13%
	city	314	314	100%	313	100%	268	85%	65	21%
	town	189	187	99%	186	98%	153	81%	0	0%
AZ	**all types**	91	91	100%	91	100%	78	86%	78	86%
	city	45	45	100%	45	100%	38	84%	38	84%
	town	46	46	100%	46	100%	40	87%	40	87%
CA	**all types**	482	476	99%	473	98%	415	86%	411	85%
	city	461	455	99%	452	98%	397	86%	394	85%
	town	21	21	100%	21	100%	18	86%	17	81%
CO	**all types**	272	268	99%	267	98%	199	73%	193	71%
	city	76	75	99%	75	99%	54	71%	54	71%
	town	196	193	98%	192	98%	145	74%	139	71%
CT	**all types**	179	170	95%	169	94%	151	84%	149	83%
	borough	10	1	10%	1	10%	1	10%	1	10%
	city	20	20	100%	20	100%	20	100%	20	100%
	town	149	149	100%	148	99%	130	87%	128	86%
DE	**all types**	57	41	72%	31	54%	38	67%	34	60%
	city	10	7	70%	6	60%	7	70%	7	70%
	town	44	33	75%	24	55%	30	68%	27	61%
	village	3	1	33%	1	33%	1	33%	0	0%
FL	**all types**	412	411	100%	405	98%	287	70%	254	62%
	city	268	267	100%	264	99%	210	78%	200	75%
	town	124	124	100%	122	98%	70	56%	48	39%
	village	20	20	100%	19	95%	7	35%	6	30%
GA	**all types**	539	518	96%	516	96%	449	83%	396	73%
	city	428	416	97%	415	97%	367	86%	337	79%
	city-county	6	5	83%	5	83%	3	50%	3	50%
	town	105	97	92%	96	91%	79	75%	56	53%
HI	**all types**	**NA**								
IA	**all types**	947	944	100%	944	100%	826	87%	574	61%
	city	947	944	100%	944	100%	826	87%	574	61%
ID	**all types**	201	200	100%	200	100%	160	80%	151	75%
	city	201	200	100%	200	100%	160	80%	151	75%
IL	**all types**	1,297	1,275	98%	672	52%	886	68%	484	37%
	city	300	299	100%	278	93%	239	80%	185	62%
	town	16	16	100%	5	31%	11	69%	4	25%
	village	981	960	98%	389	40%	636	65%	295	30%

IN	**all types**	567	567	100%	552	97%	489	86%	482	85%
	city	119	119	100%	119	100%	109	92%	108	91%
	town	448	448	100%	433	97%	380	85%	374	83%
KS	**all types**	626	617	99%	603	96%	498	80%	480	77%
	city	625	616	99%	602	96%	497	80%	479	77%
	city-county	1	1	100%	1	100%	1	100%	1	100%
KY	**all types**	**422**	**414**	**98%**	**383**	**91%**	**361**	**86%**	**233**	**55%**
	city	420	412	98%	381	91%	360	86%	232	55%
	city-county	2	2	100%	2	100%	1	50%	1	50%
LA	**all types**	303	303	100%	291	96%	261	86%	255	84%
	city	68	68	100%	68	100%	63	93%	63	93%
	town	128	128	100%	128	100%	109	85%	107	84%
	village	107	107	100%	95	89%	89	83%	85	79%
MA	**all types**	351	319	91%	313	89%	274	78%	274	78%
	city	53	50	94%	47	89%	46	87%	46	87%
	town	298	269	90%	266	89%	228	77%	228	77%
MD	**all types**	159	138	87%	129	81%	114	72%	106	67%
	city	29	25	86%	25	86%	20	69%	20	69%
	town	123	108	88%	100	81%	91	74%	85	69%
	village	7	5	71%	4	57%	3	43%	1	14%
ME	**all types**	489	65	13%	65	13%	54	11%	52	11%
	city	23	23	100%	23	100%	19	83%	19	83%
	plantation	34	0	0%	0	0%	0	0%	0	0%
	town	432	42	10%	42	10%	35	8%	33	8%
MI	**all types**	1,773	536	30%	533	30%	458	26%	456	26%
	charter township	117	6	5%	6	5%	6	5%	6	5%
	city	278	276	99%	275	99%	234	84%	232	83%
	township	1,123	0	0%	0	0%	0	0%	0	0%
	village	255	254	100%	252	99%	218	85%	218	85%
MN	**all types**	2,640	863	33%	850	32%	683	26%	614	23%
	city	856	851	99%	846	99%	675	79%	609	71%
	township	1,784	12	1%	4	0%	8	0%	5	0%
MO	**all types**	948	659	70%	649	68%	580	61%	409	43%
	city	634	563	89%	557	88%	501	79%	372	59%
	town	111	32	29%	30	27%	30	27%	16	14%
	village	203	64	32%	62	31%	49	24%	21	10%
MS	**all types**	300	258	86%	222	74%	217	72%	213	71%
	city	112	108	96%	94	84%	92	82%	91	81%
	town	169	137	81%	115	68%	113	67%	112	66%
	village	19	13	68%	13	68%	12	63%	10	53%
MT	**all types**	129	129	100%	125	97%	111	86%	101	78%
	city	52	52	100%	52	100%	47	90%	45	87%
	city-county	2	2	100%	2	100%	2	100%	1	50%
	town	75	75	100%	71	95%	62	83%	55	73%
NC	**all types**	554	547	99%	538	97%	463	84%	455	82%
	city	77	77	100%	77	100%	73	95%	73	95%
	town	456	449	98%	441	97%	377	83%	369	81%
	village	21	21	100%	20	95%	13	62%	13	62%
ND	**all types**	357	356	100%	314	88%	279	78%	121	34%
	city	357	356	100%	314	88%	279	78%	121	34%
NE	**all types**	530	519	98%	510	96%	426	80%	192	36%
	city	147	147	100%	141	96%	126	86%	104	71%
	village	383	372	97%	369	96%	300	78%	88	23%
NH	**all types**	235	224	95%	91	39%	168	71%	120	51%
	city	13	13	100%	13	100%	12	92%	12	92%
	town	222	211	95%	78	35%	156	70%	108	49%
NJ	**all types**	565	565	100%	511	90%	409	72%	402	71%
	borough	254	254	100%	238	94%	206	81%	203	80%
	city	52	52	100%	48	92%	47	90%	46	88%
	town	15	15	100%	15	100%	12	80%	12	80%
	township	241	241	100%	208	86%	141	59%	138	57%
	village	3	3	100%	2	67%	3	100%	3	100%
NM	**all types**	103	103	100%	103	100%	78	76%	73	71%
	city	36	36	100%	36	100%	30	83%	30	83%
	town	19	19	100%	19	100%	15	79%	15	79%
	village	48	48	100%	48	100%	33	69%	28	58%
NV	**all types**	19	19	100%	19	100%	15	79%	15	79%
	city	18	18	100%	18	100%	15	83%	15	83%
	independent city	1	1	100%	1	100%	0	0%	0	0%

NY	**all types**	1,547	1,338	86%	1,287	83%	1,024	66%	919	59%
	city	62	51	82%	47	76%	43	69%	36	58%
	town	929	909	98%	907	98%	647	70%	608	65%
	village	556	378	68%	333	60%	334	60%	275	49%
OH	**all types**	935	525	56%	480	51%	419	45%	409	44%
	city	247	204	83%	189	77%	159	64%	156	63%
	village	688	321	47%	291	42%	260	38%	253	37%
OK	**all types**	598	579	97%	408	68%	447	75%	429	72%
	city	165	164	99%	159	96%	136	82%	136	82%
	town	433	415	96%	249	58%	311	72%	293	68%
OR	**all types**	242	240	99%	238	98%	199	82%	194	80%
	city	233	231	99%	229	98%	192	82%	187	80%
	town	9	9	100%	9	100%	7	78%	7	78%
PA	**all types**	2,562	2,557	100%	2,534	99%	2,293	90%	2,282	89%
	borough	955	952	100%	950	99%	839	88%	830	87%
	city	56	56	100%	56	100%	49	88%	49	88%
	municipality	3	3	100%	3	100%	3	100%	3	100%
	town	1	1	100%	1	100%	1	100%	1	100%
	township	1,547	1,545	100%	1,524	99%	1,401	91%	1,399	90%
RI	**all types**	39	37	95%	35	90%	36	92%	36	92%
	city	8	8	100%	8	100%	8	100%	8	100%
	town	31	29	94%	27	87%	28	90%	28	90%
SC	**all types**	270	136	50%	136	50%	115	43%	115	43%
	city	69	28	41%	28	41%	26	38%	26	38%
	town	201	108	54%	108	54%	89	44%	89	44%
SD	**all types**	310	308	99%	134	43%	221	71%	119	38%
	city	156	156	100%	131	84%	127	81%	96	62%
	town	153	151	99%	3	2%	93	61%	22	14%
	village	1	1	100%	0	0%	1	100%	1	100%
TN	**all types**	347	344	99%	304	88%	302	87%	299	86%
	city	182	179	98%	154	85%	156	86%	155	85%
	city-county	1	1	100%	1	100%	1	100%	1	100%
	town	2	2	100%	2	100%	2	100%	2	100%
TX	**all types**	1,219	1,213	100%	1,159	95%	936	77%	917	75%
	city	961	959	100%	925	96%	748	78%	741	77%
	town	234	230	98%	214	91%	172	74%	161	69%
	village	24	24	100%	20	83%	16	67%	15	63%
UT	**all types**	246	244	99%	244	99%	161	65%	158	64%
	city	146	144	99%	144	99%	94	64%	93	64%
	town	100	100	100%	100	100%	67	67%	65	65%
VA	**all types**	229	155	68%	151	66%	139	61%	139	61%
	city	38	34	89%	32	84%	32	84%	32	84%
	town	191	121	63%	119	62%	107	56%	107	56%
VT	**all types**	289	257	89%	253	88%	185	64%	182	63%
	city	9	8	89%	8	89%	8	89%	8	89%
	town	242	234	97%	234	97%	169	70%	168	69%
	village	38	15	39%	11	29%	8	21%	6	16%
WA	**all types**	281	281	100%	280	100%	250	89%	248	88%
	city	211	211	100%	210	100%	189	90%	189	90%
	town	70	70	100%	70	100%	61	87%	59	84%
WI	**all types**	1,853	598	32%	594	32%	521	28%	411	22%
	city	190	189	99%	188	99%	168	88%	157	83%
	town	1,256	3	0%	2	0%	2	0%	0	0%
	village	407	406	100%	404	99%	351	86%	254	62%
WV	**all types**	232	232	100%	232	100%	203	88%	201	87%
	city	78	78	100%	78	100%	69	88%	69	88%
	corporation	1	1	100%	1	100%	1	100%	1	100%
	town	147	147	100%	147	100%	128	87%	126	86%
	village	6	6	100%	6	100%	5	83%	5	83%
WY	**all types**	99	99	100%	98	99%	77	78%	75	76%
	city	19	19	100%	19	100%	18	95%	18	95%
	town	80	80	100%	79	99%	59	74%	57	71%

Appendix B. Details about the Matching Process

We used the *fastLink: Fast Probabilistics Record Linkage* package, which estimates the probability that individual *i* in dataset *A* matches individual *j* in dataset *B* using the level of agreement between them for each of the *k* variables defined for merging. A pair, (*i*,*j*), is considered a match if such posterior match probability exceeds a threshold *S*. Intuitively, the algorithm estimates how similar the variables of interest are between pairs of observations in the local officials and public records datasets, and then uses this information to determine how likely it is that they are a match. Given that our variables are all strings and therefore highly vulnerable to measurement error, the method computes similarity using the Jaro-Winkler string distance.

We conducted the following set of steps for most of the 50 states in the U.S. to decrease the computational burden and measurement error. First, we pre-processed and cleaned up the variables relevant for merging in our list of officials. This included appending the latitude and longitude of the city for which each official in our list works, removing spaces and special characters in the first names, last name and city, and lowering their letters. Second, we conducted a first merging stage using the record linkage method outlined above by state. Recall that the public records dataset contains the addresses where citizens *live*, but our list of officials primarily has the city where these individuals serve or work. In most cities, elected officials must reside in the city where they hold office, but this constraint does not usually exist for municipal employees (though it does in some cities, such as St. Louis and New York City).

For the first stage, we used the similarities in first name, last name and city between officials and records in the voter file data from the same state; in other words, we considered partial string distances between the pairs in the local officials and public records datasets. We defined 0.88 as a lower bound for partial string-distance match, and 0.85 as a threshold to

determine a match between pairs of observations; we kept only one observation meeting this criterion. Third, we stored these matches and moved the no-matches to another set that was fed to the merging algorithm in the second stage.

In the second merging stage we used the same variables as the first but lowered the matching threshold to 0.7. The matches from this stage were appended to the previous one, and those without a match were now fed to the third stage.

In the third stage, we only used the first and last names of the officials as criteria for merging them to the voter file from their state and lowered the threshold match once again to 0.6. The resulting matches were appended to the main dataset, while the unmatched officials were fed to a string-distance matching process in which we looked for similarities in last and first names between the officials and the voters in the L2 data. The final dataset contained all the potential matches for each of the officials as determined by the record linkage framework.

Because one official could have been matched to more than one people from the voter file (especially in large cities), we conducted the following "deduplication" process. First, we used the "probability of match" that the algorithm outputs to filter out unlikely options. We also created a new modified "First Name" variable that imputed the "real" name of a person instead of their nickname using a dataset of names and nicknames (e.g., Sandy=Sandra, Bill=William). Second, for some cities and officials we have the middle name and gender of the officials that can help us to assign a more accurate match. For instance, the matching algorithm would assign similarly high probabilities that Carly Johnson and Carl Johnson are good matches for official Carl Johnson. From the voter files we know the sex of the candidates; for the official, sometimes we have that information (depending on the source). If not, we use ancillary data with several names containing the number of women and men registered under each name in the U.S. (e.g.

99.4% of people named Carly are women, while 99.9% of people named Carl are men). Thus, even if we don't know Carl Johnson's sex, we can assume that they are a man and should be matched to the male voter "Carl Johnson." Similarly, for those cases where we have information on the middle name of candidates, we use it to reduce the list of potential matches (e.g. Carl M Johnson matched to Carl Michael Johnson instead of Carl Alexander Johnson).

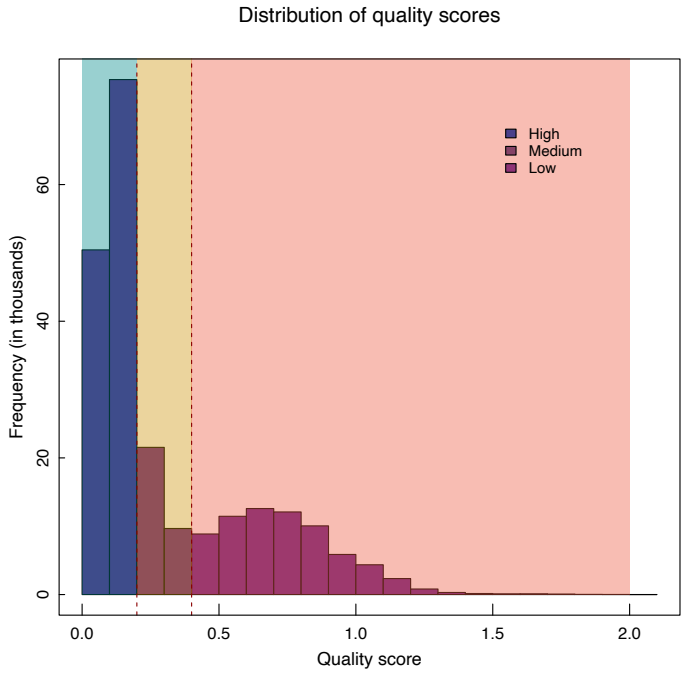
If there were still ties, we computed the geographical distance between the official and the potential candidate. We were able to calculate this distance because the L2 database includes the longitude and latitude of each voter's registration address, and we geocoded the original list of officials based on available zipcodes and city names. To adjudicate between multiple potential matches, we kept the match(es) with the minimum distance to a given official, and if such distance was under 50 miles. If there were still more than one matching candidates, we chose one at random.

Quality of matches

We created a three-category variable indicating whether the match between a voter and an official *i* was high, medium or low quality. This variable aims to reflect the uncertainty about whether an official and their associated match from the voter files are indeed the same person. To build this indicator, we constructed a "quality score" based on the differences between officials and their voter file matches with respect to first name, last name, city name distance, and geographical distance. The first three are string distances, computed using cosine similarity, and ranging from 0-1 (where 0 is "least different" and 1 "most different"). The fourth one is distance in miles based on longitude and latitude of target and candidate, that we subsequently normalize so it ranges from 0-1, where 0 is "no distance". Once we compute these components, we sum them to create an index with the distribution shown in Figure A2. The lower the number,

the lower the distance of all items between official and matching voter, and thus higher certainty that they are the same person.

Figure A2. Distribution of quality scores and labels



Based on qualitative exploration of cases belonging to the different bins of this indicator, we determined that cases with a quality score below 0.20 are high quality matches, between 0.2 and 0.4 medium quality, and above 0.4 low quality.

Table A4 shows the number of officials and cities in the full data (comprising all local officials) and the working data used for the analysis presented in the main text and below. The number of officials in each dataset is also disaggregated by "quality of matches."

Table A4: Number of observations in each dataset

Observations	Full list	Full data	Working data
Total	245,706	226,245	113,281
High quality	-	125,810	71,361
Medium quality	-	31,209	16,719
Low quality	-	69,226	25,201

Note: Full list includes the names of all local officials collected through the process described in Appendix A, Section 1. Full data includes all local officials that we matched to the voter files. Working data is a subset of the full data, comprising only elected execute and legislative officials (e.g., mayors and city councilors). "Quality index" is based on the quality of the match between the officials and registered voters as explained in Appendix B.

Appendix C. Details about 2017 Survey of Municipal Officials

We conducted a survey of local municipal officials in the summer 2017. The sample of municipal officials for the survey was constructed by first using U.S. Census data to create a list of all sub-county general purpose governments from across the U.S. with a population above 3,000. (We also included the 8 cities that merged with their overlapping counties.) Student RAs then searched for the website of each town or city in this list. From the websites, they collected the name and email address of the city mayor and councilors (or the equivalent).

The email inviting officials to participate in the survey described the purpose of the study and instructed officials to only proceed if they consented to participating. At the beginning of the survey, the officials were again told the purpose of the survey — to collect the demographic information about sitting officials — and they were informed that they would be allowed to skip any questions they like. There was no deception used in the survey.

We began the survey by first confirming the respondents' identity. One concern is that staffers might feel out the survey on behalf of the officials. Because staffers know less information about the personal information of the official, using staffer responses could lead to measurement error. To avoid this measurement error, we started the survey with the following question:

> This is a survey of former and current local officials. Your name and e-mail were obtained from a list of randomly selected municipal websites. This survey is intended to be taken by [Name of Official]. Are you this individual?
>
> Yes
>
> No

Most officials answered the survey themselves, with about 96.5 percent answering yes (2 percent answered no and another 1.5 percent skipped the question). This is a high number and reflects the fact that the overwhelming majority of the officials in the sample were from small and

medium sized towns and cities. We limit ourselves to the sample of those who answered yes to this first question.

While a total of 1,237 people started the survey, we limit the sample we use for validating the matching process to those who self-identified as municipal officials and to those who answered the questions about their birth year and gender; this left us with 1,109 respondents. We were able to match 836 of those respondents to the voter file information we had collected through our matching process.

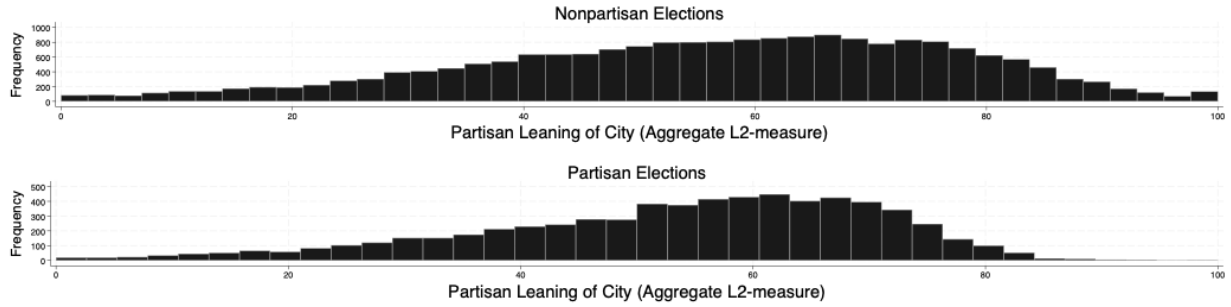
Appendix D. Details about Measuring Residents' Partisan Split

The voter file includes longitude and latitude data based on each registered voters' physical, registration address. This allowed us to identify which voters lived in each city based on US Census GIS shapefiles. Using voters' longitude and latitude to identify their municipality rather than just the city listed in their physical address avoids counting individuals as living in a municipality when they actually live outside of municipal boundaries but still have that municipality in their address, an important consideration given that 15% of residents in the US live outside municipal boundaries but still have a municipal address, usually the municipality nearest to them, for address purposes. It also avoids issues in states, like New Jersey and New York, where the names of municipalities used for physical addresses may not be the same as the municipal government where those residents live.

Appendix E. Details about Measuring Whether a City Uses Nonpartisan or Partisan Elections and Other Electoral Institutions

Our preferred source of information about whether a city used partisan or nonpartisan elections (based on whether the party affiliation of candidates can be indicated on the ballot) is the directories produced by state-level municipal associations that included information about the elections in each city. When that was unavailable, we used the following sources (listed in order of the sources we deferred to): (1) our emails and calls the state's municipal associations and the Secretary of State's office, (2) state statutes that determined how elections are run, (3) data from the Local Elections in America Project (Marschall, Shah, and Ruhil 2011), (4) data from previous researchers who coded cities on their own (de Benedictis-Kessner 2018; Tausanovitch and Warshaw 2014), (5) city staff responses to the International City/County Management Association's Municipal Form of Government Survey from 2018, 2011, and 2006, (6) research done by 22 research assistants of (i) municipal websites, (ii) election result sources (like newspapers and county websites), and (iii) direct contact with officials in those cities via phone or email. We filled any remaining gaps with data from surveys of officials asking them to report how elections were conducted in their city (Butler and Dynes 2016). We also examined the correlation across these measures—it was very high around 0.95—and had RAs double check cities that were an outlier from the rest of their state or where several sources were in conflict with one another. Figure A2 gives the distribution of voters' partisan leanings by the type of election used in the city while Table A2 above provides information about the number of cities in each state with partisan or nonpartisan elections.

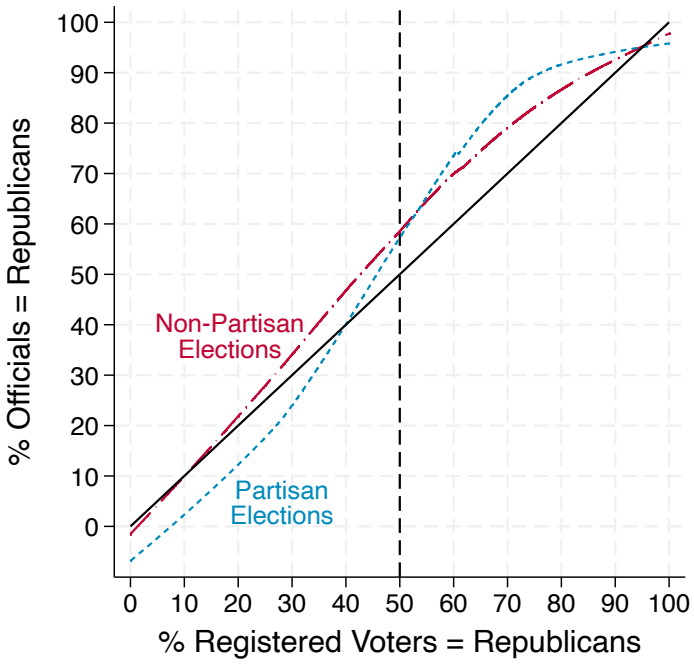
Figure A3. Voter Types by Type of Election



We conducted a similar process to identify when cities held their elections, what proportion of their city council was elected at-large rather than by districts, and their form of government categorized into 4 basic types: mayor-council, council-manager, commissioner, or town meeting. The distinction between the mayor-council and council-manager can be fuzzy, as a city may have a separately elected mayor with varying degrees of powers and a city manager appointed by the city council. Nonetheless, these are the common categories used in other work (e.g., Tausanovitch and Warshaw 2014) and by the International City/County Management Association in their surveys of municipal forms of government.

Appendix F. Additional Results

Figure A4: Relationship between Registered Voters' and Municipal Officials' Partisanship by Partisan Ballot Status



Note: The solid black line is a 45-degree line. Locally weighted regression (LOWESS) is used to estimate the relationship for cities with partisan races (the blue short-dash line) and nonpartisan races (the red long dash and dot line). The vertical dash line at 50% indicates where municipalities switch from having a Democratic majority among registered voters to a Republican majority among registered voters. In this bivariate analysis, we see a strong correlation between voters' partisanship and that of their elected officials, though Republicans are generally overrepresented in municipalities with non-partisan elections while relative to this, the majority party in the electorate has greater representation in municipalities with partisan elections, consistent with the results in Tables 2 and A5.

Table A5. Nonpartisan Elections and the Partisan Leanings of Officials – Full Results

	DV = Percent Republicans Among Partisan Officials		DV = Percent Independent Among All Officials	
	Republican Cities	Democratic Cities	Republican Cities	Democratic Cities
Independent Variables	(1)	(2)	(3)	(4)
Nonpartisan elections	-5.46*	5.54*	9.15*	6.09*
	(0.69)	(0.90)	(0.47)	(0.60)
Republican Leaning of City	0.97*	1.46*	-0.15*	0.05*
	(0.03)	(0.04)	(0.02)	(0.03)
On-cycle Election	0.60	2.68*	1.50*	5.98*
	(0.76)	(0.86)	(0.52)	(0.57)
All Officials Elected at Large	1.67*	-0.98	-0.72	-0.39
	(0.68)	(0.87)	(0.46)	(0.58)
Form of Gov't: Commissioner	-0.35	-7.39*	-3.56*	-3.63*
	(1.00)	(2.08)	(0.69)	(1.39)
Form of Gov't: Council-Manager	1.10	2.10*	-0.36	-2.98*
	(0.68)	(0.90)	(0.47)	(0.60)
Form of Gov't: Town Meeting	4.50*	7.04*	7.20*	14.17*
	(1.89)	(1.69)	(1.28)	(1.09)
Percent home ownership	-0.01	0.07*	-0.01	-0.03
	(0.03)	(0.04)	(0.02)	(0.02)
Household median income ($10K)	0.34*	0.05	-0.06	0.91*
	(0.15)	(0.22)	(0.10)	(0.14)
Percent unemployment	-0.14	0.08	-0.08	0.07
	(0.08)	(0.09)	(0.05)	(0.06)
ln(population)	1.97*	-1.13*	-1.52*	-0.54*
	(0.24)	(0.30)	(0.17)	(0.20)
Median age	0.05	-0.22*	-0.05	0.02
	(0.04)	(0.07)	(0.03)	(0.04)
Percent white	0.07	0.01	-0.12*	-0.08*
	(0.05)	(0.03)	(0.03)	(0.02)
Percent Black	0.21*	0.10*	-0.34*	-0.08*
	(0.07)	(0.04)	(0.05)	(0.02)
Percent Latino	0.19*	0.14*	-0.19*	-0.04*
	(0.03)	(0.02)	(0.02)	(0.02)
Constant	-10.09	-8.22	43.13*	11.69*
	(6.43)	(5.47)	(4.32)	(3.62)
Observations	9,016	5,949	9,129	6,059
R-squared	0.13	0.25	0.09	0.12

Note: Standard errors in parentheses. * p<0.05.

Table A6. Main Results when Sample Limited to Cities with At-Large Elections

	DV = Percent Republicans Among Partisan Officials		DV = Percent Independent Among All Officials	
	Republican Cities	Democratic Cities	Republican Cities	Democratic Cities
Independent Variables	(1)	(2)	(3)	(4)
Nonpartisan elections	-5.96*	4.49*	9.21*	5.30*
	(0.82)	(1.22)	(0.56)	(0.82)
Republican Leaning of City	1.02*	1.44*	-0.15*	0.05
	(0.03)	(0.05)	(0.02)	(0.03)
On-cycle Election	0.69	2.62*	1.91*	6.66*
	(0.93)	(1.11)	(0.62)	(0.74)
Form of Gov't: Commissioner	-1.89	-10.53*	-3.20*	-3.79*
	(1.07)	(2.36)	(0.72)	(1.59)
Form of Gov't: Council-Manager	-1.07	2.91*	-0.58	-1.97*
	(0.89)	(1.33)	(0.60)	(0.90)
Form of Gov't: Town Meeting	1.06	7.19*	10.51*	13.57*
	(2.51)	(2.03)	(1.64)	(1.33)
Percent home ownership	-0.02	0.04	0.00	-0.01
	(0.03)	(0.05)	(0.02)	(0.03)
Household median income ($10K)	0.32	0.06	0.02	1.11*
	(0.18)	(0.28)	(0.12)	(0.19)
Percent unemployment	-0.21*	0.09	-0.10	0.11
	(0.09)	(0.11)	(0.06)	(0.08)
ln(population)	2.49*	-1.32*	-1.60*	-1.13*
	(0.29)	(0.41)	(0.19)	(0.28)
Median age	0.07	-0.22*	-0.11*	-0.00
	(0.05)	(0.08)	(0.03)	(0.05)
Percent white	0.16*	-0.00	-0.19*	-0.09*
	(0.06)	(0.04)	(0.04)	(0.03)
Percent Black	0.43*	0.07	-0.42*	-0.06*
	(0.09)	(0.05)	(0.06)	(0.03)
Percent Latino	0.21*	0.12*	-0.19*	-0.03
	(0.04)	(0.03)	(0.03)	(0.02)
Constant	-23.13*	-2.62	50.02*	14.81*
	(7.49)	(6.66)	(4.89)	(4.48)
Observations	6,464	3,769	6,545	3,853
R-squared	0.14	0.22	0.11	0.12

Note: Standard errors in parentheses. * p<0.05

Table A7. Results Using Mayors

	DV = Republican Mayor Sample: Partisan Officials		DV = Independent Mayor Sample: All Officials	
	Republican Cities	Democratic Cities	Republican Cities	Democratic Cities
Independent Variables	(1)	(2)	(3)	(4)
Nonpartisan elections	0.02	0.21*	0.51*	0.22*
	(0.06)	(0.06)	(0.09)	(0.08)
Republican Leaning of City	0.04*	0.05*	-0.01*	0.01
	(0.00)	(0.00)	(0.00)	(0.00)
On-cycle Election	-0.01	0.11*	0.10	0.16*
	(0.06)	(0.05)	(0.07)	(0.07)
All Officials Elected at Large	0.14*	-0.07	-0.07	0.03
	(0.06)	(0.06)	(0.07)	(0.08)
Form of Gov't: Commissioner	0.07	0.12	-0.27	-0.69
	(0.17)	(0.18)	(0.24)	(0.40)
Form of Gov't: Council-Manager	0.13	0.07	0.07	-0.09
	(0.07)	(0.06)	(0.07)	(0.08)
Form of Gov't: Town Meeting	0.03	-0.80		
	(0.50)	(0.67)		
Percent home ownership	-0.00	-0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Household median income ($10K)	0.03*	0.01	-0.01	0.03
	(0.01)	(0.01)	(0.02)	(0.02)
Percent unemployment	-0.01	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
ln(population)	0.07*	-0.04	-0.07*	-0.02
	(0.02)	(0.02)	(0.02)	(0.03)
Median age	0.00	-0.01*	-0.00	-0.01
	(0.00)	(0.00)	(0.00)	(0.01)
Percent white	0.01*	0.00	-0.01*	-0.01*
	(0.00)	(0.00)	(0.00)	(0.00)
Percent Black	0.03*	0.00	-0.03*	-0.00
	(0.01)	(0.00)	(0.01)	(0.00)
Percent Latino	0.01*	0.01*	-0.01*	-0.01*
	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-3.12*	-1.61*	1.12*	-1.18*
	(0.49)	(0.34)	(0.52)	(0.42)
Observations	4,001	3,120	4,367	3,390

Note: Probit regression models. Standard errors in parentheses. * p<0.05.

Table A8. Congruence

	DV = Congruence	
	Republican Cities	Democratic Cities
Independent Variables	(1)	(2)
Nonpartisan elections	2.34*	-0.46
	(0.39)	(0.52)
Republican Leaning of City	0.38*	-0.34*
	(0.02)	(0.02)
On-cycle Election	-1.06*	-1.92*
	(0.43)	(0.50)
All Officials Elected at Large	-1.20*	-1.24*
	(0.38)	(0.50)
Form of Gov't: Commissioner	-0.98	-2.87*
	(0.56)	(1.20)
Form of Gov't: Council-Manager	-1.28*	-0.98
	(0.38)	(0.52)
Form of Gov't: Town Meeting	-0.99	-5.39*
	(1.06)	(0.97)
Percent home ownership	-0.06*	-0.02
	(0.02)	(0.02)
Household median income ($10K)	-0.09	0.04
	(0.08)	(0.12)
Percent unemployment	-0.06	0.09
	(0.04)	(0.05)
ln(population)	-0.18	0.45*
	(0.14)	(0.17)
Median age	-0.02	0.00
	(0.02)	(0.04)
Percent white	0.11*	0.08*
	(0.03)	(0.02)
Percent Black	0.14*	0.10*
	(0.04)	(0.02)
Percent Latino	-0.00	-0.01
	(0.02)	(0.01)
Constant	46.99*	79.12*
	(3.60)	(3.15)
Observations	9,016	5,949
R-squared	0.10	0.09

Note: Standard errors in parentheses. * p<0.05. The dependent variable, Congruence, is equal to 100 - | Percent Republicans Among Partisan Officials - Republican Leaning of the City |.