

APPENDIX A: ADDITIONAL TREATMENT EFFECTS TABLES & EFFECT PLOTS

A1. Full set of Treatment Effects for Housing Prices

The full set of treatment effects provided in Table A1 support Table 3 which provides treatment effects for the housing price outcome variable in the main body of the paper. These treatment effects are estimated using a regression model that controls for various factors.

Table A1—: Full set of estimates - Median Housing Price

Year relative to vote	Estimate	Standard error	p-value	Confidence interval
$t - 3$	3,468	7,465	0.642	[-11,164, 18,099]
$t - 2$	-1,703	6,617	0.797	[-14,673, 11,267]
$t - 1$	1,784	6,950	0.797	[-11,838, 15,407]
$t + 1$	-6,197	9,662	0.521	[-25,134, 12,741]
$t + 2$	-17,059	9,518	0.073	[-35,715, 1,597]
$t + 3$	-9,823	8,244	0.233	[-25,981, 6,335]
$t + 4$	-19,535	9,289	0.035	[-37,741, -1,329]
$t + 5$	-21,531	9,147	0.019	[-39,459, -3,604]
$t + 6$	-16,994	7,558	0.025	[-31,809, -2,180]
$t + 7$	-16,991	7,357	0.023	[-31,111, -2,272]
$t + 8$	-23,323	9,449	0.014	[-41,842, -4,803]
$t + 9$	-30,620	9,586	0.001	[-49,408, -11,833]
$t + 10$	-16,411	9,342	0.079	[-34,721, 1,898]

Note:

Supplements Table 3 in text. Full set of treatment effect estimates of renewing road tax levies relative to cutting road tax levies from 3 years before the vote to 10 years after the vote. Covariates from Table 2 used in all regressions. Outcome is median house price in constant 2010 U.S. dollars. Unit of observation is the city-year. A treatment effect of -\$19,535 means that four years after the vote, cities that vote to cut road taxes and its associated spending have houses that sell for \$19,535 less than cities that vote to renew road taxes and spending.

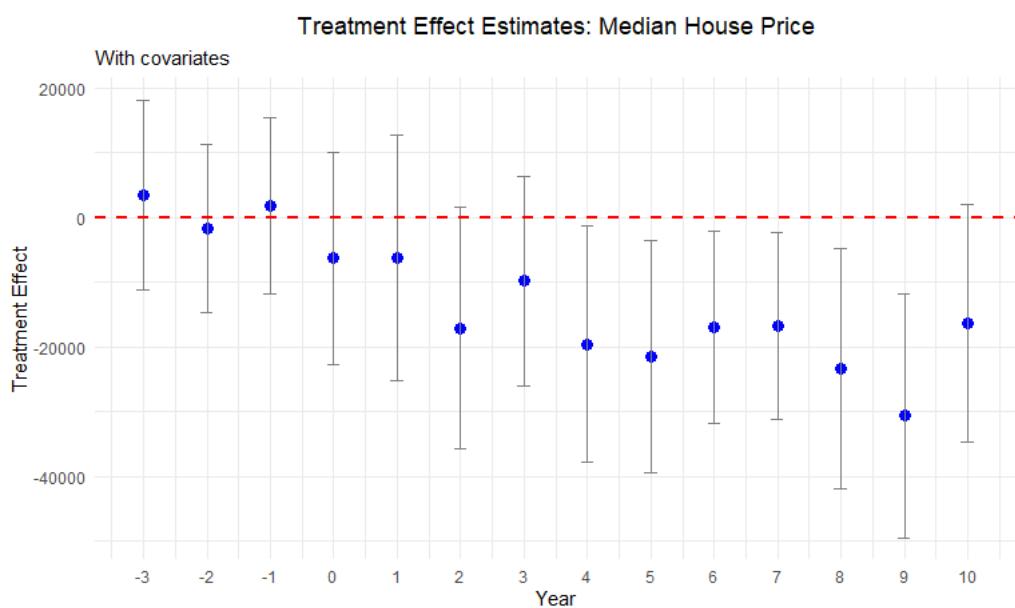


Figure A1. : Event Study - Median Housing Price

A2. Full set of Treatment Effects for employment outcome variable

The full set of treatment effects for the employment outcome variable for the full sample of cities have been provided below.

Table A2—: Full set of estimates - Average Employment

Year relative to vote	Estimate	Standard error	p-value	Confidence interval
$t - 3$	489	444	0.270	[−380, 1359]
$t - 2$	449	391	0.251	[−317, 1215]
$t - 1$	429	373	0.249	[−301, 1160]
$t + 1$	400	347	0.250	[−281, 1080]
$t + 2$	173	295	0.558	[−406, 752]
$t + 3$	68	313	0.827	[−545, 682]
$t + 4$	−24	319	0.939	[−650, 601]
$t + 5$	−100	343	0.771	[−772, 572]
$t + 6$	−357	324	0.271	[−993, 278]
$t + 7$	−384	304	0.206	[−980, 211]
$t + 8$	−281	311	0.366	[−891, 329]
$t + 9$	−237	350	0.497	[−922, 448]
$t + 10$	−406	372	0.275	[−1135, 323]

Note:

Full set of estimates of the treatment effect on average employment for areas renewing versus cutting road tax levies, from 3 years before to 10 years after the vote.

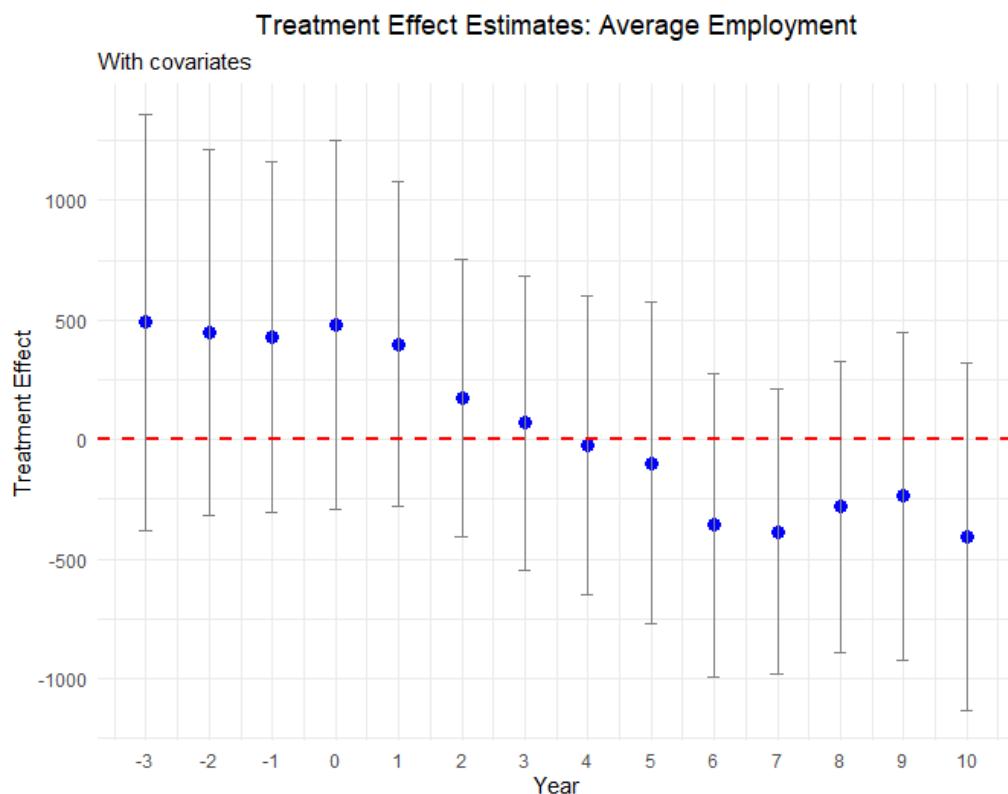


Figure A2. : Effect plot: Average Employment

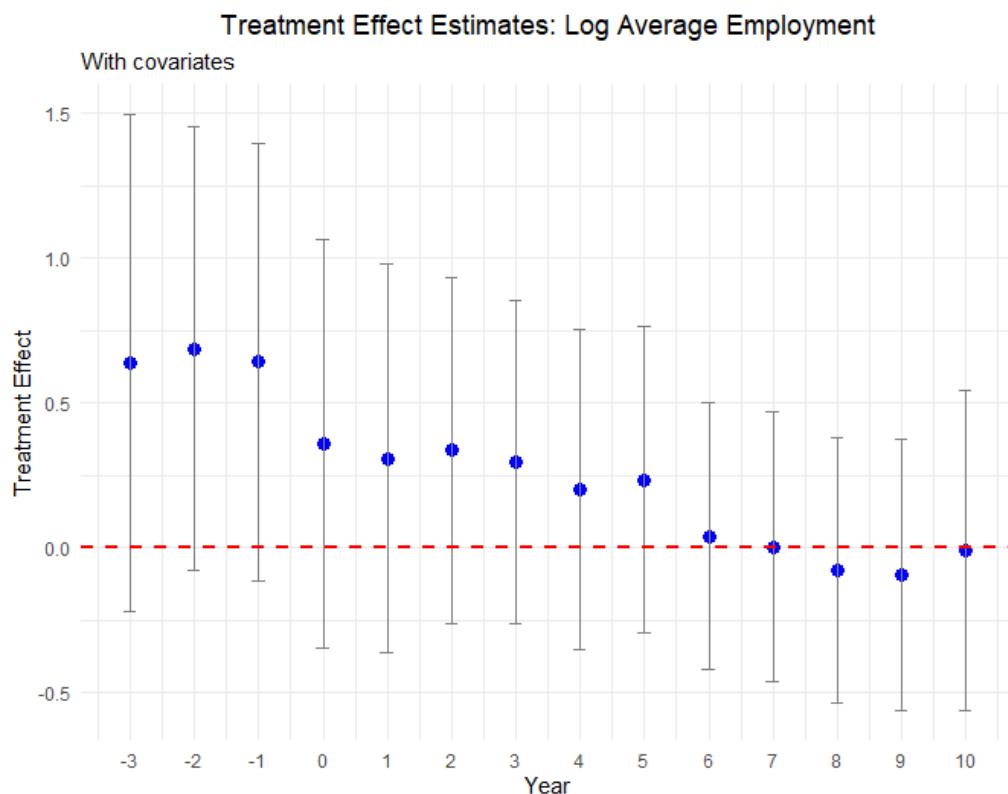


Figure A3. : Effect plot: Log Average Employment

Table A3—: Full set of estimates - Log Average Employment

Year relative to vote	estimate	Standard error	p-value	Confidence interval
$t - 3$	0.640	0.438	0.144	[-0.218, 1.497]
$t - 2$	0.688	0.392	0.079	[-0.079, 1.456]
$t - 1$	0.641	0.385	0.096	[-0.114, 1.397]
$t + 1$	0.308	0.342	0.368	[-0.363, 0.98]
$t + 2$	0.336	0.304	0.270	[-0.261, 0.933]
$t + 3$	0.297	0.285	0.297	[-0.261, 0.855]
$t + 4$	0.201	0.283	0.478	[-0.354, 0.756]
$t + 5$	0.235	0.270	0.385	[-0.295, 0.765]
$t + 6$	0.040	0.236	0.865	[-0.422, 0.503]
$t + 7$	0.004	0.238	0.987	[-0.462, 0.47]
$t + 8$	-0.077	0.233	0.741	[-0.535, 0.38]
$t + 9$	-0.094	0.240	0.696	[-0.564, 0.377]
$t + 10$	-0.008	0.281	0.977	[-0.56, 0.543]

Note:

Full set of estimates of the treatment effect on log average employment for areas renewing versus cutting road tax levies, from 3 years before to 10 years after the vote.

A3. Full set of Treatment Effects for wage outcome variable

Table A4—: Full set of estimates - Total Wages

Year relative to vote	Estimate	Standard error	p-value	Confidence interval
$t - 3$	24,989,152	20,849,660	0.231	[-15,876,182, 65,854,486]
$t - 2$	21,441,310	19,889,330	0.281	[-17,541,777, 60,424,398]
$t - 1$	19,881,825	19,361,782	0.304	[-18,067,267, 57,830,917]
$t + 1$	19,192,209	18,280,413	0.294	[-16,637,400, 55,021,819]
$t + 2$	13,929,445	14,858,316	0.349	[-15,192,855, 43,051,744]
$t + 3$	8,703,249	15,217,865	0.567	[-21,123,766, 38,530,263]
$t + 4$	4,588,179	15,209,473	0.763	[-25,222,389, 34,398,747]
$t + 5$	1,451,493	15,943,802	0.927	[-29,798,358, 32,701,345]
$t + 6$	-9,929,705	11,649,814	0.394	[-32,763,341, 12,903,931]
$t + 7$	-11,342,970	10,518,262	0.281	[-31,958,764, 9,272,824]
$t + 8$	-8,616,720	10,709,258	0.421	[-29,606,866, 12,373,426]
$t + 9$	-6,319,035	12,894,791	0.624	[-31,592,825, 18,954,755]
$t + 10$	-10,837,202	13,975,637	0.438	[-38,229,451, 16,555,046]

Note:

Full set of estimates of the treatment effect on total wages for areas renewing versus cutting road tax levies, from 3 years before to 10 years after the vote.

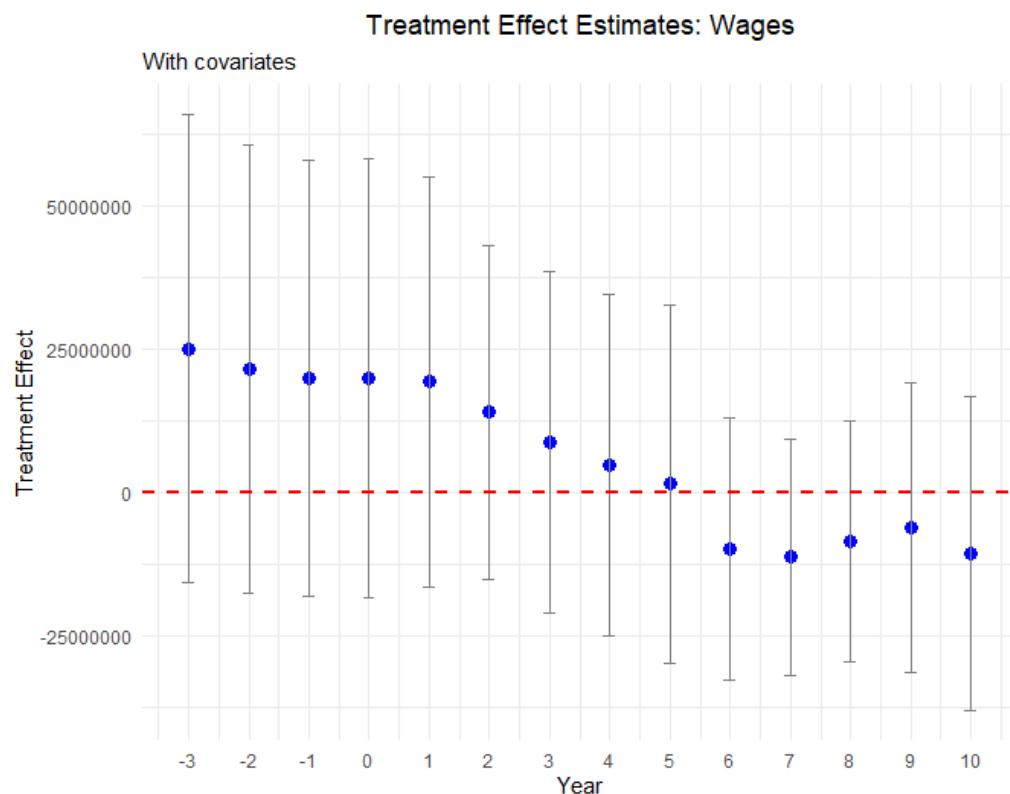


Figure A4. : Effect plot: Wages

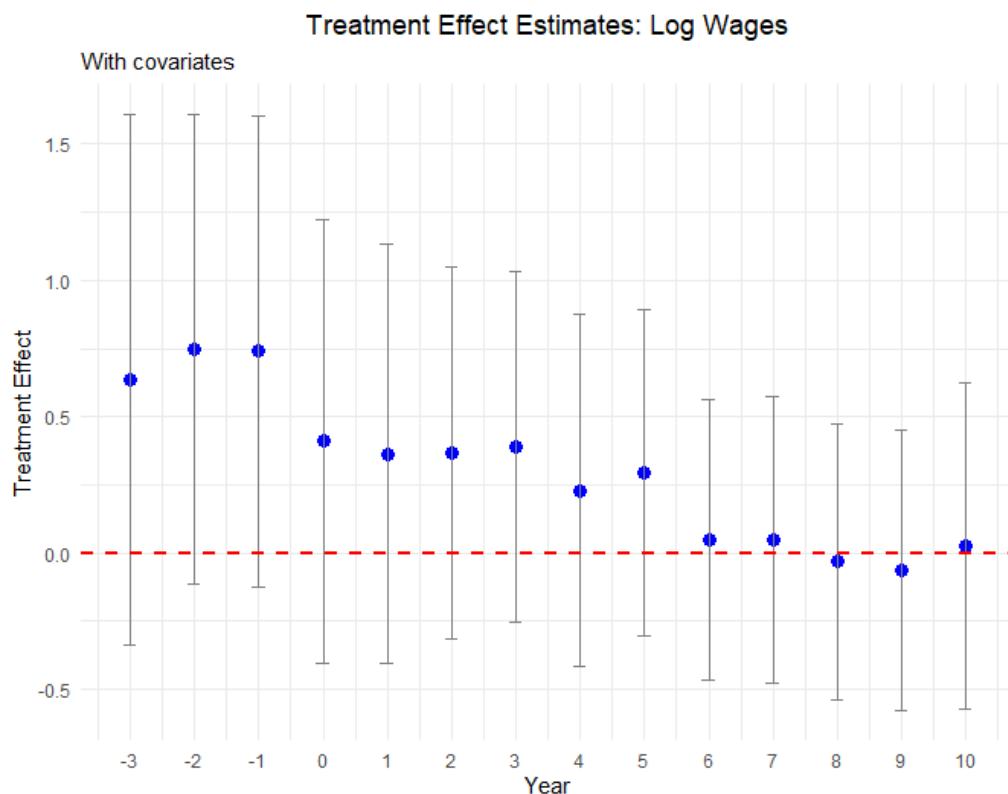


Figure A5. : Effect plot: Log Wages

Table A5—: Full set of estimates - Log Total Wages

Year relative to vote	Estimate	Standard error	p-value	Confidence interval
$t - 3$	0.636	0.496	0.200	[-0.336, 1.609]
$t - 2$	0.747	0.438	0.088	[-0.111, 1.606]
$t - 1$	0.740	0.442	0.094	[-0.126, 1.605]
$t + 1$	0.364	0.393	0.354	[-0.406, 1.134]
$t + 2$	0.369	0.348	0.289	[-0.313, 1.051]
$t + 3$	0.389	0.328	0.235	[-0.253, 1.032]
$t + 4$	0.230	0.330	0.485	[-0.417, 0.877]
$t + 5$	0.295	0.306	0.334	[-0.304, 0.894]
$t + 6$	0.049	0.262	0.851	[-0.465, 0.564]
$t + 7$	0.049	0.269	0.855	[-0.478, 0.576]
$t + 8$	-0.031	0.258	0.905	[-0.537, 0.475]
$t + 9$	-0.063	0.264	0.811	[-0.58, 0.454]
$t + 10$	0.026	0.306	0.932	[-0.573, 0.625]

Note:

Full set of estimates of the treatment effect on log total wages for areas renewing versus cutting road tax levies, from 3 years before to 10 years after the vote.

APPENDIX B: ADDITIONAL ROBUSTNESS TESTS

B1. Covariate Smoothness Plots

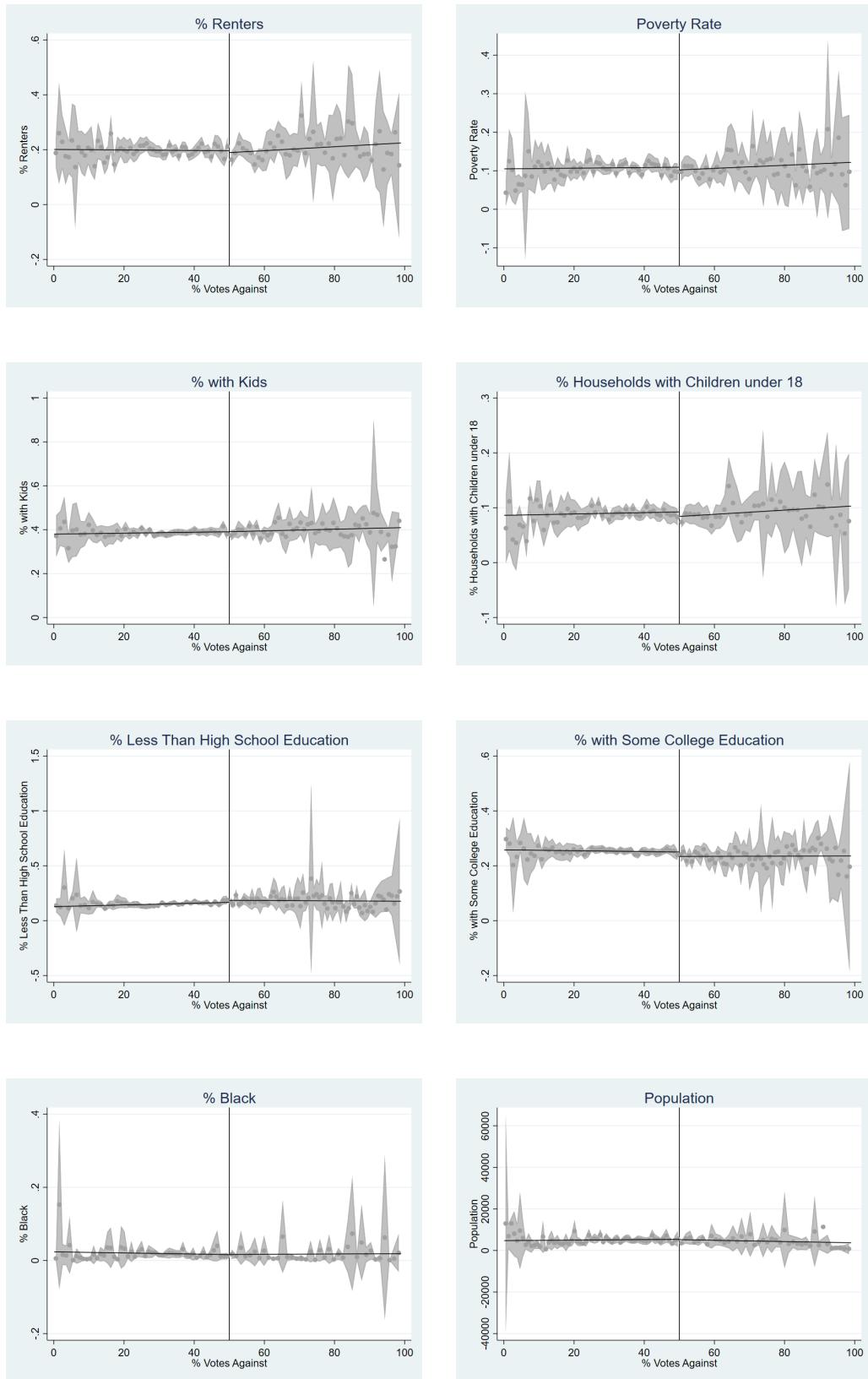


Figure B1. : Covariate Discontinuity Plots - Part 1

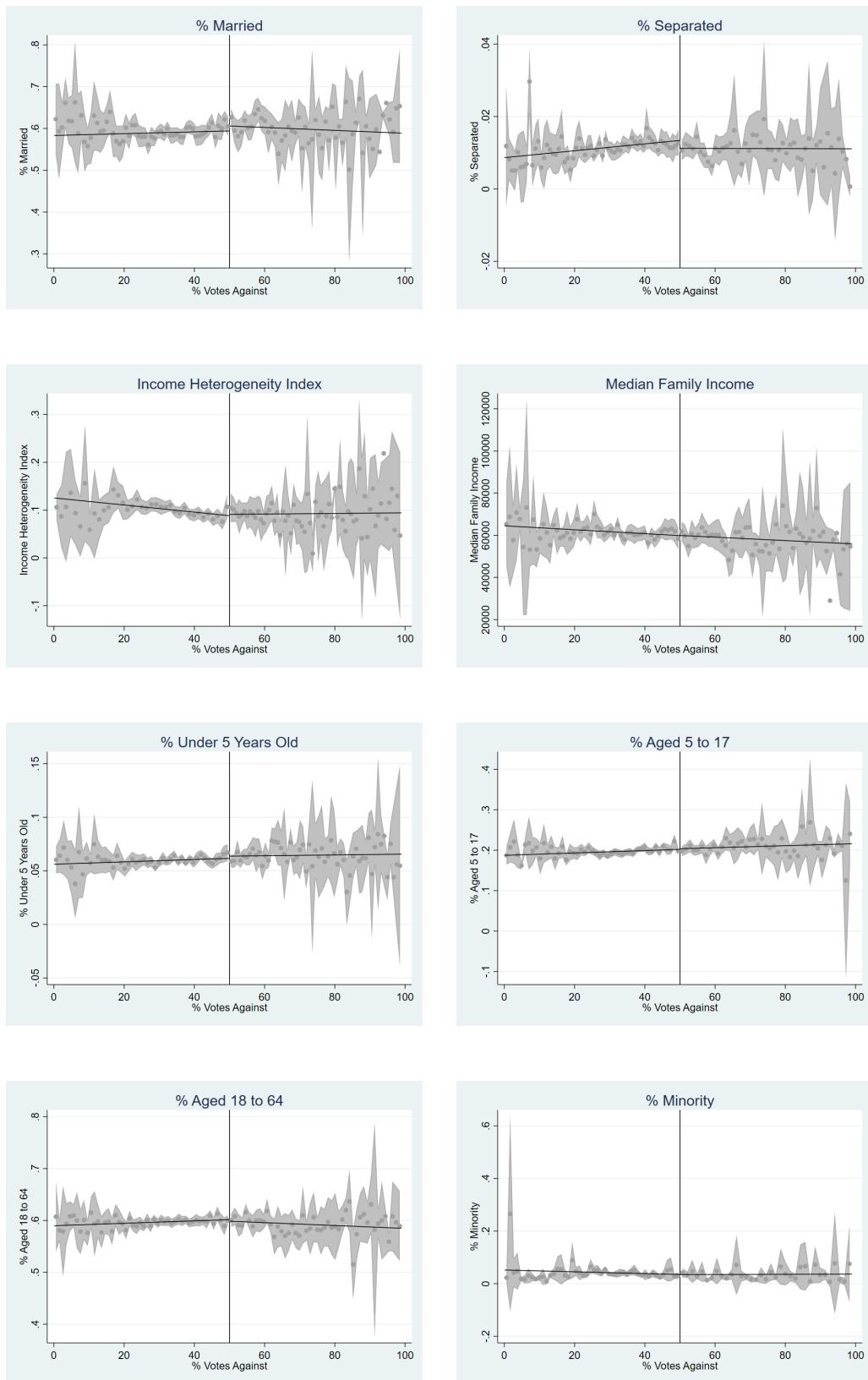


Figure B2. : Covariate Discontinuity Plots - Part 2

B2. Covariate Discontinuity Tests

Table B1—: Covariate Discontinuity Test Results

Variable	Estimate	Standard error	p-value	Confidence interval
Population	-388	1,094	0.722	[-2,532, 1,755]
Poverty Rate	0.017	0.014	0.234	[-0.011, 0.045]
% with Kids	-0.007	0.012	0.539	[-0.030, 0.015]
% Households with Children under 18	0.0001	0.007	0.981	[-0.014, 0.014]
% Less than High School Education	-0.004	0.020	0.834	[-0.043, 0.035]
% Some College Education	-0.012	0.011	0.274	[-0.034, 0.009]
% Unemployment Rate	-0.002	0.006	0.733	[-0.013, 0.009]
% Renters	-0.005	0.015	0.754	[-0.035, 0.025]
% White	-0.007	0.011	0.499	[-0.028, 0.014]
% Black	-0.004	0.009	0.685	[-0.021, 0.014]
% Married	-0.013	0.015	0.374	[-0.042, 0.016]
% Separated	0.001	0.002	0.485	[-0.002, 0.004]

Note:

Estimates indicate the treatment effect of failing to renew a road maintenance tax levy on each covariate considered during our study. Confidence intervals are presented in square brackets.

Table B2—: Covariate means for high-poverty sample used in wage outcome regressions

Covariate	Failed levies	Passed levies
% Black	0.03	0.03
% Married	0.55	0.53
% Unemployment Rate	0.073	0.075
% Renters	0.26	0.27
% Aged 5 to 17	0.22	0.21
Population	3,398	4,465
Labor Force Participation	0.59	0.58
% Aged 65+	0.13	0.14
% with Kids	0.41	0.41
% Some College Education	0.21	0.23
% Bachelors Degree	0.06	0.07
% Hispanic	0.01	0.01
Number of Observations	83	296

Note:

Covariate means for High-Poverty sample regressions using the natural log of Wages as the outcome variable corresponding to Table 8. Covariate means shown for an effective bandwidth of $h = 0.14$ at the time of the vote for the set of cities that renew or cut road tax levies. The authors suggest the only sizable difference is Population. The danger for identification is that Population differences may be driving tax levy renewal, but we find the correlation is only 0.07.

APPENDIX C: ADDITIONAL INFORMATION

C1. *Roads in Waynesville OH: Serial Cutter of Road Maintenance Tax Levies*



Figure C1. : Roads in Waynesville: Case Study