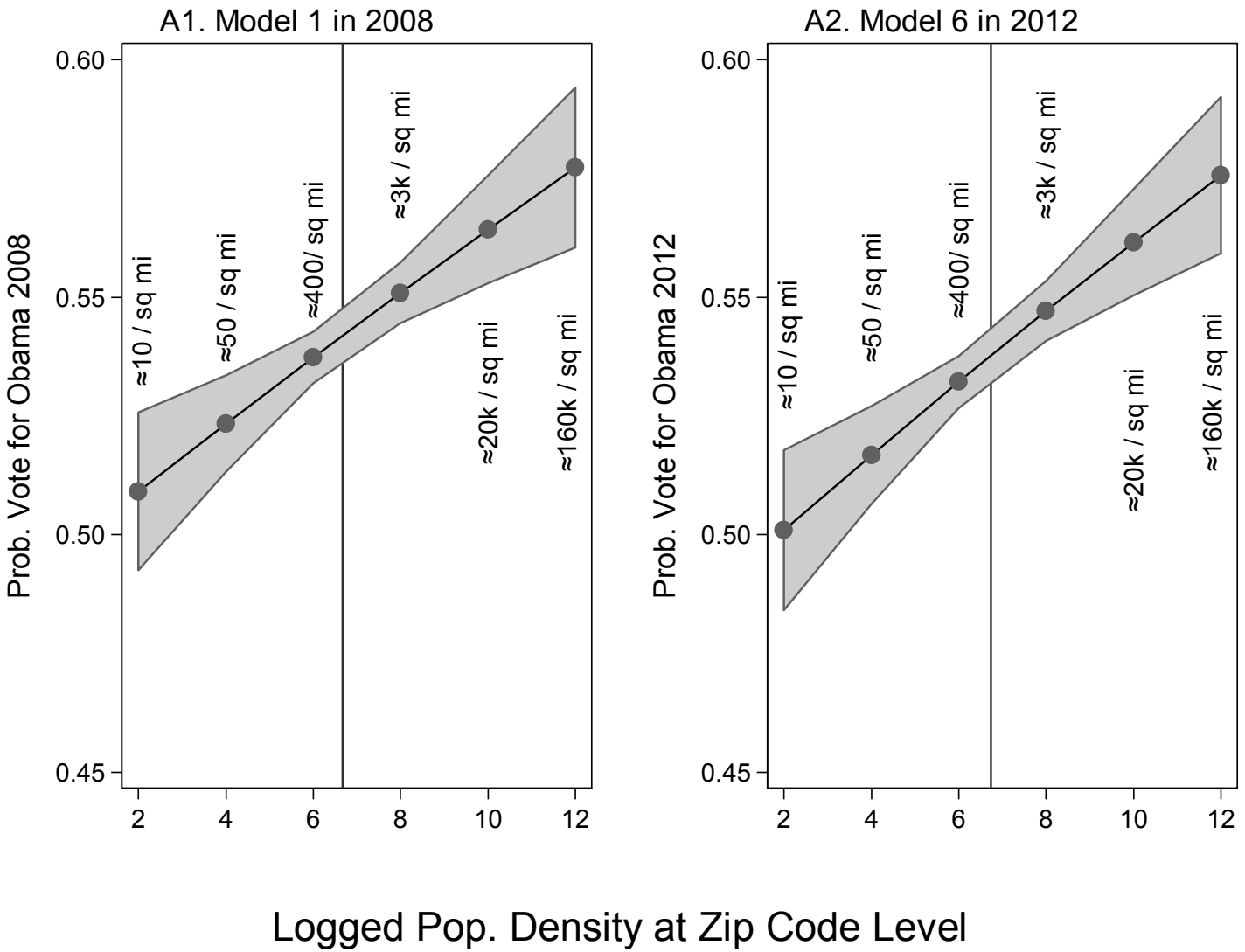
Supplemental Appendix

Given the brevity of this paper, in this appendix we fulfill four additional objectives: (1) elaborate on the use of the zip code (ZC) for gauging the contextual effect of density and racial composition on voter preferences; (2) present data on the post-estimation predicted probabilities; (3) present the full version of Table 1 (which was truncated for brevity) in Table A3; and (4) provide coding and replication information.

(1). Why Use The Zip Code?

There are 3,143 county/county equivalent units in the United States. By comparison, there are 32,989 zip code tabulation areas. We prefer a much smaller aggregate unit of analysis from which to assess the contextual effect of place on voting behavior. In the 2008 Cooperative Congressional Election Study (CCES), there are 10,306 zip codes assigned to respondents and in the 2012 CCES, there are 12,456 zip codes assigned to respondents without missing values on any of our variables of interest. In addition to the more fine-grained analysis of the contextual effect of place with the use of the zip code instead of the county, we also prefer the zip code because it is unobtrusive. For instance, the General Social Survey (GSS) asks specific questions regarding a respondent's impression of the neighborhood in which they reside. This line of questioning can easily be compromised by social desirability among those who care not to express their true opinions regarding the types of people whom they live near. By contrast, simply assigning the density information and racial composition data to each CCES respondent's zip code is not susceptible to any cueing that alerts the individuals in terms of the nexus between political behavior/attitudes and the environment where they live. We prefer this unobtrusive means of examining the possible influence of density and racial composition on voter preferences because it should yield a more realistic effect. And although zip codes are generally larger and more populous than census tracts or precincts (both of which are not available in the CCES), effects at this level of aggregate analysis are relatively conservative since it is probably the case that smaller units of place yield even more pronounced impacts on presidential vote choice. Below, in Figures A1 and A2, we present a graphical display of the effect of zip code density on presidential vote choice in 2008 and 2012, respectively. Controlling for the numerous variables in these regressions from Table 1 in the paper (Model 1 in 2008 and Model 6 in 2012), density has a substantive and positive effect on the likelihood of voting for Barack Obama. The concentration of individuals in space generally has what appears to be a congruous effect on political preferences and theoretically we think this has a lot to do with individuals finding an incentive to favor cooperation over conflict, which manifests itself in similar voting behavior.

Figures A1-A2. Probability of Voting for Obama in 2008 and 2012 based on Zip Code-level Population Density



[Post-estimation probabilities with 95% confidence intervals, controlling for other correlates listed in Table 1]

(2). Table A1. Post-Estimation Predicted Probabilities of Voting for Obama in 2008 and 2012, Corresponding to Figures 2a-2d (with 95% C.I.s)

Logged ZC Density	1	3	5	7	9	11
Black voters 2008						
ZC = 20% white	.988 (.933, 1)	.985 (.938, 1)	.982 (.948, 1)	.978 (.960, .996)	.974 (.961, .987)	.969 (.931, 1)
ZC = 95% white	.950 (.890, 1)	.949 (.907, .992)	.949 (.922, .975)	.948 (.928, .967)	.947 (.916, .977)	.946 (.897, .995)
Black voters 2012						
ZC = 20% white	.931 (.821, 1)	.947 (.884, 1)	.958 (.927, .990)	.968 (.955, .981)	.975 (.967, .984)	.981 (.967, .995)
ZC = 95% white	.941 (.859, 1)	.944 (.890, .998)	.948 (.916, .979)	.950 (.929, .972)	.953 (.924, .983)	.956 (.911, 1)
White voters 2008						
ZC = 20% white	.196 (.089, .304)	.274 (.190, .358)	.354 (.301, .406)	.429 (.401, .457)	.498 (.469, .526)	.562 (.515, .609)
ZC = 95% white	.444 (.421, .467)	.455 (.440, .470)	.466 (.457, .475)	.476 (.467, .485)	.487 (.472, .501)	.497 (.475, .519)
White voters 2012						
ZC = 20% white	.278 (.159, .397)	.341 (.255, .427)	.402 (.350, .455)	.459 (.432, .487)	.511 (.484, .539)	.560 (.514, .606)
ZC = 95% white	.443 (.418, .467)	.454 (.438, .470)	.465 (.455, .474)	.476 (.467, .484)	.486 (.472, .500)	.497 (.476, .518)

Table A2. Post-Estimation Predicted Probabilities of Voting for Obama in 2008 and 2012, Corresponding to Figures 3a-3b (with 95% C.I.s)

ZC Black%	0%	20%	40%	60%	80%	100%
2008 Election						
25th Percentile	.466 (.458, .474)	.430 (.413, .446)	.392 (.356, .428)	.352 (.295, .409)	.312 (.233, .390)	.270 (.171, .370)
75th Percentile	.481 (.471, .490)	.479 (.470, .488)	.477 (.460, .494)	.475 (.447, .502)	.473 (.435, .511)	.471 (.422, .520)
2012 Election						
25th Percentile	.467 (.459, .476)	.438 (.421, .455)	.407 (.370, .445)	.376 (.315, .436)	.343 (.259, .427)	.309 (.202, .416)
75th Percentile	.482 (.473, .491)	.487 (.478, .496)	.492 (.475, .510)	.498 (.471, .524)	.503 (.466, .539)	.508 (.462, .554)

(3). Table A3. Full Version of Table 1 from Manuscript

	1. Includes White% 2008	2. Includes Black% 2008	3. Blacks only: Density × White% 2008	4. Whites only: Density × White% 2008	5. Whites only: Density × Black% 2008	6. Includes White% 2012	7. Includes Black% 2012	8. Blacks only: Density × White% 2012	9. Whites only: Density × White% 2012	10. Whites only: Density × Black% 2012
REP PID	-2.10**	-2.10**	-2.84**	-2.08**	-2.08**	-2.60**	-2.60**	-2.50**	-2.64**	-2.64**
	(0.074)	(0.074)	(0.666)	(0.076)	(0.076)	(0.085)	(0.085)	(0.481)	(0.091)	(0.091)
DEM PID	1.82**	1.82**	2.30**	1.78**	1.79**	1.96**	1.96**	2.47**	1.95**	1.96**
	(0.067)	(0.067)	(0.751)	(0.072)	(0.072)	(0.077)	(0.077)	(0.432)	(0.082)	(0.082)
Conservative	-2.30**	-2.30**	-2.63**	-2.31**	-2.31**	-2.38**	-2.38**	-1.81**	-2.46**	-2.46**
	(0.067)	(0.067)	(0.470)	(0.070)	(0.070)	(0.070)	(0.070)	(0.391)	(0.076)	(0.076)
Black	2.91**	2.90**				2.51**	2.49**			
	(0.203)	(0.207)				(0.201)	(0.205)			
Latino	0.34*	0.34**				0.72**	0.74**			
	(0.131)	(0.131)				(0.184)	(0.183)			
Female	-0.04	-0.04	1.60*	-0.07	-0.07	0.13*	0.12*	0.03	0.11	0.11
	(0.058)	(0.058)	(0.634)	(0.061)	(0.061)	(0.061)	(0.061)	(0.389)	(0.066)	(0.066)
Married	-0.31**	-0.31**	-0.81	-0.30**	-0.29**	-0.29**	-0.29**	-0.17	-0.26**	-0.26**
	(0.063)	(0.063)	(0.518)	(0.067)	(0.067)	(0.064)	(0.064)	(0.391)	(0.070)	(0.070)
Age 30s	-0.16	-0.16	2.05*	-0.20	-0.20	-0.20	-0.20	-0.56	-0.20	-0.20
	(0.107)	(0.107)	(0.809)	(0.117)	(0.117)	(0.150)	(0.150)	(0.830)	(0.170)	(0.170)
Age 40s	-0.34**	-0.34**	1.92*	-0.34**	-0.34**	-0.33*	-0.34*	-0.58	-0.31*	-0.31*
	(0.100)	(0.100)	(0.804)	(0.107)	(0.107)	(0.139)	(0.138)	(0.788)	(0.156)	(0.155)
Age 50s	-0.46**	-0.46**	2.38**	-0.47**	-0.47**	-0.26*	-0.26*	-0.27	-0.19	-0.19
	(0.103)	(0.103)	(0.905)	(0.109)	(0.109)	(0.126)	(0.126)	(0.630)	(0.141)	(0.140)
Age 60s	-0.51**	-0.51**	0.78	-0.48**	-0.48**	-0.43**	-0.43**	-0.78	-0.36**	-0.37**
	(0.113)	(0.113)	(0.765)	(0.120)	(0.119)	(0.127)	(0.126)	(0.671)	(0.140)	(0.139)
Age 70s	-0.64**	-0.64**	1.16	-0.62**	-0.63**	-0.57**	-0.57**	-0.56	-0.58**	-0.58**
	(0.132)	(0.132)	(0.771)	(0.137)	(0.137)	(0.142)	(0.141)	(0.817)	(0.152)	(0.152)
College Grad	0.43**	0.43**	-0.65	0.49**	0.49**	0.20**	0.21**	-0.01	0.25**	0.25**
	(0.057)	(0.057)	(0.548)	(0.059)	(0.059)	(0.058)	(0.058)	(0.338)	(0.062)	(0.062)
>$100k Income	0.09	0.09	0.25	0.07	0.07	0.11	0.11	-0.13	0.10	0.10
	(0.066)	(0.066)	(0.731)	(0.070)	(0.070)	(0.073)	(0.073)	(0.484)	(0.079)	(0.079)
South	-0.37**	-0.37**	-0.79	-0.29**	-0.29**	-0.27**	-0.27**	-0.05	-0.24*	-0.21*
	(0.081)	(0.081)	(0.855)	(0.085)	(0.085)	(0.087)	(0.086)	(0.542)	(0.098)	(0.098)
Midwest	-0.02	-0.02	-1.21	0.01	0.01	-0.04	-0.04	0.00	-0.04	-0.04
	(0.081)	(0.081)	(0.762)	(0.083)	(0.083)	(0.083)	(0.083)	(0.603)	(0.089)	(0.089)
Mtns/Plains	-0.11	-0.11	-0.23	-0.05	-0.12	-0.01	0.01	-0.66	0.09	0.05
	(0.106)	(0.106)	(0.925)	(0.115)	(0.114)	(0.098)	(0.098)	(0.735)	(0.104)	(0.103)
Pacific Coast	0.15	0.16	-1.38	0.37**	0.31**	0.12	0.16	0.79	0.19	0.18
	(0.096)	(0.095)	(0.813)	(0.105)	(0.103)	(0.095)	(0.094)	(1.122)	(0.098)	(0.096)
Logged Pop. Density	0.08**	0.08**	-0.22	0.43**	0.05**	0.09**	0.09**	0.25	0.36**	0.06**
	(0.018)	(0.017)	(0.640)	(0.094)	(0.020)	(0.019)	(0.018)	(0.259)	(0.104)	(0.021)
White % in Zip Code	-0.00		-0.04	0.03**		-0.00		0.01	0.02**	
	(0.002)		(0.063)	(0.008)		(0.002)		(0.031)	(0.009)	
Black % in Zip Code		0.00			-0.05**		0.00			-0.05**
		(0.002)			(0.012)		(0.002)			(0.014)
Logged Pop. Density × White % in Zip Code			0.00	-0.00**				-0.00	-0.00**	
			(0.007)	(0.001)				(0.004)	(0.001)	
Logged Pop. Density × Black % in Zip Code					0.01**					0.01**
					(0.002)					(0.002)
Constant	0.58*	0.54**	6.49	-2.50**	0.72**	0.90**	0.64**	2.19	-1.46	0.88**
	(0.274)	(0.163)	(5.746)	(0.768)	(0.177)	(0.281)	(0.192)	(2.387)	(0.840)	(0.217)
Observations	21,086	21,086	1,248	17,799	17,799	33,839	33,839	2,890	27,570	27,570

(4). Replication Script

Upon request, we will make available the data file and do file to reproduce the findings in our paper. What follows here is a sample of the commands found in a Stata do file that generates results for the models displayed in Table 1. We display the commands for generating the predicted probabilities for Figures 1a-1b and examples for Figure 2d and Figure 3b in the manuscript.

```
use cces_common_cumulative_4.dta
keep if year==2008 | year==2012 /*only 08 and 12 */

/*Merge Zipcode based pop density data to observations*/
#delimit ;
drop if zip_pre=="R0M0J" | zip_pre=="t0b3p" | zip_pre=="8503`" | zip_pre==".";
destring zip_pre, replace;
sort zip_pre ;
merge m:m zip_pre  using zipdensity.dta , gen(zipdensitymergecode);
rename  Density_Per_Sq_Mile zipdens;
drop if zipdens==0;
replace zipdens=1 if zipdens<1; /*very sparse population boosted to 1 person/sqmi*/
gen lgdens = ln(zipdens);

/*merge zipcode-level demographic data */
gen zipcode = zip_pre ;
sort zipcode ;
merge m:m zipcode using zipdemographicdata.dta, gen(zipdemographicmergecode);

/*basic recodes for ease of coding later*/
gen dempid = .;
recode dempid .=1 if pid3==1;
recode dempid .=0 if pid3==2 | pid3==3;
gen goppid = .;
recode goppid .=1 if pid3==2;
recode goppid .=0 if pid3==1 | pid3==3;
gen conserv = .;
recode conserv .=1 if ideo5==4 | ideo5==5;
recode conserv .=0 if ideo5<=3 | ideo5==6;
gen romneyvoter2012 = .;
recode romneyvoter2012 .=0 if vote_pres_12==1;
recode romneyvoter2012 .=1 if vote_pres_12==2;
gen obamavoter2012 = romneyvoter2012;
recode obamavoter2012 0=1 1=0;
gen mccainvoter2008 = .;
recode mccainvoter2008 .=0 if vote_pres_08==1;
recode mccainvoter2008 .=1 if vote_pres_08==2;
gen obamavoter2008 = mccainvoter2008;
recode obamavoter2008 0=1 1=0 ;

recode family_income 97=.;
recode family_income_old 15=.;
gen hundredk=0;
recode hundredk 0=1 if family_income>9 & family_income<=32;
recode hundredk 0=1 if family_income_old>11 & family_income_old<=14;

generate ba = 0;
recode ba 0=1 if educ==5 | educ==6;

keep if age>19 & age<81;
gen bage = .;
recode bage .=2 if age>19 & age<30;
recode bage .=3 if age>29 & age<40;
recode bage .=4 if age>39 & age<50;
recode bage .=5 if age>49 & age<60;
recode bage .=6 if age>59 & age<70;
recode bage .=7 if age>69 & age<80;

gen marrspouse = 0;
recode marrspouse 0=1 if marriage_status==1;
gen latino = 0;
recode latino 0=1 if race==3;
gen black = 0;
recode black 0=1 if race==2;
gen whitenonhisp = 0;
recode whitenonhisp 0=1 if race==1;

gen twowayrace = . ;
recode twowayrace .=1 if whitenonhisp==1;
```

```
recode twowayrace .=2 if black==1;
label define twoway 1 "White" 2 "Black";
label values twoway twoway;

/*Create Region Controls a la Black and Black*/
gen region = .;
recode region .=1 if state_pre==9 | state_pre==10 | state_pre==11 | state_pre==23 |
       state_pre==24 | state_pre==25 | state_pre==33 | state_pre==34 | state_pre==36
       | state_pre==42 | state_pre==44 | state_pre==50 ; /*NE*/
recode region .=2 if state_pre==1 | state_pre==5 | state_pre==12 | state_pre==13
       | state_pre==22 | state_pre==28 | state_pre==37 | state_pre==46 | state_pre==47
       | state_pre==48 | state_pre==51; /*SOUTH*/
recode region .=3 if state_pre==17 | state_pre==18 | state_pre==19 | state_pre==21
       | state_pre==26 | state_pre==27 | state_pre==29 | state_pre==39 | state_pre==54
       | state_pre==55; /*MW*/
recode region .=4 if state_pre==4 | state_pre==8 | state_pre==16 | state_pre==20
       | state_pre==30 | state_pre==31 | state_pre==32 | state_pre==35
       | state_pre==38 | state_pre==40 | state_pre==46 | state_pre==49
       | state_pre==56; /*MOUNT/PLAIN*/
recode region .=5 if state_pre==6 | state_pre==41 | state_pre==53; /*PAC*/


/******************** Show how many zipcodes involved **********/
#delimit ;
quietly logit obamavoter2012 goppid dempid conserv black latino gender marrspouse bage ba hundredk
region lgdens zipwhiteperc if year==2012;
di "2012"; codebook zip_pre if e(sample);
quietly logit obamavoter2008 goppid dempid conserv black latino gender marrspouse bage ba hundredk
region lgdens zipwhiteperc if year==2008;
di "2008"; codebook zip_pre if e(sample);

/*****************Making Table 1 example**********************/
/**********************(E.g. 2008 model)**********************/
logit obamavoter2008
             i.goppid
             i.dempid
             i.conserv
             i.black
             i.latino
             i.gender
             i.marrspouse
             i.bage
             i.ba
             i.hundredk
             i.region
             c.lgdens
             c.zipwhiteperc
             [pweight=weight] if year==2008 ;


/*Making figure 1a-1b: distribution of race distrib in zipcodes per R group*/
/*******************************************************/
#delimit ;
drop inmodels;
#delimit ;
quietly logit obamavoter2012 goppid dempid conserv black latino gender marrspouse bage ba hundredk
region lgdens zipwhiteperc if year==2012;
gen inmodels=1 if e(sample);
quietly logit obamavoter2008 goppid dempid conserv black latino gender marrspouse bage ba hundredk
region lgdens zipwhiteperc if year==2008;
recode inmodels .=1 if e(sample);
vioplot zipblackperc if inmodels==1 ,
       over(twoway)
       scheme(s1mono)
       title(1b. Black% in Zipcode)
       ylabel(, angle(horizontal))
       ;
       graph export "blackzip.png", as(png) replace;
       graph save Graph "blackzip.gph", replace;
#delimit ;
vioplot zipwhiteperc if inmodels==1,
       over(twoway)
       scheme(s1mono)
       title(1a. White% in Zipcode)
       ylabel(, angle(horizontal))
       ;
       graph export "whitezip.png", as(png) replace;
       graph save Graph "whitezip.gph", replace;
graph combine whitezip.gph blackzip.gph,
       scheme(s1mono) row(1) ycommon b1(Respondent's race);
```

```
/**********Example of Figure 2 (E.g. Whites 2012)*************************/
#delimit ;
set more off;
logit obamavoter2012
             i.goppid
             i.dempid
             i.conserv
             i.gender
             i.marrspouse
             i.bage
             i.ba
             i.hundredk
             i.region
             c.lgdens##c.zipwhiteperc
             [pweight=weight] if white==1 & year==2012 ;
margins , at( lgdens=(1(2)12)  zipwhiteperc=(20 95));
#delimit ;
marginsplot ,
             scheme(s1mono)
             title(2d. White Voters 2012)
             legend(off)
             yscale(range(.2(.2)1))
             ylabel(.2(.2)1, angle(horizontal))
             noci
             xtitle(" ")
             ytitle(" ")
             ;

/******Figure 3 example (E.g. Whites, 2012)********************/
#delimit ;
set more off ;

logit obamavoter2012
             i.goppid
             i.dempid
             i.conserv
             i.gender
             i.marrspouse
             i.bage
             i.ba
             i.hundredk
             i.region
             c.lgdens##c.zipblackperc
             [pweight=weight] if year==2012 & white==1;
             #delimit ;

             margins , at(  zipblackperc=(0(10)100) lgdens=(5.2 8.1) );
             #delimit ;
             marginsplot ,
                    scheme(s1mono)
                    title(" ")
                    legend(
                           off
                           )
             yscale(range(.2(.1).6))
             ylabel(.2(.1).6, angle(horizontal))
             ytitle(" ")
             noci
             xtitle(" ")
             title(3b. 2012 White Voters)
             ;


;
```