

Online Appendix for *The Turnout Gap: Race, Ethnicity, and Political Inequality in a Diversifying America*

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1 Introduction

This document is intended to supplement the main text and published appendix for the following book:

Fraga, Bernard L. (2018) *The Turnout Gap: Race, Ethnicity, and Political Inequality in a Diversifying America*. New York: Cambridge University Press. ISBN:978-1-108-47519-8 (Hardcover), 978-1-18-46592-2 (Paperback).

Here I provide additional details regarding the techniques used to combine Census population estimates in Chapters 5-7, coefficient tables for the regression analyses in Chapter 6, and robustness checks for the redistricting analysis in Chapter 6.

2 Combining Census Data to Generate CVAP Estimates

Chapter 5 and Appendix A.1 of the book discuss the use of data generated by the U.S. Census Bureau in order to establish the population of various racial/ethnic groups and at varying levels of geography. Such data is also used as a denominator in many of my turnout estimates. I combine Census Intercensal, Population Estimates Program, and American Community Survey data together in order to estimate the citizen voting-age population (CVAP) for the total population, non-Hispanic Whites, African-Americans, Latinos, and Asian Americans from 2006-2016.¹ Below I document how these estimates are created and combined.

2.1 Census Intercensal and Population Estimates Program Estimates

The base of my CVAP estimates is the U.S. Census Bureau's decennial censuses conducted in 2000 and 2010. For estimates of the population by for the nation, states and counties, the base is adjusted estimates of the 2000 and 2010 Census voting-age populations as provided by the 2000-2010 Intercensal Population Estimates and Population Estimates Program. These adjusted estimates account for various factors, such as enumeration errors, and are used as the base estimate for Census Bureau estimates of the population in years between 2000 and 2010 (Intercensal Estimates) and from 2010 forward (Population Estimates Program Estiamtes).

I use intercensal estimates to produce the voting-age population (VAP) for 2006 to 2010. The intercensal estimates provide monthly estimates of the population by age, sex, race, and Hispanic origin from July 1, 2000 to July 1, 2010, accounting for changes in housing units between the 2000 and 2010 Census and adjustments made during the postcensal estimates process that includes accounting for births, deaths, domestic and

¹Details regarding the racial/ethnic categories used in these estimates may be found in Appendix A.1 of the book.

international migration, and the movement of armed forces.² Specifically, the intercensal estimates are designed to “provide a consistent time series of population estimates that reflect the most recent census results.”³ I extract estimates of the 18+ population by race/ethnicity and sex from these intercensal estimates.⁴ This provides a time series of estimates of the VAP by race and gender from 2000-2010.

I use vintage 2016 Population Estimates Program (PEP) estimates of the voting-age population for 2010 to 2016. PEP estimates provide yearly estimates of the population by age group, sex, race, and Hispanic Origin for the years following the most recent decennial census. Similar to the intercensal estimates, information on births, deaths, and domestic and international migration in order to generate these estimates.⁵ However, these estimates are updated every year to both include another year of estimates and update all previous years of estimates. I extract estimates of the 18+ population by race/ethnicity and sex from these intercensal estimates.⁶ This provides a time series of estimates of the VAP by race and gender from 2010-2016.

2.2 American Community Survey Estimates

To calculate the share of the Voting-Age Population (VAP) that are citizens (CVAP) for the nation, states, counties, and congressional districts, I rely on American Community Survey (ACS) estimates from 2006-2016.⁷ In 2010, the Census Bureau ceased administration of a long-form Census questionnaire which was used to gather information about a sample of Census respondents, including information about citizenship. After much testing, the ACS replaced this function with monthly surveys of roughly 300,000 American addresses, combining these surveys via a continuous measurement methodology.⁸ ACS data is released in 1, 3, and 5-year estimates that are updated annually. I rely on data from tables in the 05003 and 01001 series to estimate the ratio of citizens to non-citizens

²<https://www.census.gov/data/datasets/time-series/demo/popest/intercensal-2000-2010-national.html>

³<https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/intercensal/2000-2010-intercensal-estimates-methodology.pdf>

⁴Estimates of the population by single year of age are not available through the standard Census FTP website for states or counties when broken down by race/ethnicity, instead providing binned age with a 5-year span. For the 15-19 category, I use a ratio of the 15-17 to 18-19 population from the 2010 Census for states and counties, subtracting this estimated 15-17 year old population from my totals.

⁵<https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2016/2016-natstcopr-meth.pdf>

⁶Estimates of the population by single year of age are not available through the standard Census FTP website for states or counties when broken down by race/ethnicity, instead providing binned age with a 5-year span. For the 15-19 category, I use a ratio of the 15-17 to 18-19 population from the 2010 Census for states and counties, subtracting this estimated 15-17 year old population from my totals.

⁷The most recent ACS data available at the time I conducted my analyses was the 2016 1-year and 5-year estimates. This necessitated an extrapolation procedure in order to produce estimates for November 2016, as discussed below.

⁸https://www2.census.gov/programs-surveys/acs/methodology/design_and_methodology/acs_design_methodology_report_2014.pdf

among the voting-age population by sex and race/ethnicity, producing estimates of the citizenship rate among adults for each year from 2006-2016 and each span for each year.⁹ For some counties data is only available for racial/ethnic groups in some of the 1 or 3 year series, necessitating the aggregation of estimates from differing time spans. Estimates for different spans and different years are combined via a weighted smoothing process that either relies on a loess or least-squares model. Weights are defined as the inverse of the number of months the survey is from July of the target year, with the month of the survey defined as the midpoint of the time span the estimates cover,¹⁰ and in the event that multiple observations are available for the same year, the mean of the estimates is used. The smoothed estimates of the citizen to non-citizen ratios thus rely on the greater coverage available in the 5-year estimates where necessary, but the specificity of the 1 and 3-year estimates where possible.

2.3 Interpolating and Extrapolating Census Estimates

The VAP estimates from the Intercensal or PEP data are then multiplied by the smoothed ACS CVAP ratios, producing estimates of the CVAP by race/ethnicity and sex for every year from 2006 to 2016. Intercensal and Population Estimates Program estimates are not available for congressional districts, but the VAP used in the sampling frame for the ACS is based on PEP estimates. Therefore, I use the smoothed ACS VAP for each ACS year as the base number for congressional district population, but smooth the CVAP to VAP ratio and continue the estimation process as otherwise described in this section. As the turnout estimates require the population corresponding to November of each election year, not July of each calendar year, I linearly interpolate (and for 2016, extrapolate) the CVAP by race/ethnicity and sex to November 2006, 2008, 2010, 2012, 2014, and 2016. After obtaining November election year estimates, I summed totals for men and women and thus generated estimates of the CVAP for non-Hispanic Whites, Blacks, Hispanics, and Asians.

3 Regression Analyses of Congressional District Turnout

Raw regression results used to construct Figures 6.4 and 6.5, and Table 6.4 in Chapter 7 may be found below. As discussed in the main text, these regressions use a Generalized Estimating Equation (GEE) with a least-squares link function. See [Zorn \(2006\)](#) and [Fraga \(2016a\)](#) for more details.

⁹The 3-year estimates were eliminated in 2013. However, I use 3-year estimates where available.

¹⁰For example, 1-year estimates for 2012 correspond to July 2012, while 5-year estimates for 2008-2012 correspond to July 2010. Note that treating 5-year estimates as an aggregation of multiple 1-year estimates is not statistically sound according to the Census Bureau.

Table 1: GEE Regression Estimates for White Voter Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % White	0.073* (0.008)	0.085* (0.018)	0.070* (0.008)	0.082* (0.014)
White Candidate		0.030* (0.011)		0.003 (0.009)
CVAP x Candidate		-0.030 (0.020)		-0.014 (0.016)
% <35 yrs old				-0.625* (0.067)
% >55 yrs old				-0.204* (0.060)
% No HS				-1.116* (0.068)
% College+				0.088* (0.026)
% <\$20k				0.234* (0.084)
% >\$75k				0.067 (0.040)
Competitiveness			0.025 (0.022)	-0.003 (0.017)
CVAP x Compet.			-0.009 (0.028)	0.008 (0.022)
2008	0.215* (0.006)	0.212* (0.006)	0.215* (0.006)	0.214* (0.004)
2010	0.019* (0.006)	0.017* (0.006)	0.018* (0.006)	0.018* (0.004)
2012	0.182* (0.006)	0.179* (0.006)	0.182* (0.006)	0.166* (0.005)
2014	-0.035* (0.006)	-0.037* (0.006)	-0.035* (0.006)	-0.050* (0.005)
2016	0.211* (0.006)	0.216* (0.011)	0.212* (0.006)	0.190* (0.009)
Constant	0.412* (0.007)	0.398* (0.009)	0.411* (0.007)	0.675* (0.048)
N	2,554	2,547	2,554	2,547
R ²	0.621	0.621	0.623	0.779

*p < .05

Table 2: GEE Regression Estimates for Black Voter Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Black	0.588* (0.014)	0.837* (0.022)	0.570* (0.014)	0.693* (0.023)
Black Candidate		0.109* (0.013)		0.095* (0.012)
CVAP x Candidate		-0.534* (0.036)		-0.453* (0.035)
% <35 yrs old				-0.219* (0.070)
% >55 yrs old				0.432* (0.074)
% No HS				0.202* (0.052)
% College+				0.491* (0.044)
% <\$20k				-0.216* (0.045)
% >\$75k				-0.371* (0.043)
Competitiveness			-0.039* (0.008)	-0.012 (0.008)
CVAP x Compet.			0.350* (0.067)	0.112 (0.061)
2008	0.224* (0.007)	0.223* (0.007)	0.222* (0.007)	0.223* (0.006)
2010	0.024* (0.007)	0.021* (0.007)	0.024* (0.007)	0.022* (0.006)
2012	0.187* (0.007)	0.183* (0.007)	0.187* (0.007)	0.174* (0.007)
2014	-0.012 (0.007)	-0.016* (0.007)	-0.013 (0.007)	-0.024* (0.007)
2016	0.155* (0.007)	0.141* (0.007)	0.154* (0.007)	0.137* (0.007)
Constant	0.134* (0.005)	0.118* (0.005)	0.138* (0.005)	0.132* (0.048)
N	2,554	2,547	2,554	2,547
R ²	0.612	0.647	0.617	0.694

*p < .05

Table 3: GEE Regression Estimates for Black Turnout relative to White Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Black	0.735*	1.043*	0.705*	0.806*
	(0.015)	(0.024)	(0.015)	(0.025)
Black Candidate		0.097*		0.070*
		(0.014)		(0.013)
CVAP x Candidate		-0.591*		-0.454*
		(0.039)		(0.037)
% <35 yrs old				-0.119
				(0.075)
% >55 yrs old				0.634*
				(0.079)
% No HS				0.355*
				(0.056)
% College+				0.276*
				(0.047)
% <\$20k				-0.356*
				(0.048)
% >\$75k				-0.541*
				(0.045)
Competitiveness			-0.068*	-0.033*
			(0.009)	(0.008)
CVAP x Compet.			0.510*	0.175*
			(0.073)	(0.066)
2008	0.010	0.010	0.008	0.009
	(0.008)	(0.007)	(0.008)	(0.007)
2010	0.006	0.005	0.006	0.006
	(0.008)	(0.007)	(0.008)	(0.007)
2012	0.008	0.005	0.008	0.001
	(0.008)	(0.007)	(0.008)	(0.007)
2014	0.025*	0.024*	0.024*	0.019*
	(0.008)	(0.007)	(0.008)	(0.007)
2016	-0.052*	-0.069*	-0.054*	-0.067*
	(0.008)	(0.008)	(0.008)	(0.008)
Constant	-0.349*	-0.369*	-0.341*	-0.334*
	(0.006)	(0.006)	(0.006)	(0.051)
N	2,554	2,547	2,554	2,547
R ²	0.494	0.544	0.506	0.619

*p < .05

Table 4: GEE Regression Estimates for Latino Voter Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Latino	0.350* (0.012)	0.495* (0.016)	0.344* (0.012)	0.314* (0.019)
Latino Candidate		0.069* (0.013)		0.042* (0.011)
CVAP x Candidate		-0.356* (0.032)		-0.225* (0.028)
% <35 yrs old				-0.441* (0.056)
% >55 yrs old				0.125 (0.079)
% No HS				0.158* (0.027)
% College+				0.084* (0.037)
% <\$20k				-0.185* (0.033)
% >\$75k				0.255* (0.034)
Competitiveness			-0.003 (0.006)	-0.005 (0.005)
CVAP x Compet.			0.075 (0.041)	0.039 (0.034)
2008	0.167* (0.006)	0.166* (0.006)	0.167* (0.006)	0.167* (0.005)
2010	-0.017* (0.006)	-0.019* (0.006)	-0.017* (0.006)	-0.017* (0.005)
2012	0.113* (0.006)	0.111* (0.006)	0.113* (0.006)	0.093* (0.005)
2014	-0.054* (0.006)	-0.057* (0.006)	-0.055* (0.006)	-0.074* (0.005)
2016	0.142* (0.006)	0.131* (0.006)	0.142* (0.006)	0.118* (0.005)
Constant	0.143* (0.004)	0.136* (0.004)	0.144* (0.004)	0.260* (0.043)
N	2,554	2,547	2,554	2,547
R ²	0.572	0.597	0.573	0.707

*p < .05

Table 5: GEE Regression Estimates for Latino Turnout relative to White Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Latino	0.430*	0.558*	0.426*	0.403*
	(0.010)	(0.014)	(0.010)	(0.018)
Latino Candidate		0.072*		0.055*
		(0.011)		(0.011)
CVAP x Candidate		-0.331*		-0.263*
		(0.027)		(0.027)
% <35 yrs old				-0.164*
				(0.054)
% >55 yrs old				0.362*
				(0.076)
% No HS				0.192*
				(0.026)
% College+				-0.059
				(0.036)
% <\$20k				0.037
				(0.032)
% >\$75k				0.128*
				(0.033)
Competitiveness			-0.020*	-0.016*
			(0.005)	(0.005)
CVAP x Compet.			0.023	0.006
			(0.035)	(0.032)
2008	-0.048*	-0.046*	-0.048*	-0.046*
	(0.005)	(0.005)	(0.005)	(0.005)
2010	-0.036*	-0.036*	-0.035*	-0.033*
	(0.005)	(0.005)	(0.005)	(0.005)
2012	-0.069*	-0.069*	-0.068*	-0.076*
	(0.005)	(0.005)	(0.005)	(0.005)
2014	-0.018*	-0.019*	-0.019*	-0.027*
	(0.005)	(0.005)	(0.005)	(0.005)
2016	-0.068*	-0.076*	-0.069*	-0.082*
	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.329*	-0.338*	-0.326*	-0.392*
	(0.004)	(0.004)	(0.004)	(0.041)
N	2,554	2,547	2,554	2,547
R ²	0.451	0.488	0.455	0.526

*p < .05

Table 6: GEE Regression Estimates for Asian Voter Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Asian	0.878* (0.027)	0.896* (0.031)	0.880* (0.029)	0.741* (0.037)
Asian Candidate		0.046* (0.014)		0.037* (0.014)
CVAP x Candidate		-0.209* (0.076)		-0.119 (0.080)
% <35 yrs old				0.076 (0.041)
% >55 yrs old				0.218* (0.055)
% No HS				-0.064 (0.039)
% College+				0.037 (0.025)
% <\$20k				-0.232* (0.044)
% >\$75k				0.036 (0.032)
Competitiveness			0.011* (0.006)	0.006 (0.006)
CVAP x Compet.			-0.010 (0.077)	-0.008 (0.081)
2008	0.151* (0.006)	0.150* (0.006)	0.151* (0.006)	0.151* (0.005)
2010	-0.001 (0.006)	-0.001 (0.006)	-0.001 (0.006)	-0.001 (0.005)
2012	0.119* (0.006)	0.119* (0.006)	0.119* (0.006)	0.112* (0.006)
2014	-0.028* (0.006)	-0.028* (0.006)	-0.028* (0.006)	-0.035* (0.006)
2016	0.129* (0.006)	0.128* (0.006)	0.129* (0.006)	0.124* (0.006)
Constant	0.119* (0.004)	0.118* (0.004)	0.118* (0.004)	0.061 (0.033)
N	2,553	2,546	2,553	2,546
R ²	0.551	0.552	0.552	0.590

*p < .05

Table 7: GEE Regression Estimates for Asian Turnout relative to White Turnout

	Bivariate	Candidates	Competitiveness	Full Model
CVAP % Asian	0.573* (0.027)	0.542* (0.031)	0.552* (0.029)	0.520* (0.038)
Asian Candidate		0.007 (0.015)		0.015 (0.015)
CVAP x Candidate		0.093 (0.077)		0.016 (0.083)
% <35 yrs old				-0.127* (0.043)
% >55 yrs old				0.218* (0.057)
% No HS				0.118* (0.040)
% College+				0.157* (0.026)
% <\$20k				-0.161* (0.045)
% >\$75k				-0.256* (0.033)
Competitiveness			-0.019* (0.006)	-0.014* (0.006)
CVAP x Compet.			0.146 (0.078)	0.136 (0.084)
2008	-0.062* (0.006)	-0.061* (0.006)	-0.063* (0.006)	-0.062* (0.006)
2010	-0.017* (0.006)	-0.016* (0.006)	-0.017* (0.006)	-0.016* (0.006)
2012	-0.059* (0.006)	-0.058* (0.006)	-0.059* (0.006)	-0.060* (0.006)
2014	0.012* (0.006)	0.014* (0.006)	0.012* (0.006)	0.011 (0.006)
2016	-0.075* (0.006)	-0.073* (0.006)	-0.076* (0.006)	-0.075* (0.006)
Constant	-0.335* (0.004)	-0.335* (0.004)	-0.332* (0.004)	-0.294* (0.034)
N	2,553	2,546	2,553	2,546
R ²	0.248	0.249	0.251	0.292

*p < .05

4 Robustness Checks for Redistricting Analysis

Figures 6.6-6.8 in Chapter 6 of the main text leverage change to district context induced by the redistricting process in order to estimate the causal effect of change in district racial/ethnic composition on voter turnout. This builds on the methodology used in [Fraga \(2016b\)](#). Below I provide additional robustness checks and alternative modeling strategies for the redistricting analysis.

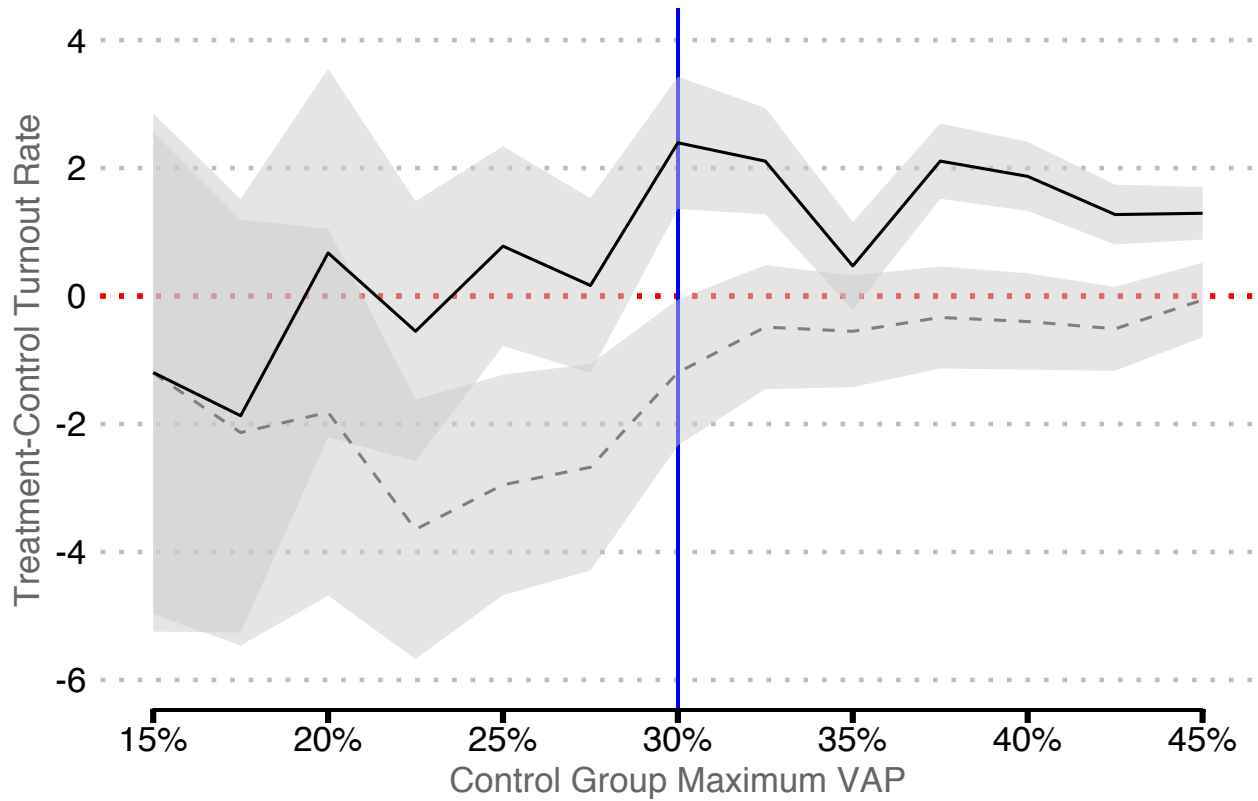
4.1 Redistricting Effects, Modifying Control Group Cutoff

As noted in Chapter 6 of the main text, the decision to use 30 percent as the lower threshold for a group's VAP is driven by data availability. Thresholds lower than 30 percent curtail the number of available treatment-control pairings considerably, as few registrants saw a large change in relative group size as a result of the 2012 round of redistricting. Below I present results for 2012, 2014, and 2016 turnout when varying the threshold used for pre-treatment district composition and control group district composition from 15% of the group's VAP to 45% of the group's VAP. In each of these analyses, the treatment group threshold remains at 50%.

As the figures indicate, when using a threshold lower than 30% the confidence intervals expand greatly as the number of treatment-control comparisons is reduced a great deal for Whites and Latinos. In general, using thresholds higher than 30% produces results substantively similar to what is shown in the main text. For African Americans, results are robust to varying the control group threshold a great deal, with the exception of 2016 turnout when the cutoff is set to 20% or less Black districts.

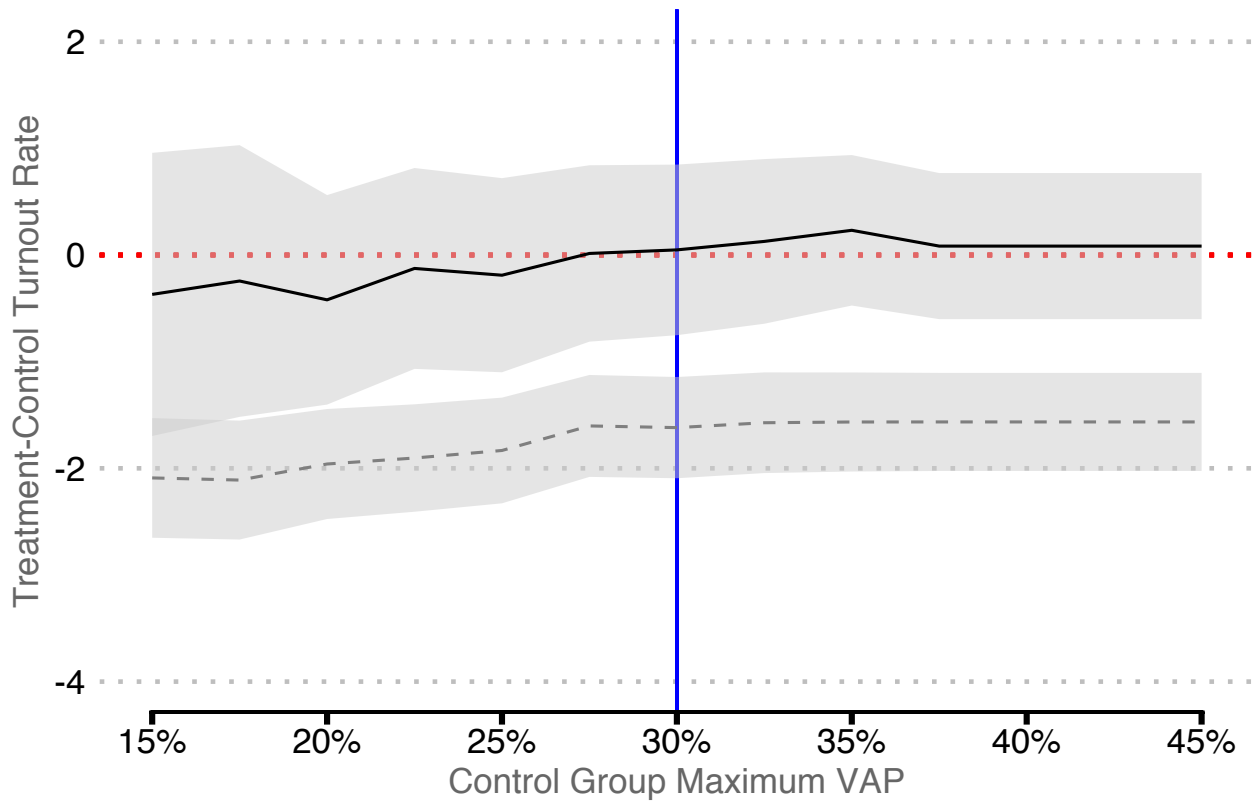
4.1.1 2012 Turnout

Figure 1: Effect of Majority-White District on 2012 Turnout, by Control Group VAP



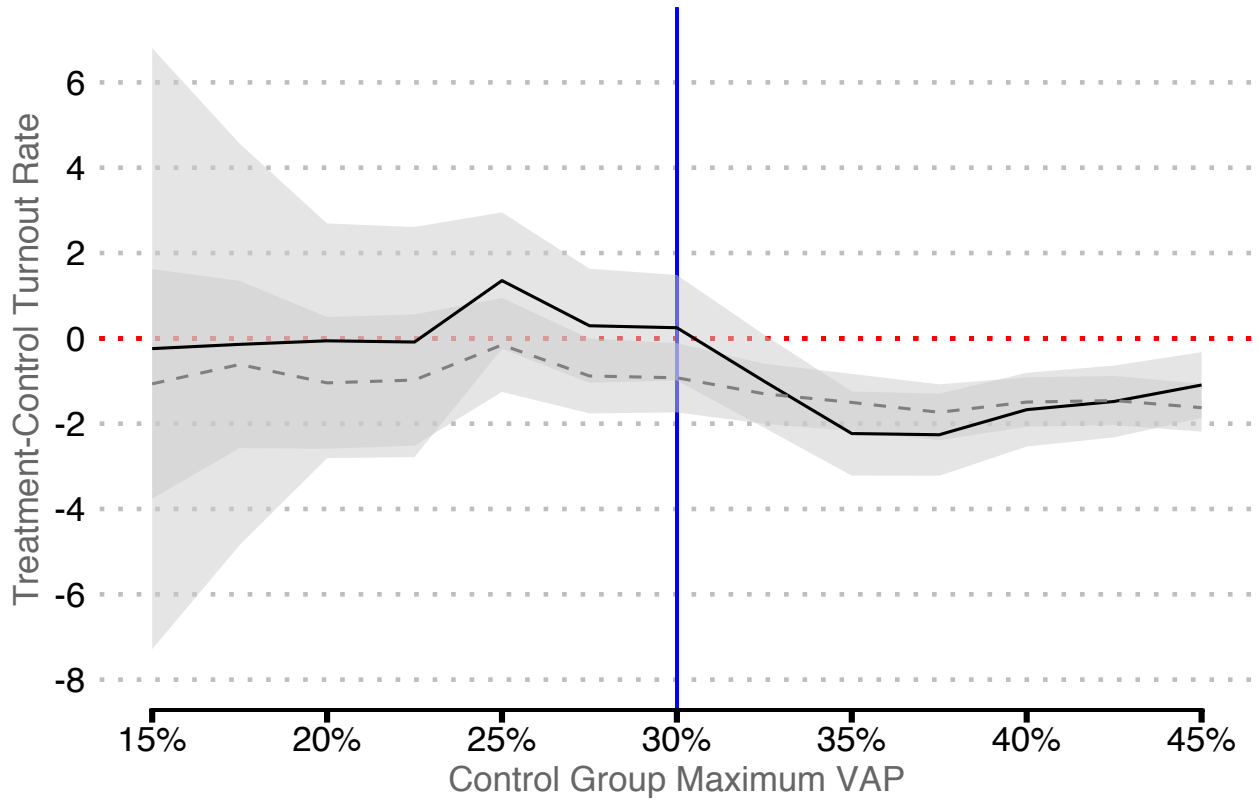
Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-White congressional district for those previously residing in a district that was equal to or less than the percent White indicated on the x-axis. Solid black line indicates the ATT for Whites, dashed gray line the ATT for non-Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent White indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text.

Figure 2: Effect of Majority-Black District on 2012 Turnout, by Control Group VAP



Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Black congressional district for those previously residing in a district that was equal to or less than the percent Black indicated on the x-axis. Solid black line indicates the ATT for African-Americans, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Black indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text.

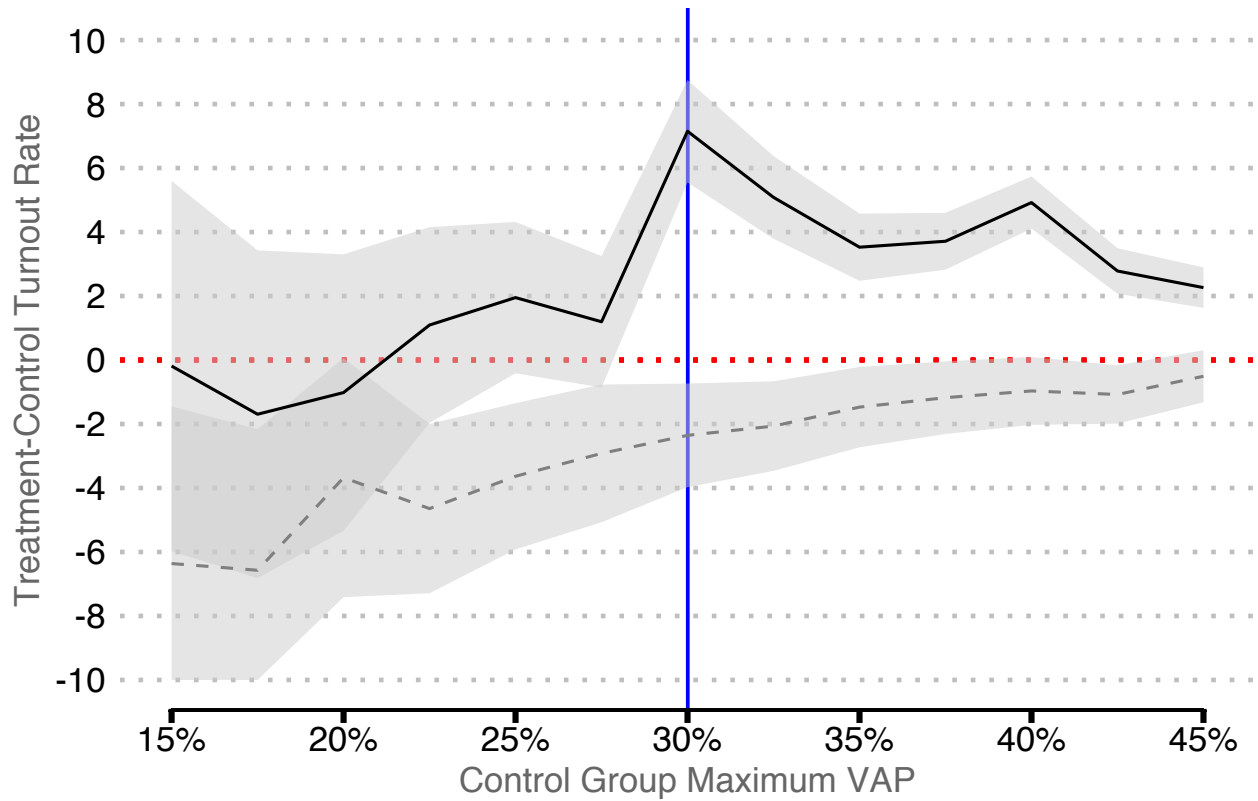
Figure 3: Effect of Majority-Latino District on 2012 Turnout, by Control Group VAP



Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Latino congressional district for those previously residing in a district that was equal to or less than the percent Latino indicated on the x-axis. Solid black line indicates the ATT for Latinos, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Latino indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text.

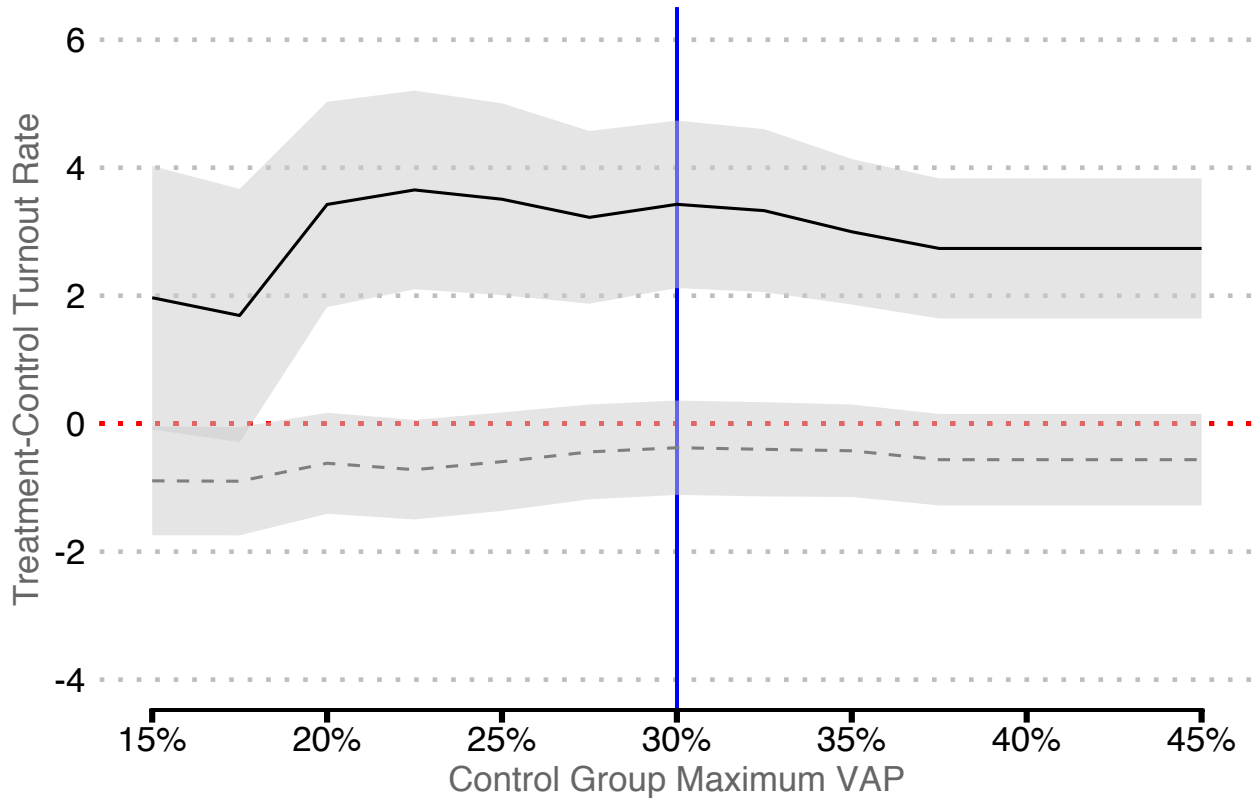
4.1.2 2014 Turnout

Figure 4: Effect of Majority-White District on 2014 Turnout, by Control Group VAP



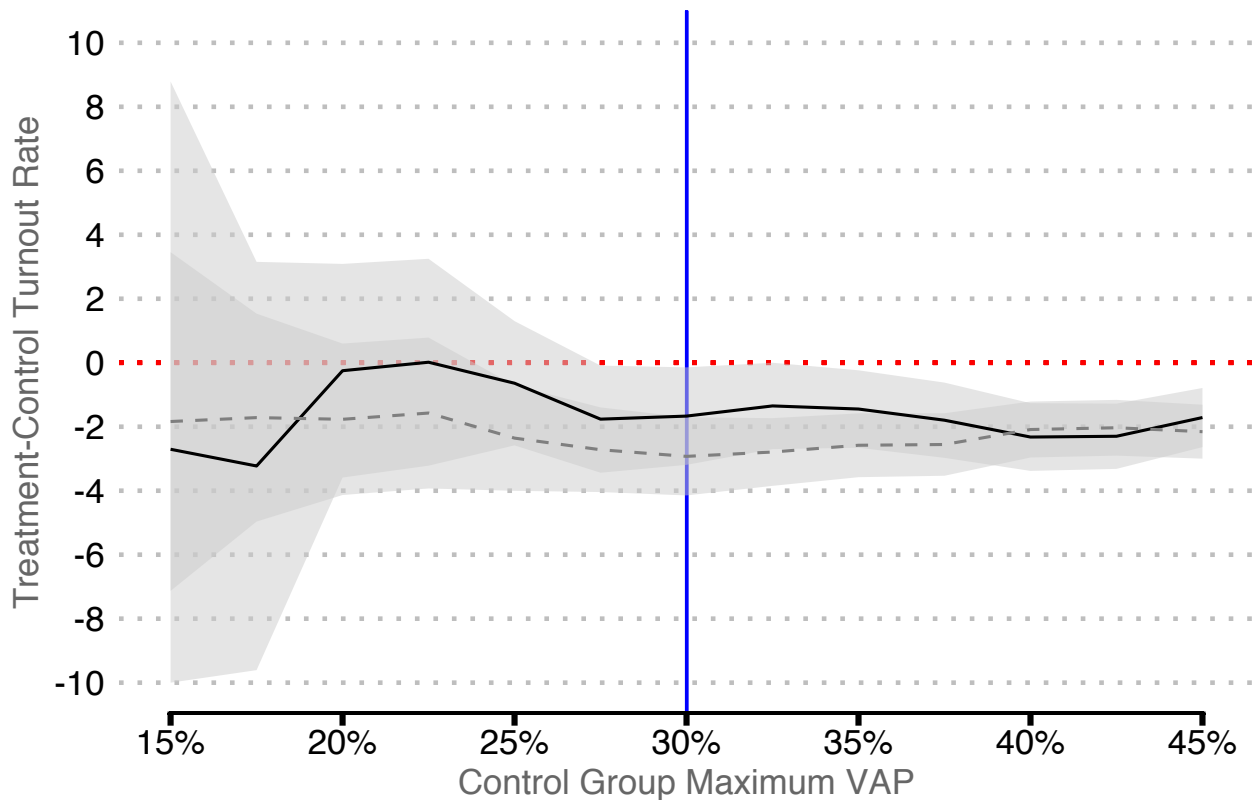
Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-White congressional district for those previously residing in a district that was equal to or less than the percent White indicated on the x-axis. Solid black line indicates the ATT for Whites, dashed gray line the ATT for non-Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent White indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text. Confidence interval truncated at -10.

Figure 5: Effect of Majority-Black District on 2014 Turnout, by Control Group VAP



Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Black congressional district for those previously residing in a district that was equal to or less than the percent Black indicated on the x-axis. Solid black line indicates the ATT for African-Americans, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Black indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text.

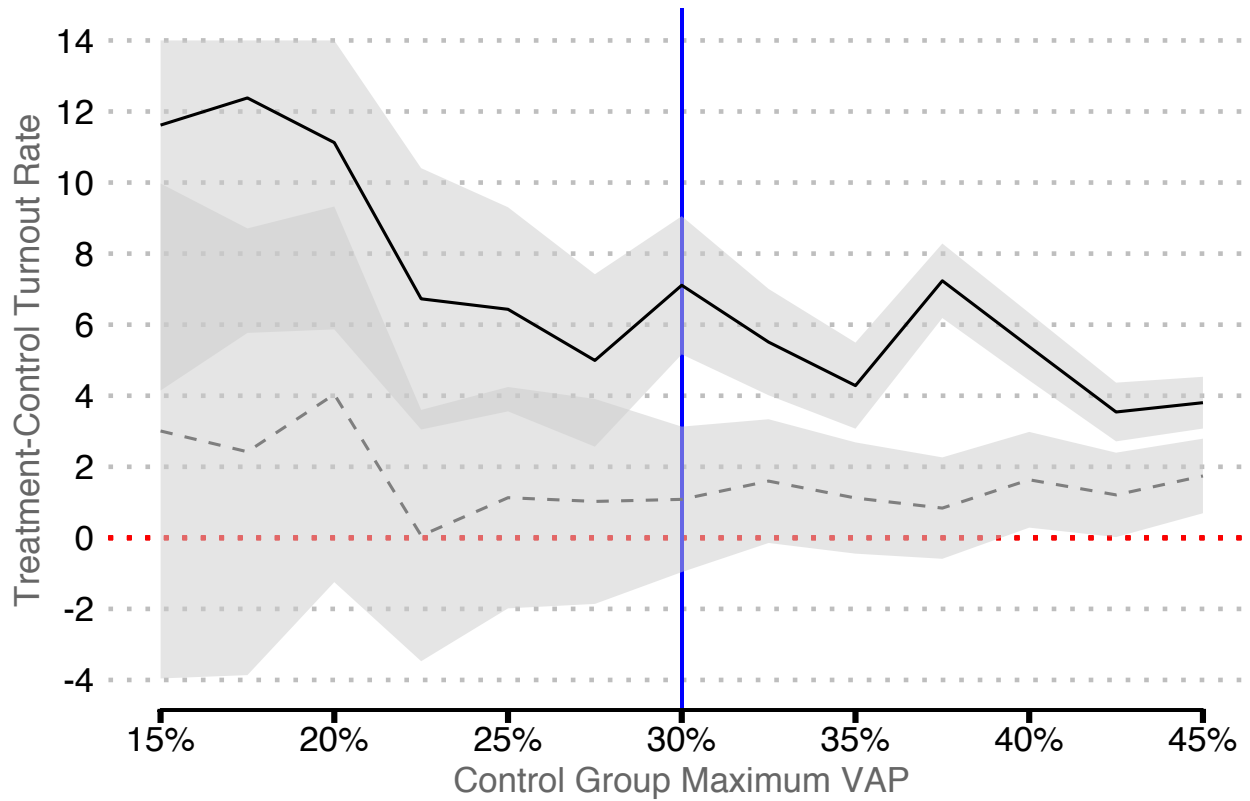
Figure 6: Effect of Majority-Latino District on 2014 Turnout, by Control Group VAP



Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Latino congressional district for those previously residing in a district that was equal to or less than the percent Latino indicated on the x-axis. Solid black line indicates the ATT for Latinos, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Latino indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text. Confidence interval truncated at -10.

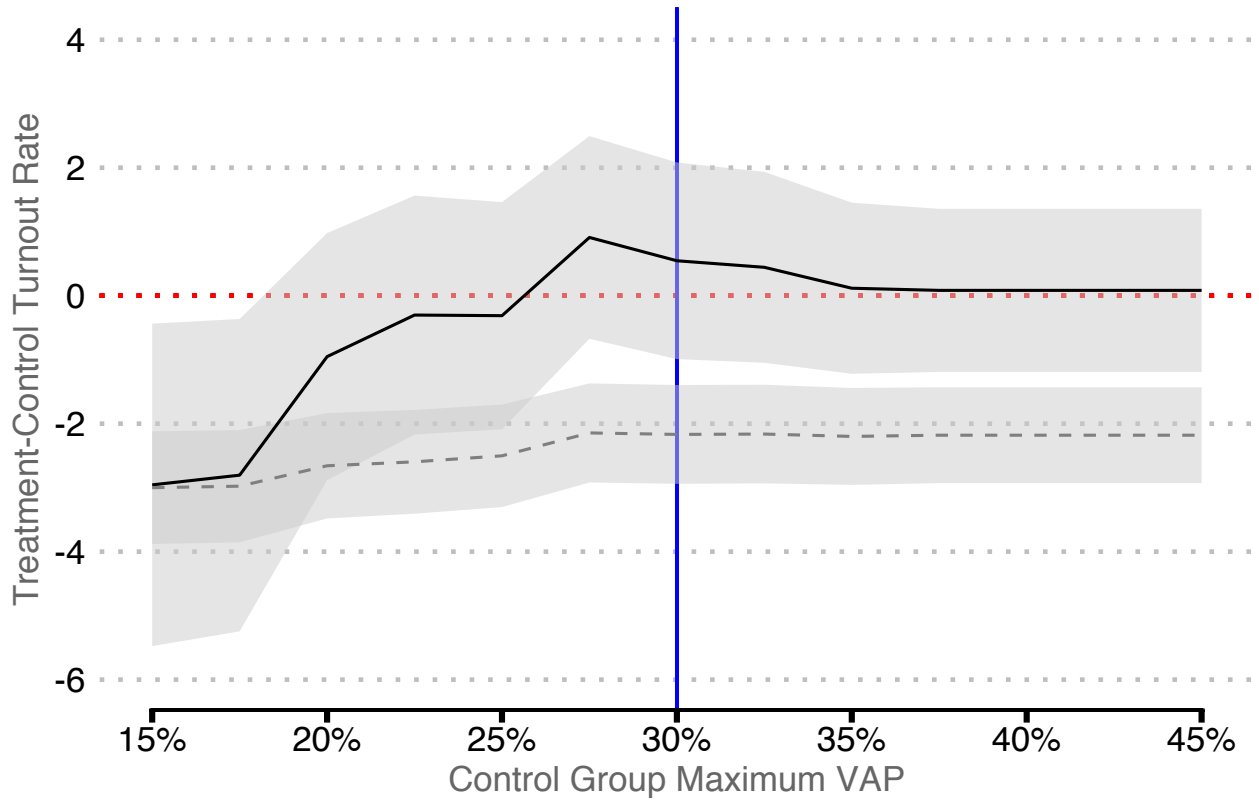
4.1.3 2016 Turnout

Figure 7: Effect of Majority-White District on 2016 Turnout, by Control Group VAP



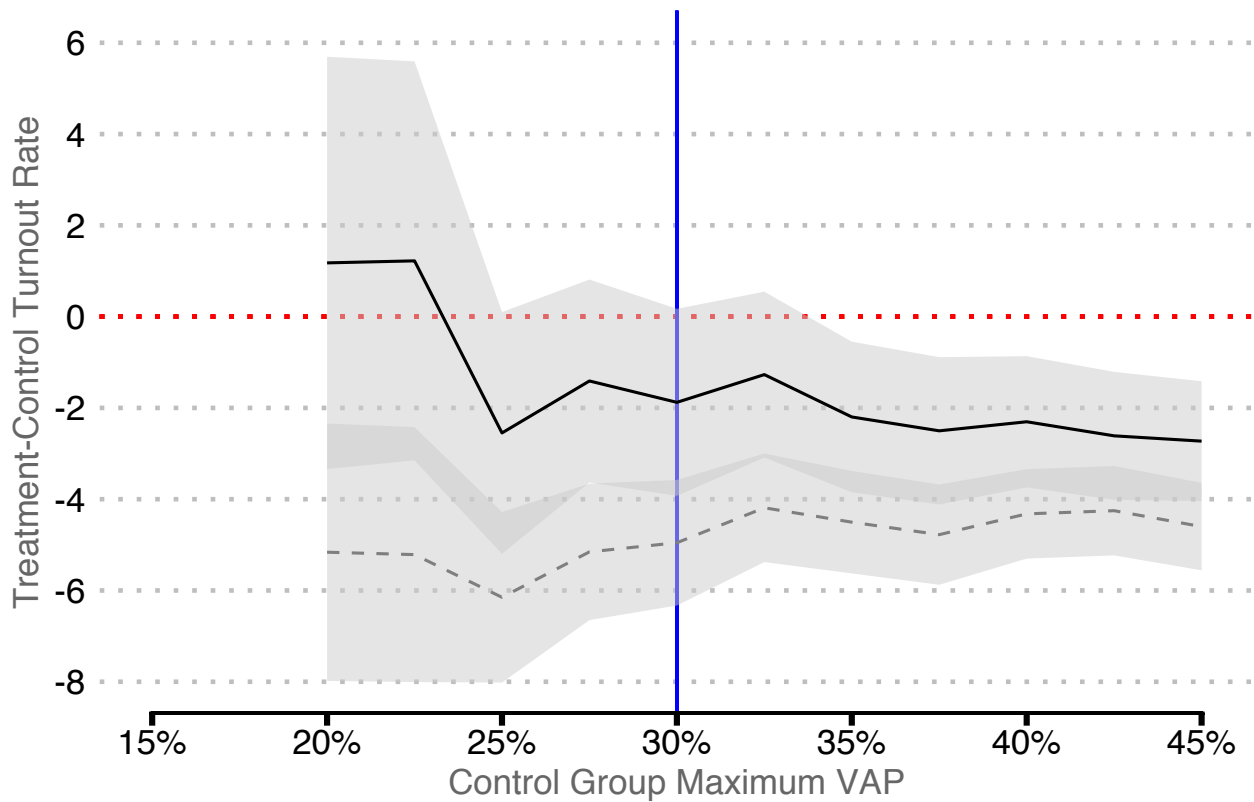
Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-White congressional district for those previously residing in a district that was equal to or less than the percent White indicated on the x-axis. Solid black line indicates the ATT for Whites, dashed gray line the ATT for non-Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent White indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text. Confidence interval truncated at +14.

Figure 8: Effect of Majority-Black District on 2016 Turnout, by Control Group VAP



Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Black congressional district for those previously residing in a district that was equal to or less than the percent Black indicated on the x-axis. Solid black line indicates the ATT for African-Americans, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Black indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text.

Figure 9: Effect of Majority-Latino District on 2016 Turnout, by Control Group VAP

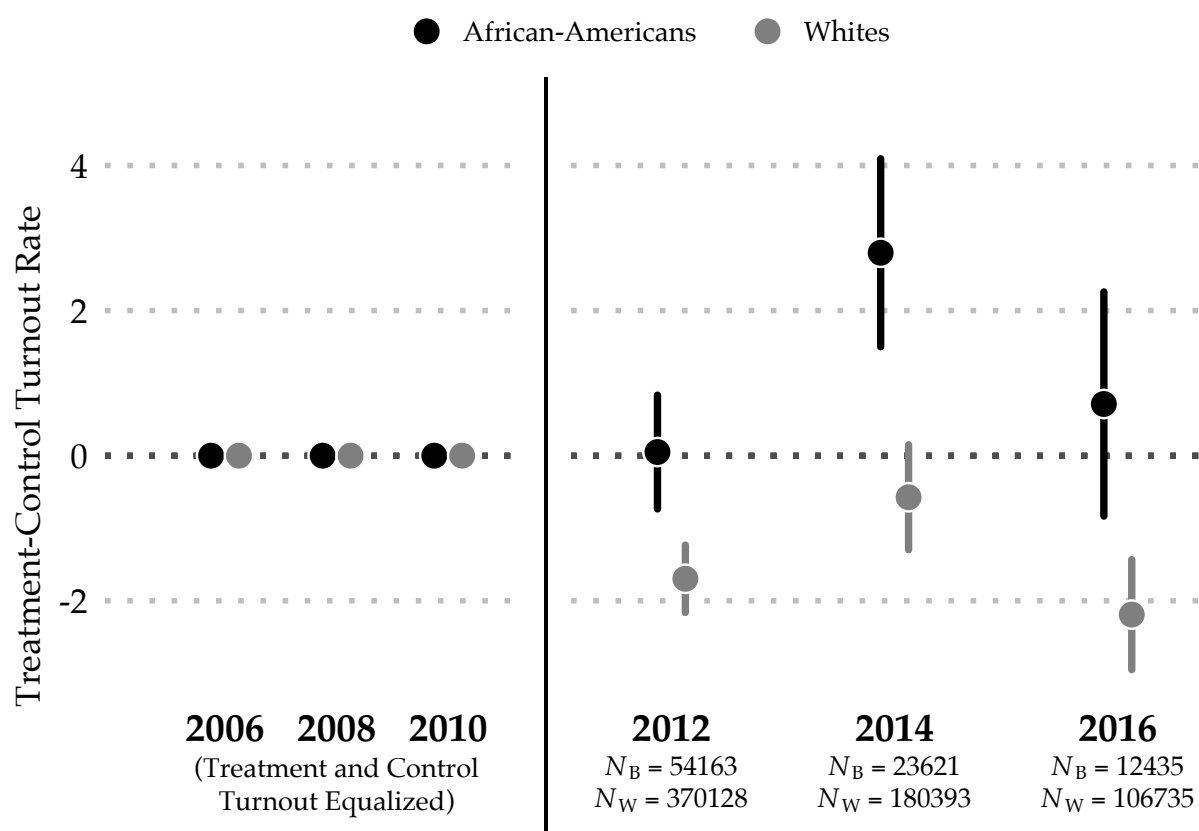


Note: Lines indicate the average treatment effect on the treated (ATT) of assignment to a majority-Latino congressional district for those previously residing in a district that was equal to or less than the percent Latino indicated on the x-axis. Solid black line indicates the ATT for Latinos, dashed gray line the ATT for Whites, with 95 percent confidence intervals shaded in gray. Control group remained in a district that was the percent Latino indicated on the x-axis or less. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. Blue line indicates the control group VAP cutoff used in the main text. For 2016, no valid comparisons remained when control group VAP was less than 20% Latino.

4.2 Redistricting Effects, Using CVAP instead of VAP for District Composition

The main text uses 2010 Census estimates of the voting-age population as of April 2010 in the redistricting analysis, as district populations could be reconstructed from contemporaneous Census block-level data for both pre- and post-redistricting districts. However, 2011 1-year estimates of the citizen voting-age population (CVAP from the ACS also provided information on pre- and post-redistricting districts for July 2011. Below I use this ACS-based CVAP measure for the redistricting analysis, producing Figures 6.6-6.8 in the main text with this alternative measure.

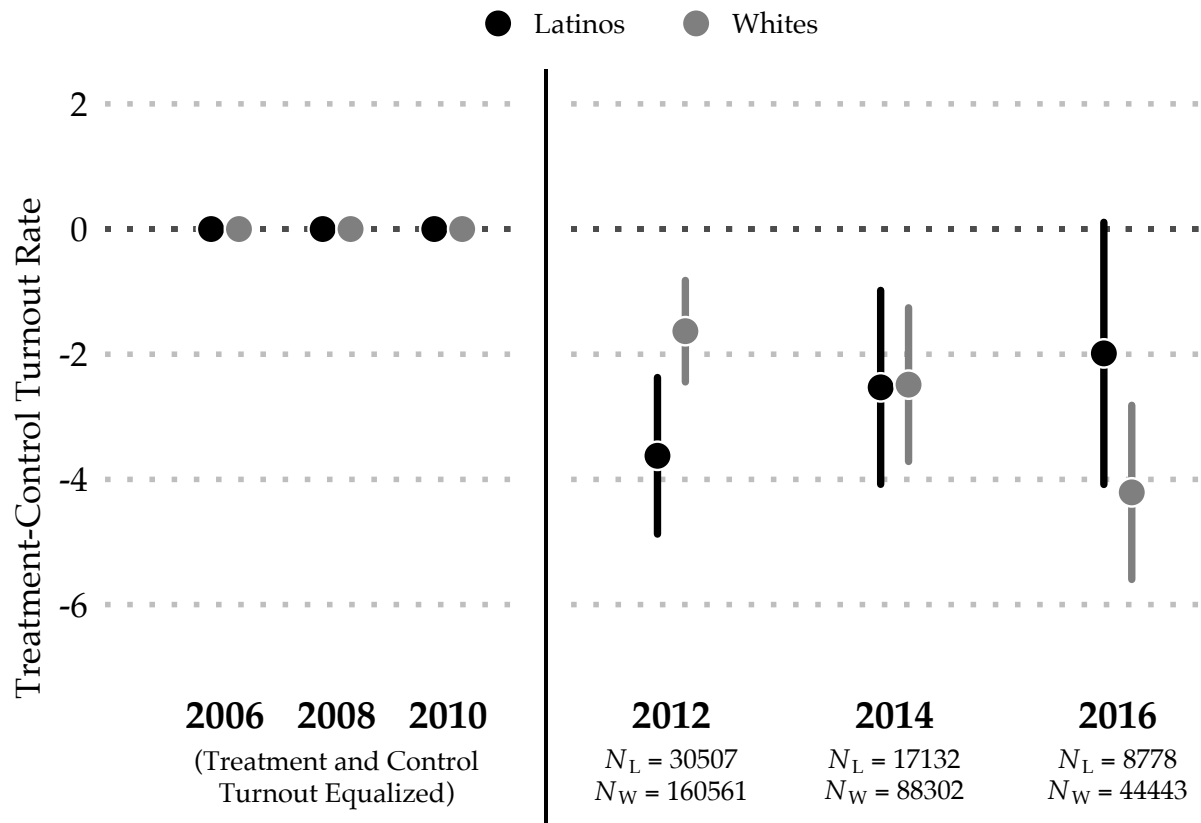
Figure 10: Effect of Majority-Black District on Turnout, 30% CVAP Threshold



Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-Black congressional district for those previously residing in a district that was less than 30% Black CVAP. Black points indicate the ATT for African-Americans, gray points the ATT for Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% Black or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_L indicates the number of Black registrants remaining after matching, N_W the number of White registrants remaining.

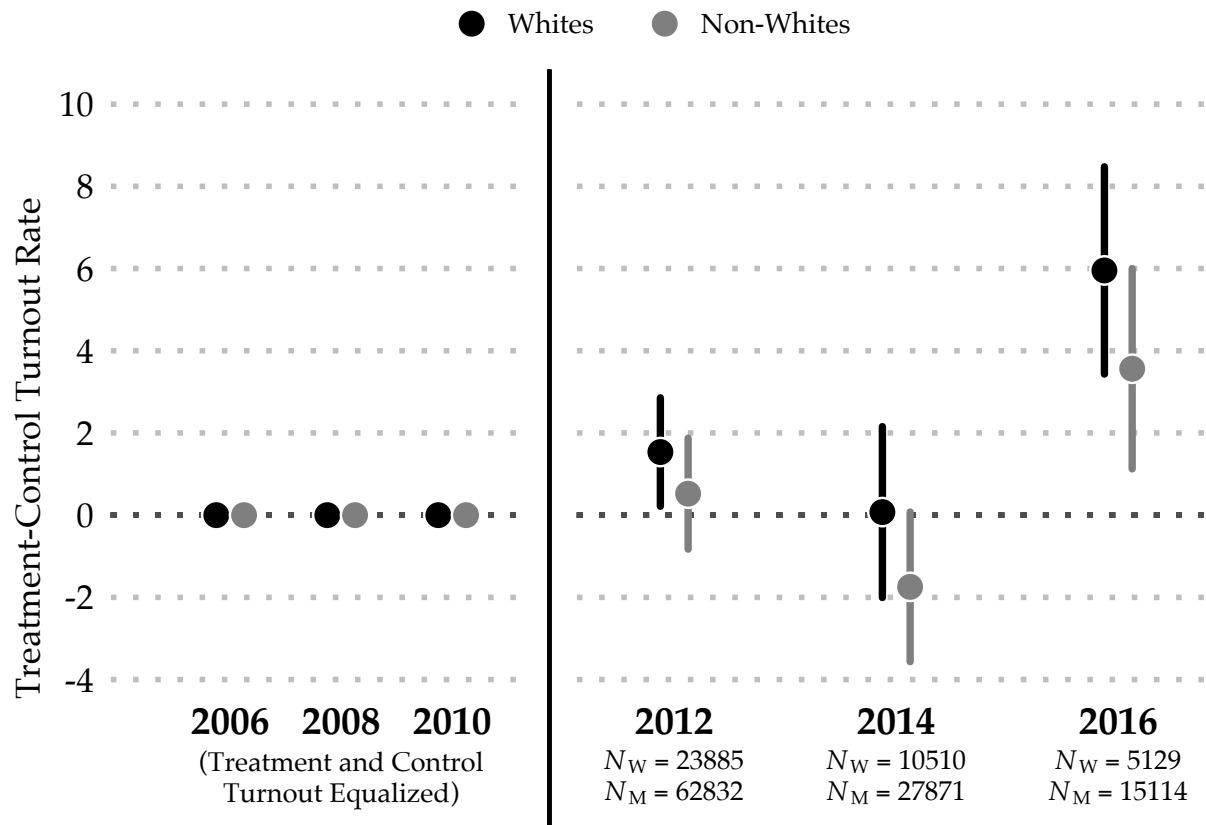
As noted in the main text, using CVAP instead of VAP yields almost exactly the same results for the effect of assignment to a majority-Black district (Figure 13). However, for assignment to a majority-Latino or majority-White district, the results change substantially as the specific districts included in the analysis changes. A number of districts are near-majority Latino CVAP, but well over the 50% threshold for Latino VAP. These districts would not be considered majority-Latino and would instead be classified as majority-White in Figures 14 and 15. Therefore, the results using the VAP measure from the main text may better capture the true effect of moving to a district where a group holds substantial electoral influence.

Figure 11: Effect of Majority-Latino District on Turnout, 30% CVAP Threshold



Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-Latino congressional district for those previously residing in a district that was less than 30% Latino CVAP. Black points indicate the ATT for Latinos, gray points the ATT for Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% Latino or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_L indicates the number of Latino registrants remaining after matching, N_W the number of White registrants remaining.

Figure 12: Effect of Majority-White District on Turnout, 30% CVAP Threshold



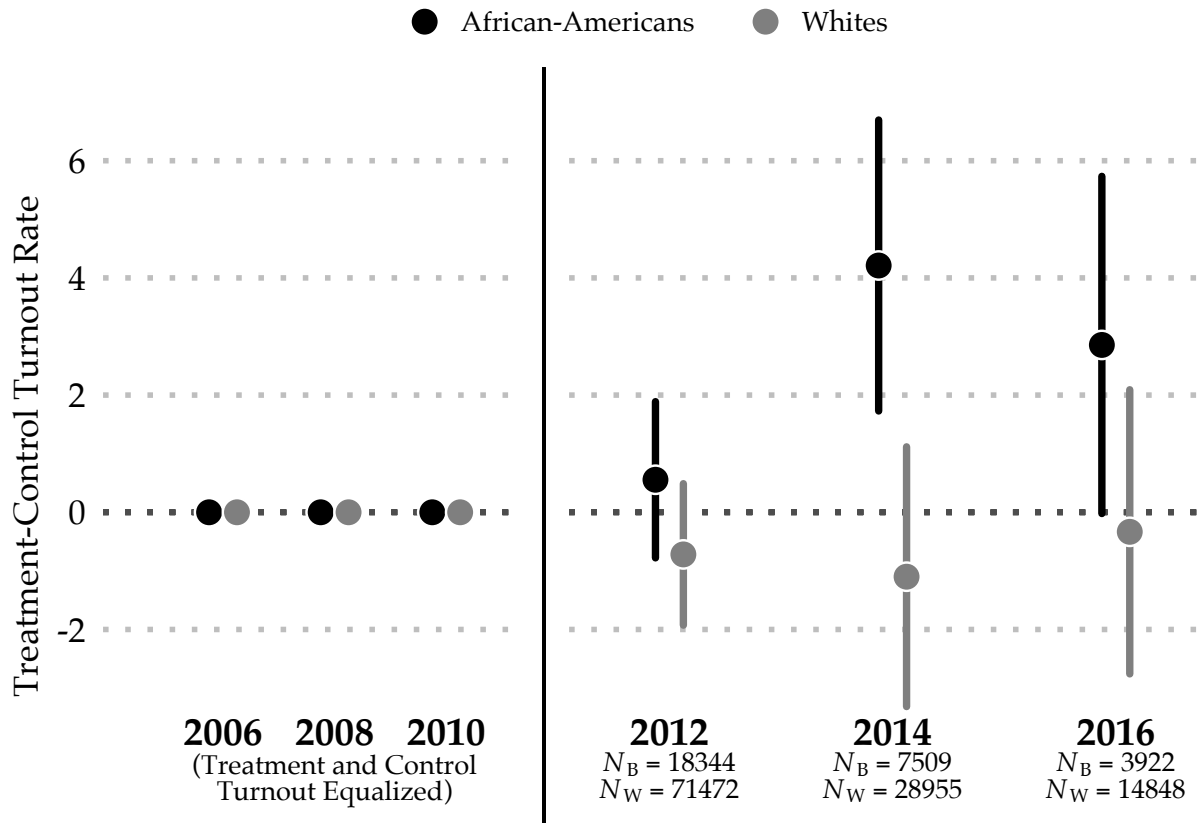
Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-White congressional district for those previously residing in a district that was less than 30% White. Black points indicate the ATT for Whites, gray points the ATT for non-Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% White or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_W indicates the number of White registrants remaining after matching, N_M the number of non-White registrants remaining.

4.3 Redistricting Effects, Competitive Elections Only

In Fraga (2016b), I subset redistricting analyses to competitive districts only in an effort to account for electoral competition. Below I replicate Figures 6.6-6.8 in the main text, but subsetting to districts where the predicted margin of victory for treatment and control districts (post-redistricting) was 20 percentage points or less. In order to determine district competitiveness without risking post-treatment bias, I use the Cook Political Report Partisan Voting Index (Cook PVI), a widely used *ex ante* measure of the congressional district normal vote (Abramowitz, Alexander and Gunning 2006). Cook PVI is constructed by taking each congressional district's two-party Democratic vote share from 2004 and 2008, subtracting the national Democratic vote share, and taking the average deviation over both elections. I rescale this value as $1 - |PVI - 0.5|$, such that a value of 1 would be found in a district with an exact 50%-50% split of the voteshare between the Democratic and Republican party candidates.

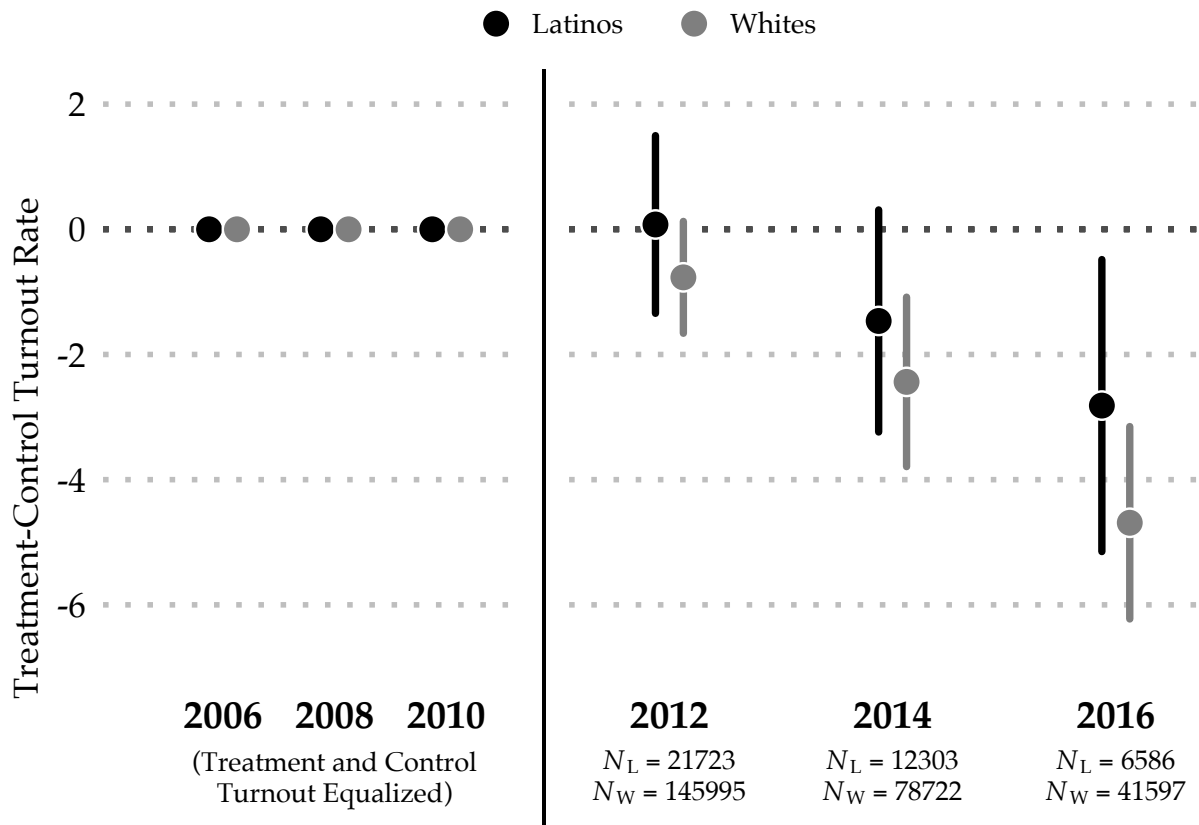
Results when restricting the analysis to competitive districts are similar to those ignoring competition in the main text, despite a drastic reduction in the N for majority-Black and majority-White districts. For African-Americans, we see somewhat greater increases in Black turnout when assigned to majority-Black competitive districts, though uncertainty has increased. For Latinos, differences between Latino and non-Latino registrants have shrunk. For White-majority districts, however, removing the heavily-Republican leaning post-redistricting districts from the analysis attenuates the effect substantially and indicates that the intersection of race and party may be a component of the electoral influence effect for White voters.

Figure 13: Effect of Majority-Black District on Turnout, Competitive Only



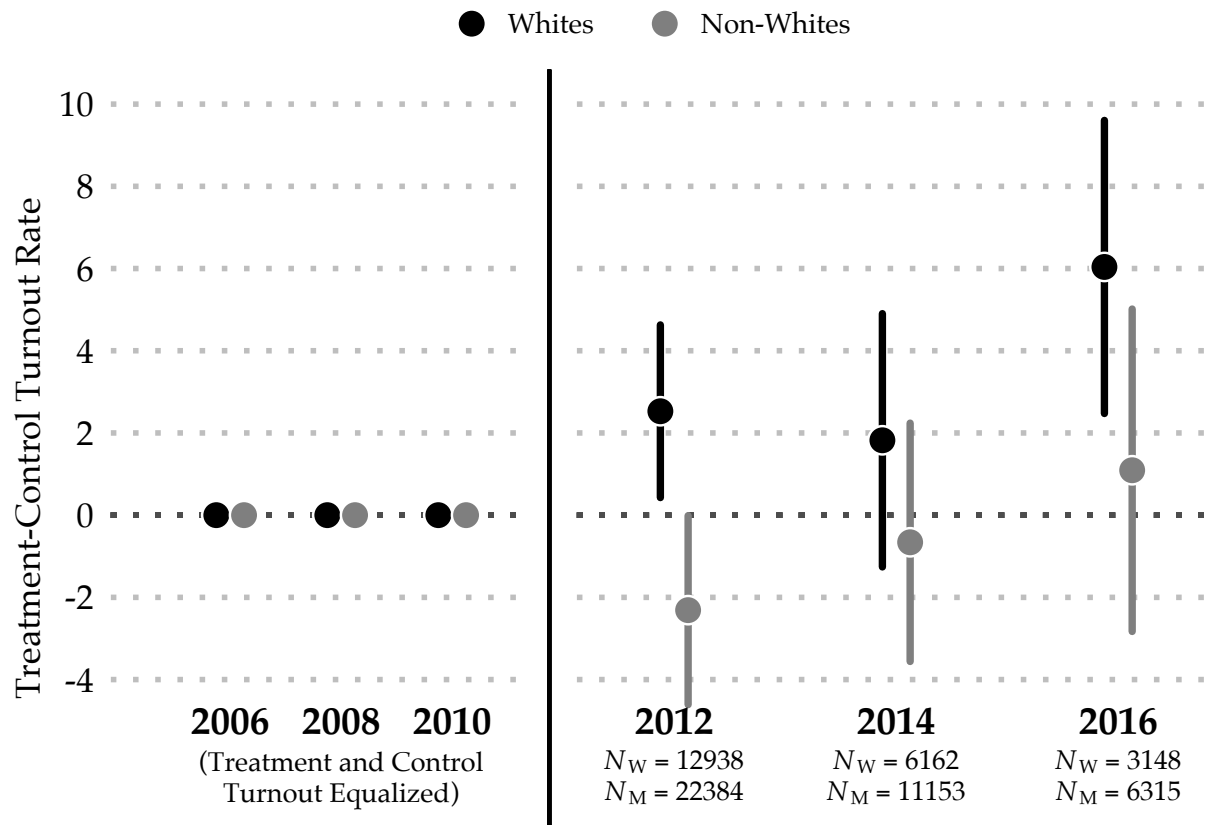
Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-Black congressional district for those previously residing in a district that was less than 30% Black. Black points indicate the ATT for African-Americans, gray points the ATT for Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% Black or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_L indicates the number of Black registrants remaining after matching, N_W the number of White registrants remaining.

Figure 14: Effect of Majority-Latino District on Turnout, Competitive Only



Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-Latino congressional district for those previously residing in a district that was less than 30% Latino. Latino points indicate the ATT for Latinos, gray points the ATT for Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% Latino or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_L indicates the number of Latino registrants remaining after matching, N_W the number of White registrants remaining.

Figure 15: Effect of Majority-White District on Turnout, Competitive Only



Note: Points indicate the average treatment effect on the treated (ATT) of assignment to a majority-White congressional district for those previously residing in a district that was less than 30% White. Black points indicate the ATT for Whites, gray points the ATT for non-Whites, with 95% confidence intervals extend outward from the points. Control group remained in a 30% White or less district. Registrants are exact matched across treatment and control groups by pre-redistricting district, race, turnout in the 2006, 2008, and 2010 elections, age group, and gender. N_W indicates the number of White registrants remaining after matching, N_M the number of non-White registrants remaining.

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