

Exhibit R

The Honorable Robert S. Lasnik

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

SUSAN SOTO PALMER, et al.

Plaintiffs,

v.

STEVEN HOBBS, in his official capacity
as Secretary of State of Washington, and
the STATE OF WASHINGTON,

Defendants,

and

JOSE TREVINO, ISMAEL G. CAMPOS,
and State Representative ALEX YBARRA,

Intervenor-Defendants.

NO. 3:22-cv-5035-RSL

EXPERT REPORT OF
DR. JOHN R. ALFORD, PhD

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NOVEMBER 2, 2022

Expert Report

John Alford

November 2, 2022

Scope of Inquiry

I have been retained by the State of Washington as an expert to provide analysis related to the evidence of racially polarized voting in *Soto Palmer v. Hobbs*, No. 3:22-cv-05035-RSL (W.D. Wash)— a Voting Rights Act challenge related to the current legislative districts in Washington State. Specifically, I have been asked to respond to the expert reports from Plaintiffs’ expert, Dr. Loren Collingwood, in this case.¹ My rate of compensation in this matter is \$500 per hour.

Qualifications

I am a tenured full professor of political science at Rice University. In my over thirty years at Rice, I have taught courses on redistricting, elections, political representation, voting behavior and statistical methods at both the undergraduate and graduate level. I am the author of numerous scholarly works on political behavior. These works have appeared in academic journals such as the *American Journal of Political Science*, *Journal of Politics*, *Science*, *Annual Review of Political Science*, *Legislative Studies Quarterly*, *Annals of the American Academy of Political and Social Science*, *Political Psychology*, and *Political Research Quarterly*.

Over the last thirty years, I have worked with numerous local and state governments on districting plans and on Voting Rights Act issues. I have previously provided expert reports and/or testified as an expert witness in voting rights and statistical issues in a variety of court cases, working for the U.S. Attorney in the Southern District of Texas, the Texas Attorney General, a U.S. Congressman, and various cities and school districts across the state.

¹ For purposes of this report, I have reviewed Dr. Collingwood’s expert report dated August 3, 2022. I understand that Dr. Collingwood may submit a revised report, pursuant to the case schedule entered by this Court on August 14, 2022. Dkt. No. 92. In the event Dr. Collingwood’s revised report differs materially from his prior report, I reserve the right to supplement this report. I also reviewed Dr. Collingwood’s expert declarations submitted in support of the Plaintiffs’ Motion for a Preliminary Injunction. Dkt. 38-25 (filed February 25, 2022) and Dkt. 54-2 (filed March 25, 2022).

In the 2000 round of redistricting, I was retained as an expert to provide advice to the Texas Attorney General in his role as Chair of the Legislative Redistricting Board. I subsequently served as the expert for the State of Texas in the state and federal litigation involving the 2000s, 2010s and 2020s rounds of redistricting for U.S. Congress, the Texas Senate, the Texas House of Representatives, and the Texas State Board of Education.

I have also worked as an expert on redistricting and voting rights cases in Louisiana, New Mexico, Mississippi, Wisconsin, Florida, Georgia, Michigan, New York, Arkansas, Kansas, Washington, Pennsylvania, and Alabama.

The details of my academic background, including all publications in the last ten years, and work as an expert, including all cases in which I have testified by deposition or at trial in the last four years, are covered in the attached CV (Appendix 1).

Data and Sources

In preparing my report, I have reviewed the February 25, 2022, and March 25, 2022, declarations of Plaintiffs' expert Dr. Loren Collingwood, as well as the August 3, 2022, expert report from Dr. Collingwood. I have also relied for my report on the analysis, the associated documentation, and the data provided to date by Dr. Collingwood, as well as election results from the Washington Secretary of State's website (<https://www.sos.wa.gov/elections/research/>) and census demographic data from the Redistricting Data Hub (<https://redistrictingdatahub.org/>).

Focus of Analysis

Dr. Collingwood's declarations and report contend that Latino voters in the Yakima Valley meet each of the three *Gingles* preconditions—that is, (1) they are “sufficiently large and

geographically compact to constitute a majority in a single-member [voting] district”; (2) they are “politically cohesive”; and (3) “the white majority votes sufficiently as a bloc to enable it ... usually to defeat [Latinos’] preferred candidate.” *Thornburg v. Gingles*, 478 U.S. 30, 50–51 (1986).

The first *Gingles* prong seems to be met here as evidenced by the fact that the Hispanic Citizen Voting Age Population (HCVAP) exceeds 50%, both in the current Legislative District 15 as enacted, and in the alternative demonstrative configurations, in the form of three alternative versions of Legislative District 14 discussed in Prof. Collingwood’s August 3, 2022 report. According to Table 4 (page 26) of Prof. Collingwood’s report (reproduced below as Figure 1), enacted Legislative District 15 has a 51.5% Hispanic CVAP. The Alternative 1 demonstrative version of Legislative District 14 has a Hispanic CVAP of 52.5%, the Alternative 2 demonstrative version of Legislative District 14 has a Hispanic CVAP of 53.6%, and the Alternative 3 demonstrative version of Legislative District 14 has a Hispanic CVAP of 50.2%. Further, the visual appearance of both enacted Legislative District 15 and the three alternative demonstrative version of Legislative District 14 does not suggest that any of these are highly irregular in shape, and this is borne out by the summary indicators for compactness included in Dr. Collingwood’s Table 4, including population deviations and county-district, district-county, and precinct splits. The remaining second and third *Gingles* prongs are addressed in the election analysis section below.

Figure 1: Table 4 of Dr. Collingwood's August 4, 2022 report

Statistic	Enacted	Alt 1	Alt 2	Alt 3
Population	157253	157247	157269	157223
Pop. Dev.	-0.0001	0	0.0001	-0.0002
WCVAP20	43.2	37	35.7	40.1
LCVAP20	51.5	52.5	53.6	50.2
District Reock	0.3226	0.2142	0.1766	0.3312
District Polsby	0.2372	0.2131	0.1812	0.3168
Map Reock	0.3993	0.3883	0.3918	0.395
Map Polsby	0.3204	0.3119	0.3114	0.3189
County-District	1.61	1.56	1.6	1.61
District-County	1.25	1.21	1.25	1.25
Precinct Splits	284	279	280	280

Election Analysis

Dr. Collingwood and I both rely on the statistical technique of Ecological Inference (EI), developed originally by Professor Gary King.² EI is a more efficient technique intended specifically to improve on ecological regression (ER), the analysis technique previously used in VRA lawsuits to assess voter cohesion and polarization. In a nutshell, traditional ecological regression is a mathematical technique for estimating the single best fitting straight line that could be drawn to describe the relationship between two variables in a scatter plot. Applied to voting rights cases, the logic of ecological regression analysis is to determine to what degree, if any, the vote for a candidate increases in a linear fashion as the concentration of voters of a given ethnicity in the precincts increases. In contrast, King's EI procedure utilizes a method of bounds analysis, combined with a more traditional statistical method, to improve on standard ecological regression. While the details are mathematically complex, the differences mostly center on utilizing deterministic bounds information contained in individual precinct results that would not be exploited in ecological regression. In addition, EI relaxes the linear constraint that a traditional ecological regression analysis would

² King, Gary. (1997). *A Solution to the Ecological Inference Problem*. Princeton Univ. Press.

impose on the pattern across precincts. This combination in EI of relaxing some assumptions and utilizing more information typically yields a more efficient estimation of cohesion and polarization when compared to standard ecological regression.

In its original form, King's EI could only be used to estimate voter support when there were two racial groups (e.g., White and Black) and two candidates, hence the label '2 x 2 EI' often applied to the original form. Often there are more than two racial groups (e.g., White, Black, and Latino), or more than two possible vote choices (including the common situation that arises when relying on eligible voter population demographics such as Census Voting Age Population (VAP) or Citizen Voting Age Population (CVAP), where in addition to including the two (or more) candidate choices one must also include a 'no vote' choice to properly model the portion of the voter eligible population that either didn't turn out for the election or did not vote in the specific contest of interest. To accommodate these situations, one would have to run an independent 2 x 2 EI analysis for each race of interest and for each candidate of interest (and for the no voting category), an approach suggested by King and labeled the 'iterative' approach to 'R x C' (Rows by Columns) estimation.³

Shortly after suggesting the iterative method, King published a more advanced theoretical approach to R x C estimation using a Multinomial-Dirichlet Bayesian technique. A fully Bayesian implementation of this approach was viewed by King and his coauthors as computationally impractical, given that it could take as long as a week or more to run a single model on the computers available at that time, and they provided instead an implementation that relied on nonlinear least-

³ In practice, this would involve simulating a two-race analysis by comparing the racial group of interest against a "dummy" group comprising the combination of all the other races. So instead of comparing the Black population against the White population (as one would do if there were actually only two races of interest), one would compare the Black population against the combination of the White and Latino population. Then, because one is interested in each race individually (and not interested in, for example, how the combined White and Latino population voted), one would compare the White population against the Black and Latino population. Finally, one would compare the Latino population against the White and Black population.

squares.⁴ Finally, in 2007 Lau and colleagues, taking advantage of advancements in computing technology, implemented the fully Bayesian estimation procedure outline by King, et al and provided a software module called “eiPack” that included the module ‘ei.MD.bayes’ that allowed for the estimation of the true Bayesian approach.⁵ This is the implementation of EI R x C used here and in Dr. Collingwood’s R x C analysis.

I began my analysis with an attempt to replicate selected results of the Ecological Inference (EI) analysis provided by Prof. Collingwood in his report in this case. To do so, I relied on data (provided in his disclosure) that he used to produce the EI estimates included in his report. The programing and execution of the EI (RxC) routines for this replication were performed by Dr. Randy Stevenson under my direction and control. The replication results for all of the 2020 contests are provided below in a summary format below in Table 1 (for Hispanic and non-Hispanic based on BISG), Table 2 (for Hispanic and non-Hispanic based on Voting Age Population), and Table 3 (for Hispanic and non-Hispanic White based on BISG). The full details of the results from the replication analysis for the 2020 contests in these tables are attached below as Appendix 2.

⁴ See Rosen, Jiang, King, and Tanner., *Bayesian and Frequentist Inference for Ecological Inference: The R x C Case*, 55 STATISTICA NEERLANDICA 134 (2001).

⁵ See Lau, Olivia, Ryan T. Moore, and Michael Kellermann. "eiPack: Ecological Inference and Higher-Dimension Data Management," R News, vol.7, no. 2 (October 2007).

Table 1: EI Analysis of 2020 Elections (Hispanic and non-Hispanic based on BISG)

Election	Office	Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI	High 95% CI
General	President	Dem	Biden	76.7%	73.7%	79.4%	32.7%	32.0%	33.3%
		Rep	Trump	23.3%	20.6%	26.3%	67.3%	66.7%	68.0%
	Governor	Dem	Inslee	73.5%	70.4%	76.4%	29.8%	29.1%	30.5%
		Rep	Culp	26.5%	23.6%	29.6%	70.3%	69.5%	71.0%
	AG	Dem	Ferguson	76.5%	73.7%	79.2%	31.0%	30.4%	31.7%
		Rep	Larkin	23.5%	20.8%	26.3%	69.0%	68.3%	69.6%
	Treasurer	Dem	Pellicciotti	75.0%	72.2%	77.8%	27.1%	26.4%	27.8%
		Rep	Davidson	25.0%	22.2%	27.8%	72.9%	72.2%	73.6%
	Auditor	Dem	McCarthy	75.5%	72.4%	78.3%	32.7%	32.1%	33.5%
		Rep	Leyba	24.5%	21.7%	27.6%	67.3%	66.5%	67.9%
	LD13 pos 1	Dem	Castaneda	70.4%	59.8%	80.1%	16.7%	14.6%	19.0%
		Rep	Dent	29.6%	19.9%	40.2%	83.3%	81.0%	85.4%
	SSC seat 3	Non-Partisan	Montoya-Lewis	73.5%	71.3%	75.9%	38.2%	37.6%	38.7%
		Non-Partisan	Larson	26.5%	24.1%	28.7%	61.8%	61.3%	62.4%
	Franklin CC D2	Non-Partisan	Mullen	11.5%	7.1%	16.8%	78.3%	76.1%	80.1%
		Non-Partisan	Peralta	88.5%	83.2%	92.9%	21.7%	19.9%	23.9%
Primary	SPI	Non-Partisan	Espinoza	67.6%	65.5%	69.6%	50.0%	49.5%	50.5%
		Non-Partisan	Reykdal	32.4%	30.4%	34.5%	50.0%	49.5%	50.5%
	LD13 pos 1	Dem	Castaneda	45.3%	35.7%	54.9%	13.2%	11.3%	15.2%
		Dem	Malan	9.7%	5.5%	13.6%	1.7%	1.0%	2.6%
		Rep	Dent	45.0%	35.6%	55.0%	85.0%	83.0%	87.0%

Table 2: EI Analysis of 2020 Elections (Hispanic and non-Hispanic based on Voting Age Population)

Election	Office	Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI	High 95% CI
General	President	Dem	Biden	84.4%	80.4%	88.0%	35.4%	34.6%	36.2%
		Rep	Trump	15.6%	12.0%	19.6%	64.6%	63.8%	65.4%
	Governor	Dem	Inslee	78.8%	73.9%	83.2%	32.7%	31.9%	33.5%
		Rep	Culp	21.2%	16.8%	26.1%	67.3%	66.5%	68.1%
	AG	Dem	Ferguson	81.5%	76.9%	85.7%	34.2%	33.4%	35.1%
		Rep	Larkin	18.5%	14.3%	23.1%	65.8%	64.9%	66.6%
	Treasurer	Dem	Pellicciotti	82.6%	78.1%	86.4%	30.1%	29.3%	31.0%
		Rep	Davidson	17.4%	13.6%	21.9%	69.9%	69.0%	70.7%
	Auditor	Dem	McCarthy	82.6%	77.6%	86.5%	35.6%	34.8%	36.4%
		Rep	Leyba	17.4%	13.5%	22.4%	64.4%	63.6%	65.2%
	LD13 pos 1	Dem	Castaneda	74.7%	54.9%	89.8%	18.3%	14.8%	21.6%
		Rep	Dent	25.3%	10.2%	45.1%	81.7%	78.4%	85.2%
	SSC seat 3	Non-Partisan	Montoya-Lewis	82.3%	77.7%	86.5%	40.1%	39.4%	40.9%
		Non-Partisan	Larson	17.7%	13.5%	22.3%	59.9%	59.1%	60.6%
	Franklin CC D2	Non-Partisan	Mullen	18.2%	10.2%	28.7%	65.9%	63.4%	68.8%
		Non-Partisan	Peralta	81.8%	71.3%	89.8%	34.1%	31.2%	36.6%
Primary	LD13 pos 1	Non-Partisan	Espinoza	78.2%	72.5%	83.1%	50.2%	49.6%	51.0%
		Non-Partisan	Reykdal	21.8%	16.9%	27.5%	49.8%	49.0%	50.4%
		Dem	Castaneda	52.3%	33.1%	69.9%	14.6%	11.9%	16.9%
		Dem	Malan	13.2%	7.0%	20.8%	1.9%	1.2%	2.6%
		Rep	Dent	34.5%	16.5%	55.9%	83.5%	81.1%	86.2%

Table 3: EI Analysis of 2020 Elections (Hispanic and non-Hispanic White based on BISG)

Election	Office	Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
General	President	Dem	Biden	72.1%	69.5%	74.6%	26.7%	26.0%	27.5%
		Rep	Trump	27.9%	25.4%	30.5%	73.3%	72.5%	74.0%
	Governor	Dem	Inslee	68.6%	66.0%	71.2%	23.6%	22.8%	24.4%
		Rep	Culp	31.4%	28.8%	34.0%	76.4%	75.6%	77.2%
	AG	Dem	Ferguson	71.9%	69.4%	74.6%	24.9%	24.2%	25.7%
		Rep	Larkin	28.1%	25.4%	30.6%	75.1%	74.3%	75.8%
	Treasurer	Dem	Pellicciotti	70.1%	67.7%	72.5%	20.8%	20.0%	21.5%
		Rep	Davidson	29.9%	27.5%	32.3%	79.2%	78.5%	80.0%
	Auditor	Dem	McCarthy	70.9%	68.3%	73.3%	26.7%	26.0%	27.5%
		Rep	Leyba	29.1%	26.7%	31.7%	73.3%	72.5%	74.0%
	LD13 pos 1	Dem	Castaneda	71.2%	60.6%	80.9%	12.4%	9.7%	15.7%
		Rep	Dent	28.8%	19.1%	39.4%	87.6%	84.3%	90.3%
Primary	SSC seat 3	Non-Partisan	Montoya-Lewis	69.4%	67.1%	71.7%	33.0%	32.3%	33.8%
		Non-Partisan	Larson	30.6%	28.3%	32.9%	67.0%	66.2%	67.7%
	Franklin CC D2	Non-Partisan	Mullen	17.5%	12.7%	22.6%	85.4%	82.6%	87.7%
		Non-Partisan	Peralta	82.5%	77.4%	87.3%	14.6%	12.3%	17.4%
	SPI	Non-Partisan	Espinoza	68.8%	66.7%	71.0%	51.3%	50.4%	52.3%
		Non-Partisan	Reykdal	31.2%	29.0%	33.3%	48.7%	47.7%	49.6%
	LD13 pos 1	Dem	Castaneda	46.0%	36.2%	55.2%	10.4%	8.0%	12.9%
		Dem	Malan	6.7%	3.9%	9.9%	0.8%	0.5%	1.2%
		Rep	Dent	47.2%	38.0%	57.1%	88.8%	86.3%	91.2%

Taken as a whole, the replication results for the elections matched very closely with the estimates reported by Prof. Collingwood, with only the slight variation that one would expect given the inherent variability associated with EI estimation. Given that there were no substantive differences across the reported results (comparing Dr. Collingwood's EI and RxC results), or the replication results, and to make it clear that to the extent that I disagree with Dr. Collingwood it is not on the basis of any difference in the numerical results of our analysis, I have relied for this report primarily on the EI estimates provided by Dr. Collingwood in his report.

Ethnically Polarized Voting Analysis

Dr. Collingwood provides the results of his polarized voting analysis across two methods (EI and RxC) and separately for elections that include a Spanish-surname candidate and those that don't.

This yields four graphical displays of his results (Figures 3, 4, 5 and 6 on pages 14-18). In order to facilitate comparison across all of these contests I have provided these results below in table format using the ‘results’ files provided by Prof. Collingwood in his disclosures. The table format also allows for the inclusion of Prof. Collingwood’s estimated confidence intervals as reported in his disclosure. I have reproduced these results relying where possible on Prof. Collingwood’s RxC analysis⁶, as it is generally accepted as perhaps more appropriate and certainly no worse than the older, iterative EI approach. In any case, this is not a significant choice here, because as Prof. Collingwood notes “both approaches produce very similar estimates” (page 13), an observation borne out by comparing his Figure 3 to his Figure 5, or his Figure 4 to his Figure 6.

Table 4 below combines Prof. Collingwood’s RxC estimates for all Democrat-versus-Republican contests, regardless of whether there was a Spanish-surname candidate in the contest. The only addition to the elections analyzed by Prof. Collingwood is the 2020 State Auditor contest, in which the Republican candidate was Christopher Leyba. Leyba is a Spanish surname according to the Census list.

⁶ In his reports Dr. Collingwood provides his EI results in the form of figures. He also provided these same results in table format with his disclosure materials. The tables here that reproduce Dr. Collingwood’s EI results are based on those disclosed tabular results, all the contests that appear in his ‘ei’ figures were also included in his disclosed tabular results files, but some of the election contests were not included in the disclosed RxC results files. Consequently, the tables below utilize Dr. Collingwood’s RxC results whenever available and report his ‘ei’ results only where the RxC results were not available in tabular form. This is indicated in the tables here in the first column labeled ‘Model’.

Table 4: Collingwood EI Results

Model	Jurisdiction	Election	Year	Contest	Candidate	Spanish-surname?	Candidate Party	Estimate of Hispanic Voter Support	Conf. Interval	Estimate of non-Hispanic White Voter Support	Conf. Interval
rx	Statewide	General	2020	President	Trump	No	Rep	29.46	(24.65 to 36.09)	70.99	(66.65 to 72.78)
rx	Statewide	General	2020	President	Biden	No	Dem	70.54	(63.91 to 75.35)	29.01	(27.22 to 33.35)
rx	Statewide	General	2020	Governor	Culp	No	Rep	32.13	(28.27 to 39.7)	74.74	(69.84 to 76.5)
rx	Statewide	General	2020	Governor	Inslee	No	Dem	67.87	(60.3 to 71.73)	25.26	(23.5 to 30.16)
rx	Statewide	General	2020	Attorney General	Larkin	No	Rep	27.23	(25.24 to 28.91)	74.62	(74.03 to 75.21)
rx	Statewide	General	2020	Attorney General	Ferguson	No	Dem	72.77	(71.09 to 74.76)	25.38	(24.79 to 25.97)
rx	Statewide	General	2020	Treasurer	Davidson	No	Rep	29.49	(27.92 to 31.28)	78.82	(78.24 to 79.41)
rx	Statewide	General	2020	Treasurer	Pellicciotti	No	Dem	70.51	(68.72 to 72.08)	21.18	(20.59 to 21.76)
rx	Statewide	General	2018	US Senate	Hutchinson	No	Rep	27.03	(23.96 to 30.21)	73.95	(73.18 to 74.68)
rx	Statewide	General	2018	US Senate	Cantwell	No	Dem	72.97	(69.79 to 76.03)	26.05	(25.32 to 26.82)
rx	CD 4	General	2018	D-4 US Rep	Newhouse	No	Rep	31.71	(28.64 to 35.12)	74.53	(73.78 to 75.21)
rx	CD 4	General	2018	D-4 US Rep	Brown	No	Dem	68.29	(64.88 to 71.36)	25.47	(24.79 to 26.22)
rx	Statewide	General	2016	President	Trump	No	Rep	22.28	(20 to 25.04)	70.85	(70.14 to 71.54)
rx	Statewide	General	2016	President	Clinton	No	Dem	73.05	(70.15 to 75.34)	22.52	(21.74 to 23.28)
ei	Statewide	General	2016	Governor	Bryant	No	Rep	24.81	(22.04 to 27.66)	73.23	(72.48 to 73.94)
ei	Statewide	General	2016	Governor	Inslee	No	Dem	75.19	(72.34 to 77.96)	26.77	(26.06 to 27.52)
ei	Statewide	General	2016	US Senate	Vance	No	Rep	20.73	(17.93 to 23.63)	68.41	(67.58 to 69.14)
ei	Statewide	General	2016	US Senate	Murray	No	Dem	79.27	(76.37 to 82.07)	31.59	(30.86 to 32.42)
ei	LD 13	Primary	2020	LD-13 St House Pos 1	Dent	No	Rep	36.23	(27.33 to 46.29)	83.39	(81.28 to 85.03)
ei	LD 13	Primary	2020	LD-13 St House Pos 1	Castaneda	Yes	Dem	57.05	(48.92 to 64.99)	10.16	(8.54 to 11.74)
ei	LD13 (Grant)	General	2020	LD13 Pos 1 (Grant)	Dent	No	Rep	26.32	(21.15 to 31.28)	87.18	(85.27 to 88.87)
ei	LD13 (Grant)	General	2020	LD13 Pos 1 (Grant)	Castaneda	Yes	Dem	74.62	(70.38 to 79.43)	12.84	(11.21 to 14.86)
ei	Franklin	General	2020	Franklin D2	Mullen	No	Rep	11.86	(9.4 to 14.45)	86.27	(84.33 to 87.81)
ei	Franklin	General	2020	Franklin D2	Peralta	Yes	Dem	88.12	(86.19 to 90.06)	13.51	(11.91 to 14.87)
ei	Yakima	General	2018	Yakima D3	Childress	No	Rep	16.92	(13.86 to 19.74)	76.56	(76.42 to 76.67)
ei	Yakima	General	2018	Yakima D3	Soto Palmer	Yes	Dem	82.95	(80.1 to 85.83)	23.42	(23.35 to 23.53)
rx	LD 15	General	2018	LD 15 State Senate	Honeyford	No	Rep	22.18	(17.97 to 26.7)	81.8	(79.37 to 84.04)
rx	LD 15	General	2018	LD 15 State Senate	Aguilar	Yes	Dem	77.82	(73.3 to 82.03)	18.2	(15.96 to 20.63)
ei	LD14 (Yakima)	General	2016	LD14 Pos 1 (Yak)	Johnson	No	Rep	12.22	(9.52 to 15.13)	83.26	(82.67 to 84.02)
ei	LD14 (Yakima)	General	2016	LD14 Pos 1 (Yak)	Sotopalmer	Yes	Dem	87.82	(85.05 to 89.9)	16.44	(15.52 to 17.08)
rx	LD 15	General	2014	LD 15 State Senate	Honeyford	No	Rep	34.03	(29.21 to 39.21)	86.65	(84.37 to 88.43)
rx	LD 15	General	2014	LD 15 State Senate	Munoz	Yes	Dem	65.97	(60.79 to 70.79)	13.35	(11.57 to 15.63)
rx	LD 15	General	2014	LD 15 State Rep	Taylor	No	Rep	32.51	(29.7 to 35.11)	85.34	(84.39 to 86.36)
rx	LD 15	General	2014	LD 15 State Rep	Martinez Chavez	Yes	Dem	67.49	(64.89 to 70.3)	14.66	(13.64 to 15.61)
?	LD 15	General	2012	LD 15 State Rep	Taylor	No	Rep	10.95	(9.65 to 12.23)	84.61	(83.8 to 85.48)
?	LD 15	General	2012	LD 15 State Rep	Gonzales	Yes	Dem	89.05	(87.77 to 90.35)	15.39	(14.52 to 16.2)
rx	LD 15	Primary	2012	LD-15 Rep Pos 2	Taylor	No	Rep	20.71	(13.1 to 30.65)	73.34	(71.34 to 75.14)
rx	LD 15	Primary	2012	LD-15 Rep Pos 2	Gonzales	Yes	Dem	75.97	(63.79 to 83.89)	15.94	(14.03 to 17.93)
This contest was not included in the Collingwood report and the EI results for it are from my analysis											
rx	Statewide	General	2020	State Auditor	Leyba	Yes	Rep	29.10	(26.7 to 31.7)	73.30	(72.5 to 74.0)
rx	Statewide	General	2020	State Auditor	McCarthy	No	Dem	70.90	(68.3 to 73.3)	26.70	(26.0 to 27.5)

An examination of Table 4 shows that in elections with partisan candidate information on the ballot, non-Spanish surname Democratic candidates draw moderately cohesive support from Hispanic voters over Republican candidates, and the same is true for Spanish surname Democratic candidates. Likewise, non-Spanish surname Democratic candidates draw little support from White

voters, and the same is true for non-Spanish surname Democratic candidates. These are the same elections and the same results summarized in Prof. Collingwood's Figure 4 (page 15 of the August 3, 2022 report). He characterizes these results as being "exceedingly consistent with the ecological inference approach presented above and show high levels of racially polarized voting between Latino and white voters in the 5-County area" (page 15). The one additional contest added here and not included in Prof. Collingwood's report is the 2020 State Auditor contest, where the Republican candidate has a Spanish surname. That contest reinforces the general pattern of partisan, rather than ethnic, polarization. The level of estimated Hispanic voter support for Leyba, at 29.1% is very similar to the levels of Hispanic voter support for the non-Spanish surname Republican candidates on the same ballot. Likewise, the level of Anglo voter support for Leyba, at 73.3%, is very similar to the levels of Anglo voter support for the non-Spanish surname Republican candidates on the same ballot.

Table 5 below includes all the same election contests as Table 4 above but includes only the Democratic candidates to facilitate comparison (this makes the table easier to scan and does not remove any crucial information as the results for the Republican candidate in a given contest are essentially the inverse of the results for the Democratic candidate, except in the limited case of the two primary elections). In addition, the elections in Table 5 are separated by the ethnicity of the Democratic candidate. In addition, Table 5 separates Spanish surname Democratic candidates from non-Spanish surname Democratic candidates to allow for an easy comparison of these two contexts. The overall results suggest strong evidence of different voting patterns by Hispanic and non-Hispanic voters relative to the party affiliation of a candidate, regardless of whether the Democratic candidate has a Spanish surname or not. However, there is also a modest tendency toward slightly greater support, about 7 percentage points, among Hispanic voters for Spanish surname Democratic candidates over non-Spanish surname Democratic candidates. Similarly, there is a corresponding

modest tendency for Anglo voters to be less supportive, about minus 10 percentage points, of Spanish surname Democratic candidates, relative to non-Spanish surname Democratic candidates. Thus, it appears that partisan cohesion accounts for the bulk of the differences in ethnic voting patterns in these elections, but that there is also a small but consistent increase in the level of polarization when the Democratic candidate has a Spanish surname.

Table 5: Collingwood EI Results – Democratic Candidates Only

Model	Jurisdiction	Election	Year	Contest	Candidate	Spanish-surname?	Candidate Party	Estimate of Hispanic Voter Support	Conf. Interval	Estimate of non-Hispanic White Voter Support	Conf. Interval
rx	Statewide	General	2020	President	Biden	No	Dem	70.54	(63.91 to 75.35)	29.01	(27.22 to 33.35)
rx	Statewide	General	2020	Governor	Inslee	No	Dem	67.87	(60.3 to 71.73)	25.26	(23.5 to 30.16)
rx	Statewide	General	2020	Attorney General	Ferguson	No	Dem	72.77	(71.09 to 74.76)	25.38	(24.79 to 25.97)
rx	Statewide	General	2020	Treasurer	Pellicciotti	No	Dem	70.51	(68.72 to 72.08)	21.18	(20.59 to 21.76)
rx	Statewide	General	2018	US Senate	Cantwell	No	Dem	72.97	(69.79 to 76.03)	26.05	(25.32 to 26.82)
rx	CD 4	General	2018	D-4 US Rep	Brown	No	Dem	68.29	(64.88 to 71.36)	25.47	(24.79 to 26.22)
rx	Statewide	General	2016	President	Clinton	No	Dem	73.05	(70.15 to 75.34)	22.52	(21.74 to 23.28)
ei	Statewide	General	2016	Governor	Inslee	No	Dem	75.19	(72.34 to 77.96)	26.77	(26.06 to 27.52)
ei	Statewide	General	2016	US Senate	Murray	No	Dem	79.27	(76.37 to 82.07)	31.59	(30.86 to 32.42)
					General Election Average			72.27		25.91	
ei	LD 13	Primary	2020	LD-13 St House Pos 1	Castaneda	Yes	Dem	57.05	(48.92 to 64.99)	10.16	(8.54 to 11.74)
ei	LD13 (Grant)	General	2020	LD13 Pos 1 (Grant)	Castaneda	Yes	Dem	74.62	(70.38 to 79.43)	12.84	(11.21 to 14.86)
ei	Franklin	General	2020	Franklin D2	Peralta	Yes	Dem	88.12	(86.19 to 90.06)	13.51	(11.91 to 14.87)
ei	Yakima	General	2018	Yakima D3	Soto Palmer	Yes	Dem	82.95	(80.1 to 85.83)	23.42	(23.35 to 23.53)
rx	LD 15	General	2018	LD 15 State Senate	Aguilar	Yes	Dem	77.82	(73.3 to 82.03)	18.2	(15.96 to 20.63)
ei	LD14 (Yakima)	General	2016	LD14 Pos 1 (Yak)	Sotopalmer	Yes	Dem	87.82	(85.05 to 89.9)	16.44	(15.52 to 17.08)
rx	LD 15	General	2014	LD 15 State Senate	Munoz	Yes	Dem	65.97	(60.79 to 70.79)	13.35	(11.57 to 15.63)
rx	LD 15	General	2014	LD 15 State Rep	Martinez Chavez	Yes	Dem	67.49	(64.89 to 70.3)	14.66	(13.64 to 15.61)
?	LD 15	General	2012	LD 15 State Rep	Gonzales	Yes	Dem	89.05	(87.77 to 90.35)	15.39	(14.52 to 16.2)
rx	LD 15	Primary	2012	LD-15 Rep Pos 2	Gonzales	Yes	Dem	75.97	(63.79 to 83.89)	15.94	(14.03 to 17.93)
					General Election Average			79.23		15.98	
					Difference between Spanish Surname and non-Spanish Surname Averages			6.96		-9.94	

Table 6 below reproduces Prof. Collingwood's RxC estimates for the remaining four elections with Spanish-surname candidates included in his Figures 5 and 6 (pages 17-18 of the August 3, 2022 report). This includes three non-partisan contests (where the political party preference of the candidates was not indicated on the ballot), as well as the one partisan contest where party was indicated on the ballot, but both candidates shared the same party (Republican). These

contests provide additional insight into the role of candidate ethnicity in voting behavior, as the role of candidate party is minimized.

The results indicate that absent a party cue on the ballot, Hispanic voters continue to show moderately cohesive support for candidates, with an average support of 73 percent, only six percentage points below their average support for Democratic Spanish surname candidates (79%).

In contrast, the behavior of non-Hispanic Whites is noticeably different here. The average support provided by non-Hispanic White voters to Hispanic candidates in these contests is 43 percent, a level well above the average 15 percent support for Democratic Hispanic candidates that we see in the two-party partisan contests in Table 2. In two of the four contests the votes of non-Hispanic Whites are clearly not cohesive, splitting essentially 50/50 between the Hispanic candidate and the Anglo candidate, something never even approached in partisan contested election in Table 2. Prof. Collingwood seems to agree, as he treats these two contests as ones in which Racially Polarized Voting is not present.⁷ In the other two contests Anglo voters provide support for the Hispanic candidate in the mid-thirty percent range, well above the average 15 percent support for Democratic Hispanic candidates that we in the two-party partisan contests in Table 2. Also note that according to the performance analysis that Prof. Collingwood reports in his Figure 11 (page 25), the preferred candidate of Spanish-surname voters, Montoya-Lewis, would have won the 2020 State Supreme Court Place 3 contest within the boundaries of enacted Legislative District 15, as would presumably both Espinoza and Gonzalez. Thus, at a minimum, the preferred candidate of Spanish-surname voters would have prevailed in enacted Legislative District 15 in three of these four contests. Likewise, the average 57 percent support provided by non-Hispanic White voters to Hispanic

⁷ These are the two statewide contests that Prof. Collingwood is referring to as contests he excluded from his Figure 11 performance analysis because “RPV is not present” (footnote 14 on page 19).

candidates in these contests is too low, even at a very minimal 60% threshold, to qualify as cohesive opposition to the Hispanic preferred candidates in these elections.

Table 6: Collingwood EI Results – Non-Party Contested Only

Model	Jurisdiction	Election	Year	Contest	Candidate	Spanish-surname?	Candidate Party	Estimate of Hispanic Voter Support	Conf. Interval	Estimate of non-Hispanic White Voter Support	Conf. Interval
ei	Statewide	General	2020	State Sup. Ct. 3	Larson	No	NP	26.01	(24.21 to 27.77)	65.49	(65.02 to 66.01)
ei	Statewide	General	2020	State Sup. Ct. 3	Montoya-Lewis	Yes	NP	73.82	(72.25 to 75.21)	34.21	(33.76 to 34.81)
ei	Statewide	General	2020	Sup Pub. Inst.	Reykdal	No	NP	32.08	(31.35 to 32.71)	49.82	(49.26 to 50.2)
ei	Statewide	General	2020	Sup Pub. Inst.	Espinoza	Yes	NP	67.82	(67.15 to 68.5)	49.57	(49.32 to 49.79)
ei	Statewide	General	2018	State Sup. Ct. 8	Choi	No	NP	24.38	(22.65 to 26.31)	48.99	(48.46 to 49.52)
ei	Statewide	General	2018	State Sup. Ct. 8	Gonzalez	Yes	NP	75.42	(73.82 to 77.69)	50.97	(50.54 to 51.48)
ei	Yakima	General	2016	Yakima D2	Anderson	No	Rep	26.23	(24.76 to 27.31)	62.35	(61.52 to 62.99)
ei	Yakima	General	2016	Yakima D2	Manjarrez	Yes	Rep	73.78	(72.3 to 75.3)	37.62	(36.98 to 38.17)
					Spanish-surname Candidate Average			72.71		43.09	

Performance Analysis

Table 7 below reproduces in Table format the performance analysis results provided by Dr. Collingwood in his Figure 11 (page 25 of his August 3, 2022 report). Based on the data he provides, enacted Legislative District 15 is clearly a highly competitive district. The preferred candidate of Spanish-surnamed voters prevails in three of the ten contests, and two others are very close. Shifting less than a percentage point of the votes would reverse the result in both the 2016 Governor's contest and the 2020 Attorney General's contest. This indicates that enacted Legislative District 15 is a highly competitive district that can elect Hispanic candidates of choices, but that tilts slightly Republican overall, and will likely elect a Republican more often than a Democrat. However, the margin is small, and suggests that a very modest shift in the Democrat makeup of the district—including, potentially, through continued growth of the Hispanic population in the district—could

result in a district that would be expected to elect the Hispanic candidate of choice as often as not. In contrast, the three alternative demonstration districts are much less competitive and tilt decidedly Democratic (especially Alternatives 1 and 2). All move well beyond a district that is as likely as not to elect the Hispanic candidate of choice (the Democrat), as these are districts that based on Prof. Collingwood's performance analysis would be expected to always (10 out of 10 for Alternatives 1 and 2) or almost always (9 out of 10 for alternative 3) elect a Democrat.

Table 7: Collingwood Performance Analysis

Year	Contest	Candidate	Party	LD 15	Margin	Atl 1	Margin	Alt 2	Margin	Alt 3	Margin
2020	Treasurer	Pellicciotti	Dem	46.7	-6.6	56	12.1	56.5	13	52.5	5.1
2020	Treasurer	Davidson	Rep	53.3		43.9		43.5		47.4	
2020	State Sup. Ct. 3	Montoya	NP	51.1	2.5	58.4	17	58.2	16.6	55.1	10.4
2020	State Sup. Ct. 3	Larson	NP	48.6		41.4		41.6		44.7	
2020	President	Biden	Dem	48.9	0.2	57.9	19.3	58.5	19.4	54.6	11.7
2020	President	Trump	Rep	48.7		38.6		39.1		42.9	
2020	Governor	Inslee	Dem	47.3	-5.1	56.4	13.1	57	14.2	53	6.2
2020	Governor	Culp	Rep	52.4		43.3		42.8		46.8	
2020	Attorney General	Ferguson	Dem	49.4	-1.1	58.6	17.3	59	18.1	55.2	10.6
2020	Attorney General	Larkin	Rep	50.5		41.3		40.9		44.6	
2018	US Senate	Cantwell	Dem	46.4	-7.2	55.7	11.4	56.1	12.2	51.3	2.6
2018	US Senate	Hutchinson	Rep	53.6		44.3		43.9		48.7	
2018	D-4 US Rep	Brown	Dem	44.3	-11.4	55	10	54.1	8.2	49.2	-1.6
2018	D-4 US Rep	Newhouse	Rep	55.7		45		45.9		50.8	
2016	US Senate	Murray	Dem	53.8	7.6	62.7	25.4	62.9	25.8	58.8	17.6
2016	US Senate	Vance	Rep	46.2		37.3		37.1		41.2	
2016	President	Clinton	Dem	46.3	-1.7	55	15.6	55.7	17	51.3	8.2
2016	President	Trump	Rep	48		39.4		38.7		43.1	
2016	Governor	Inslee	Dem	49.8	-0.4	58.7	17.4	58.8	17.6	55.1	10.2
2016	Governor	Bryant	Rep	50.2		41.3		41.2		44.9	
			Average Margin		-2.32		15.86		16.21		8.1

Summary Conclusions

As noted above, there does not seem to be any dispute as to *Gingles* 1. Both the enacted and demonstrative districts are majority adult citizen Hispanic. For *Gingles* 2, the level of Spanish-surname voter cohesion is stable in the 70 percent range across election types, suggesting consistent

moderate cohesion. For *Gingles* 3, the picture is more mixed. In partisan contested elections non-Hispanic White voters demonstrate cohesive opposition to Democratic candidates, and their opposition is modestly elevated when those Democratic candidates are also Hispanic. However, in contests without a party cue, non-Hispanic White voters do not exhibit cohesive opposition to Hispanic candidates, and these contests do not exhibit ethnically polarized voting. Finally, the performance evaluation performed by Prof. Collingwood indicates that candidates preferred by Hispanic voters can prevail in enacted Legislative District 15, albeit not as often as they would fail to be elected. Given the highly competitive partisan balance in the election contests it seems likely that a very modest change could shift the district to one equally likely to elect the Hispanic candidate of choice.

November 2, 2022

A handwritten signature in black ink, appearing to read 'John R. Alford', is written over a horizontal line.

John R. Alford, Ph.D.

Appendix 1

CV

John R. Alford

Curriculum Vitae

November 2022

Dept. of Political Science
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Employment:

Professor, Rice University, 2015 to present.
Associate Professor, Rice University, 1985-2015.
Assistant Professor, University of Georgia, 1981-1985.
Instructor, Oakland University, 1980-1981.
Teaching-Research Fellow, University of Iowa, 1977-1980.
Research Associate, Institute for Urban Studies, Houston, Texas, 1976-1977.

Education:

Ph.D., University of Iowa, Political Science, 1981.
M.A., University of Iowa, Political Science, 1980.
M.P.A., University of Houston, Public Administration, 1977.
B.S., University of Houston, Political Science, 1975.

Books:

Predisposed: Liberals, Conservatives, and the Biology of Political Differences. New York: Routledge, 2013. Co-authors, John R. Hibbing and Kevin B. Smith.

Articles:

“Political Orientations Vary with Detection of Androstenone,” with Amanda Friesen, Michael Gruszczynski, and Kevin B. Smith. **Politics and the Life Sciences**. (Spring, 2020).

“Intuitive ethics and political orientations: Testing moral foundations as a theory of political ideology.” with Kevin Smith, John Hibbing, Nicholas Martin, and Peter Hatemi. **American Journal of Political Science**. (April, 2017).

“The Genetic and Environmental Foundations of Political, Psychological, Social, and Economic Behaviors: A Panel Study of Twins and Families.” with Peter Hatemi, Kevin Smith, and John Hibbing. **Twin Research and Human Genetics**. (May, 2015.)

“Liberals and conservatives: Non-convertible currencies.” with John R. Hibbing and Kevin B. Smith. **Behavioral and Brain Sciences** (January, 2015).

“Non-Political Images Evoke Neural Predictors Of Political Ideology.” with Woo-Young Ahn, Kenneth T. Kishida, Xiaosi Gu, Terry Lohrenz, Ann Harvey, Kevin Smith, Gideon Yaffe, John Hibbing, Peter Dayan, P. Read Montague. **Current Biology**. (November, 2014).

“Cortisol and Politics: Variance in Voting Behavior is Predicted by Baseline Cortisol Levels.” with Jeffrey French, Kevin Smith, Adam Guck, Andrew Birnie, and John Hibbing. **Physiology & Behavior**. (June, 2014).

“Differences in Negativity Bias Underlie Variations in Political Ideology.” with Kevin B. Smith and John R. Hibbing. **Behavioral and Brain Sciences**. (June, 2014).

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“Biology, Ideology, and Epistemology: How Do We Know Political Attitudes Are Inherited and Why Should We Care?” with Kevin Smith, Peter K. Hatemi, Lindon J. Eaves, Carolyn Funk, and John R. Hibbing. **American Journal of Political Science**. (January, 2012)

“Disgust Sensitivity and the Neurophysiology of Left-Right Political Orientations.” with Kevin Smith, John Hibbing, Douglas Oxley, and Matthew Hibbing, **PlosONE**, (October, 2011).

“Linking Genetics and Political Attitudes: Re-Conceptualizing Political Ideology.” with Kevin Smith, John Hibbing, Douglas Oxley, and Matthew Hibbing, **Political Psychology**, (June, 2011).

“The Politics of Mate Choice.” with Peter Hatemi, John R. Hibbing, Nicholas Martin and Lindon Eaves, **Journal of Politics**, (March, 2011).

“Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs” with Peter Hatemi, John Hibbing, Sarah Medland, Matthew Keller, Kevin Smith, Nicholas Martin, and Lindon Eaves, **American Journal of Political Science**, (July, 2010).

“The Ultimate Source of Political Opinions: Genes and the Environment” with John R. Hibbing in **Understanding Public Opinion**, 3rd Edition eds. Barbara Norrander and Clyde Wilcox, Washington D.C.: CQ Press, (2010).

“Is There a ‘Party’ in your Genes” with Peter Hatemi, John R. Hibbing, Nicholas Martin and Lindon Eaves, **Political Research Quarterly**, (September, 2009).

“Twin Studies, Molecular Genetics, Politics, and Tolerance: A Response to Beckwith and Morris” with John R. Hibbing and Cary Funk, **Perspectives on Politics**, (December, 2008). This is a solicited response to a critique of our 2005 APSR article “Are Political Orientations Genetically Transmitted?”

“Political Attitudes Vary with Physiological Traits” with Douglas R. Oxley, Kevin B. Smith, Matthew V. Hibbing, Jennifer L. Miller, Mario Scalora, Peter K. Hatemi, and John R. Hibbing, **Science**, (September 19, 2008).

“The New Empirical Biopolitics” with John R. Hibbing, **Annual Review of Political Science**, (June, 2008).

“Beyond Liberals and Conservatives to Political Genotypes and Phenotypes” with John R. Hibbing and Cary Funk, **Perspectives on Politics**, (June, 2008). This is a solicited response to a critique of our 2005 APSR article “Are Political Orientations Genetically Transmitted?”

"Personal, Interpersonal, and Political Temperaments" with John R. Hibbing, **Annals of the American Academy of Political and Social Science**, (November, 2007).

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"Biology and Rational Choice" with John R. Hibbing, **The Political Economist**, (Fall, 2005)

"Are Political Orientations Genetically Transmitted?" with John R. Hibbing and Carolyn Funk, **American Political Science Review**, (May, 2005). (The main findings table from this article has been reprinted in two college level text books - Psychology, 9th ed. and Invitation to Psychology 4th ed. both by Wade and Tavis, Prentice Hall, 2007).

"The Origin of Politics: An Evolutionary Theory of Political Behavior" with John R. Hibbing, **Perspectives on Politics**, (December, 2004).

"Accepting Authoritative Decisions: Humans as Wary Cooperators" with John R. Hibbing, **American Journal of Political Science**, (January, 2004).

"Electoral Convergence of the Two Houses of Congress" with John R. Hibbing, in **The Exceptional Senate**, ed. Bruce Oppenheimer, Columbus: Ohio State University Press, (2002).

"We're All in this Together: The Decline of Trust in Government, 1958-1996." in **What is it About Government that Americans Dislike?**, eds. John Hibbing and Beth Theiss-Morse, Cambridge: Cambridge University Press, (2001).

"The 2000 Census and the New Redistricting," **Texas State Bar Association School Law Section Newsletter**, (July, 2000).

"Overdraft: The Political Cost of Congressional Malfeasance" with Holly Teeters, Dan Ward, and Rick Wilson, **Journal of Politics** (August, 1994).

"Personal and Partisan Advantage in U.S. Congressional Elections, 1846-1990" with David W. Brady, in **Congress Reconsidered** 5th edition, eds. Larry Dodd and Bruce Oppenheimer, CQ Press, (1993).

"The 1990 Congressional Election Results and the Fallacy that They Embodied an Anti-Incumbent Mood" with John R. Hibbing, **PS** 25 (June, 1992).

"Constituency Population and Representation in the United States Senate" with John R. Hibbing. **Legislative Studies Quarterly**, (November, 1990).

"Editors' Introduction: Electing the U.S. Senate" with Bruce I. Oppenheimer. **Legislative Studies Quarterly**, (November, 1990).

"Personal and Partisan Advantage in U.S. Congressional Elections, 1846-1990" with David W. Brady, in **Congress Reconsidered** 4th edition, eds. Larry Dodd and Bruce Oppenheimer, CQ Press, (1988). Reprinted in *The Congress of the United States, 1789-1989*, ed. Joel Silby, Carlson Publishing Inc., (1991), and in *The Quest for Office*, eds. Wayne and Wilcox, St. Martins Press, (1991).

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"Economic Conditions and Individual Vote in the Federal Republic of Germany" with Jerome S. Legge. **Journal of Politics** (November, 1984).

"Television Markets and Congressional Elections" with James Campbell and Keith Henry. **Legislative Studies Quarterly** (November, 1984).

"Economic Conditions and the Forgotten Side of Congress: A Foray into U.S. Senate Elections" with John R. Hibbing, **British Journal of Political Science** (October, 1982).

"Increased Incumbency Advantage in the House" with John R. Hibbing, **Journal of Politics** (November, 1981). Reprinted in *The Congress of the United States, 1789-1989*, Carlson Publishing Inc., (1991).

"The Electoral Impact of Economic Conditions: Who is Held Responsible?" with John R. Hibbing, **American Journal of Political Science** (August, 1981).

"Comment on Increased Incumbency Advantage" with John R. Hibbing, Refereed communication: **American Political Science Review** (March, 1981).

"Can Government Regulate Safety? The Coal Mine Example" with Michael Lewis-Beck, **American Political Science Review** (September, 1980).

Awards and Honors:

CQ Press Award - 1988, honoring the outstanding paper in legislative politics presented at the 1987 Annual Meeting of the American Political Science Association. Awarded for "The Demise of the Upper House and the Rise of the Senate: Electoral Responsiveness in the United States Senate" with John Hibbing.

Research Grants:

National Science Foundation, 2009-2011, "Identifying the Biological Influences on Political Temperaments", with John Hibbing, Kevin Smith, Kim Espy, Nicolas Martin and Read Montague. This is a collaborative project involving Rice, University of Nebraska, Baylor College of Medicine, and Queensland Institute for Medical Research.

National Science Foundation, 2007-2010, "Genes and Politics: Providing the Necessary Data", with John Hibbing, Kevin Smith, and Lindon Eaves. This is a collaborative project involving Rice, University of Nebraska, Virginia Commonwealth University, and the University of Minnesota.

National Science Foundation, 2007-2010, "Investigating the Genetic Basis of Economic Behavior", with John Hibbing and Kevin Smith. This is a collaborative project involving Rice, University of Nebraska, Virginia Commonwealth University, and the Queensland Institute of Medical Research.

Rice University Faculty Initiatives Fund, 2007-2009, “The Biological Substrates of Political Behavior”. This is in assistance of a collaborative project involving Rice, Baylor College of Medicine, Queensland Institute of Medical Research, University of Nebraska, Virginia Commonwealth University, and the University of Minnesota.

National Science Foundation, 2004-2006, “Decision-Making on Behalf of Others”, with John Hibbing. This is a collaborative project involving Rice and the University of Nebraska.

National Science Foundation, 2001-2002, dissertation grant for Kevin Arceneaux, "Doctoral Dissertation Research in Political Science: Voting Behavior in the Context of U.S. Federalism."

National Science Foundation, 2000-2001, dissertation grant for Stacy Ulbig, "Doctoral Dissertation Research in Political Science: Sub-national Contextual Influences on Political Trust."

National Science Foundation, 1999-2000, dissertation grant for Richard Engstrom, "Doctoral Dissertation Research in Political Science: Electoral District Structure and Political Behavior."

Rice University Research Grant, 1985, Recent Trends in British Parliamentary Elections.

Faculty Research Grants Program, University of Georgia, Summer, 1982. Impact of Media Structure on Congressional Elections, with James Campbell.

Papers Presented:

“The Physiological Basis of Political Temperaments” 6th European Consortium for Political Research General Conference, Reykjavik, Iceland (2011), with Kevin Smith, and John Hibbing.

“Identifying the Biological Influences on Political Temperaments” National Science Foundation Annual Human Social Dynamics Meeting (2010), with John Hibbing, Kimberly Espy, Nicholas Martin, Read Montague, and Kevin B. Smith.

“Political Orientations May Be Related to Detection of the Odor of Androstenone” Annual meeting of the Midwest Political Science Association, Chicago, IL (2010), with Kevin Smith, Amanda Balzer, Michael Gruszczynski, Carly M. Jacobs, and John Hibbing.

“Toward a Modern View of Political Man: Genetic and Environmental Transmission of Political Orientations from Attitude Intensity to Political Participation” Annual meeting of the American Political Science Association, Washington, DC (2010), with Carolyn Funk, Kevin Smith, and John Hibbing.

“Genetic and Environmental Transmission of Political Involvement from Attitude Intensity to Political Participation” Annual meeting of the International Society for Political Psychology, San Francisco, CA (2010), with Carolyn Funk, Kevin Smith, and John Hibbing.

“Are Violations of the EEA Relevant to Political Attitudes and Behaviors?” Annual meeting of the Midwest Political Science Association, Chicago, IL (2010), with Kevin Smith, and John Hibbing.

“The Neural Basis of Representation” Annual meeting of the American Political Science Association, Toronto, Canada (2009), with John Hibbing.

“Genetic and Environmental Transmission of Value Orientations” Annual meeting of the American Political Science Association, Toronto, Canada (2009), with Carolyn Funk, Kevin Smith, Matthew Hibbing, Pete Hatemi, Robert Krueger, Lindon Eaves, and John Hibbing.

“The Genetic Heritability of Political Orientations: A New Twin Study of Political Attitudes” Annual Meeting of the International Society for Political Psychology, Dublin, Ireland (2009), with John Hibbing, Cary Funk, Kevin Smith, and Peter K Hatemi.

“The Heritability of Value Orientations” Annual meeting of the Behavior Genetics Association, Minneapolis, MN (2009), with Kevin Smith, John Hibbing, Carolyn Funk, Robert Krueger, Peter Hatemi, and Lindon Eaves.

“The Ick Factor: Disgust Sensitivity as a Predictor of Political Attitudes” Annual meeting of the Midwest Political Science Association, Chicago, IL (2009), with Kevin Smith, Douglas Oxley Matthew Hibbing, and John Hibbing.

“The Ideological Animal: The Origins and Implications of Ideology” Annual meeting of the American Political Science Association, Boston, MA (2008), with Kevin Smith, Matthew Hibbing, Douglas Oxley, and John Hibbing.

“The Physiological Differences of Liberals and Conservatives” Annual meeting of the Midwest Political Science Association, Chicago, IL (2008), with Kevin Smith, Douglas Oxley, and John Hibbing.

“Looking for Political Genes: The Influence of Serotonin on Political and Social Values” Annual meeting of the Midwest Political Science Association, Chicago, IL (2008), with Peter Hatemi, Sarah Medland, John Hibbing, and Nicholas Martin.

“Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs” Annual meeting of the American Political Science Association, Chicago, IL (2007), with Peter Hatemi, John Hibbing, Matthew Keller, Nicholas Martin, Sarah Medland, and Lindon Eaves.

“Factorial Association: A generalization of the Fulker between-within model to the multivariate case” Annual meeting of the Behavior Genetics Association, Amsterdam, The Netherlands (2007), with Sarah Medland, Peter Hatemi, John Hibbing, William Coventry, Nicholas Martin, and Michael Neale.

“Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs” Annual meeting of the Midwest Political Science Association, Chicago, IL (2007), with Peter Hatemi, John Hibbing, Nicholas Martin, and Lindon Eaves.

“Getting from Genes to Politics: The Connecting Role of Emotion-Reading Capability” Annual Meeting of the International Society for Political Psychology, Portland, OR, (2007.), with John Hibbing.

“The Neurological Basis of Representative Democracy.” Hendricks Conference on Political Behavior, Lincoln, NE (2006), with John Hibbing.

“The Neural Basis of Representative Democracy” Annual meeting of the American Political Science Association, Philadelphia, PA (2006), with John Hibbing.

“How are Political Orientations Genetically Transmitted? A Research Agenda” Annual meeting of the Midwest Political Science Association, Chicago Illinois (2006), with John Hibbing.

"The Politics of Mate Choice" Annual meeting of the Southern Political Science Association, Atlanta, GA (2006), with John Hibbing.

"The Challenge Evolutionary Biology Poses for Rational Choice" Annual meeting of the American Political Science Association, Washington, DC (2005), with John Hibbing and Kevin Smith.

"Decision Making on Behalf of Others" Annual meeting of the American Political Science Association, Washington, DC (2005), with John Hibbing.

"The Source of Political Attitudes and Behavior: Assessing Genetic and Environmental Contributions" Annual meeting of the Midwest Political Science Association, Chicago Illinois (2005), with John Hibbing and Carolyn Funk.

"The Source of Political Attitudes and Behavior: Assessing Genetic and Environmental Contributions" Annual meeting of the American Political Science Association, Chicago Illinois (2004), with John Hibbing and Carolyn Funk.

"Accepting Authoritative Decisions: Humans as Wary Cooperators" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (2002), with John Hibbing

"Can We Trust the NES Trust Measure?" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (2001), with Stacy Ulbig.

"The Impact of Organizational Structure on the Production of Social Capital Among Group Members" Annual Meeting of the Southern Political Science Association, Atlanta, Georgia (2000), with Allison Rinden.

"Isolating the Origins of Incumbency Advantage: An Analysis of House Primaries, 1956-1998" Annual Meeting of the Southern Political Science Association, Atlanta, Georgia (2000), with Kevin Arceneaux.

"The Electorally Indistinct Senate," Norman Thomas Conference on Senate Exceptionalism, Vanderbilt University; Nashville, Tennessee; October (1999), with John R. Hibbing.

"Interest Group Participation and Social Capital" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (1999), with Allison Rinden.

"We're All in this Together: The Decline of Trust in Government, 1958-1996." The Hendricks Symposium, University of Nebraska, Lincoln. (1998)

"Constituency Population and Representation in the United States Senate," Electing the Senate; Houston, Texas; December (1989), with John R. Hibbing.

"The Disparate Electoral Security of House and Senate Incumbents," American Political Science Association Annual Meetings; Atlanta, Georgia; September (1989), with John R. Hibbing.

"Partisan and Incumbent Advantage in House Elections," Annual Meeting of the Southern Political Science Association (1987), with David W. Brady.

"Personal and Party Advantage in U.S. House Elections, 1846-1986" with David W. Brady, 1987 Social Science History Association Meetings.

"The Demise of the Upper House and the Rise of the Senate: Electoral Responsiveness in the United States Senate" with John Hibbing, 1987 Annual Meeting of the American Political Science Association.

"A Comparative Analysis of Economic Voting" with Jerome Legge, 1985 Annual Meeting of the American Political Science Association.

"An Analysis of Economic Conditions and the Individual Vote in Great Britain, 1964-1979" with Jerome Legge, 1985 Annual Meeting of the Western Political Science Association.

"Can Government Regulate Fertility? An Assessment of Pro-natalist Policy in Eastern Europe" with Jerome Legge, 1985 Annual Meeting of the Southwestern Social Science Association.

"Economic Conditions and the Individual Vote in the Federal Republic of Germany" with Jerome S. Legge, 1984 Annual Meeting of the Southern Political Science Association.

"The Conditions Required for Economic Issue Voting" with John R. Hibbing, 1984 Annual Meeting of the Midwest Political Science Association.

"Incumbency Advantage in Senate Elections," 1983 Annual Meeting of the Midwest Political Science Association.

"Television Markets and Congressional Elections: The Impact of Market/District Congruence" with James Campbell and Keith Henry, 1982 Annual Meeting of the Southern Political Science Association.

"Economic Conditions and Senate Elections" with John R. Hibbing, 1982 Annual Meeting of the Midwest Political Science Association. "Pocketbook Voting: Economic Conditions and Individual Level Voting," 1982 Annual Meeting of the American Political Science Association.

"Increased Incumbency Advantage in the House," with John R. Hibbing, 1981 Annual Meeting of the Midwest Political Science Association.

Other Conference Participation:

Roundtable Participant – Closing Round-table on Biopolitics; 2016 UC Merced Conference on Bio-Politics and Political Psychology, Merced, CA.

Roundtable Participant "Genes, Brains, and Core Political Orientations" 2008 Annual Meeting of the Southwestern Political Science Association, Las Vegas.

Roundtable Participant "Politics in the Laboratory" 2007 Annual Meeting of the Southern Political Science Association, New Orleans.

Short Course Lecturer, "What Neuroscience has to Offer Political Science" 2006 Annual Meeting of the American Political Science Association.

Panel chair and discussant, "Neuro-scientific Advances in the Study of Political Science" 2006 Annual Meeting of the American Political Science Association.

Presentation, “The Twin Study Approach to Assessing Genetic Influences on Political Behavior” Rice Conference on New Methods for Understanding Political Behavior, 2005.

Panel discussant, "The Political Consequences of Redistricting," 2002 Annual Meeting of the American Political Science Association.

Panel discussant, "Race and Redistricting," 1999 Annual Meeting of the Midwest Political Science Association.

Invited participant, “Roundtable on Public Dissatisfaction with American Political Institutions”, 1998 Annual Meeting of the Southwestern Social Science Association.

Presentation, “Redistricting in the ‘90s,” Texas Economic and Demographic Association, 1997.

Panel chair, "Congressional Elections," 1992 Annual Meeting of the Southern Political Science Association.

Panel discussant, "Incumbency and Congressional Elections," 1992 Annual Meeting of the American Political Science Association.

Panel chair, "Issues in Legislative Elections," 1991 Annual Meeting of the Midwest Political Science Association.

Panel chair, "Economic Attitudes and Public Policy in Europe," 1990 Annual Meeting of the Southern Political Science Association

Panel discussant, “Retrospective Voting in U.S. Elections,” 1990 Annual Meeting of the Midwest Political Science Association.

Co-convener, with Bruce Oppenheimer, of Electing the Senate, a national conference on the NES 1988 Senate Election Study. Funded by the Rice Institute for Policy Analysis, the University of Houston Center for Public Policy, and the National Science Foundation, Houston, Texas, December, 1989.

Invited participant, Understanding Congress: A Bicentennial Research Conference, Washington, D.C., February, 1989.

Invited participant--Hendricks Symposium on the United States Senate, University of Nebraska, Lincoln, Nebraska, October, 1988

Invited participant--Conference on the History of Congress, Stanford University, Stanford, California, June, 1988.

Invited participant, “Roundtable on Partisan Realignment in the 1980's”, 1987 Annual Meeting of the Southern Political Science Association.

Professional Activities:

Other Universities:

Invited Speaker, Annual Lecture, Psi Kappa -the Psychology Club at Houston Community College, 2018.

Invited Speaker, Annual Allman Family Lecture, Dedman College Interdisciplinary Institute, Southern Methodist University, 2016.

Invited Speaker, Annual Lecture, Psi Sigma Alpha – Political Science Dept., Oklahoma State University, 2015.

Invited Lecturer, Department of Political Science, Vanderbilt University, 2014.

Invited Speaker, Annual Lecture, Psi Kappa -the Psychology Club at Houston Community College, 2014.

Invited Speaker, Graduate Student Colloquium, Department of Political Science, University of New Mexico, 2013.

Invited Keynote Speaker, Political Science Alumni Evening, University of Houston, 2013.

Invited Lecturer, Biology and Politics Masters Seminar (John Geer and David Bader), Department of Political Science and Biology Department, Vanderbilt University, 2010.

Invited Lecturer, Biology and Politics Senior Seminar (John Geer and David Bader), Department of Political Science and Biology Department, Vanderbilt University, 2008.

Visiting Fellow, the Hoover Institution, Stanford University, 2007.

Invited Speaker, Joint Political Psychology Graduate Seminar, University of Minnesota, 2007.

Invited Speaker, Department of Political Science, Vanderbilt University, 2006.

Member:

Editorial Board, Journal of Politics, 2007-2008.

Planning Committee for the National Election Studies' Senate Election Study, 1990-92.

Nominations Committee, Social Science History Association, 1988

Reviewer for:

American Journal of Political Science

American Political Science Review

American Politics Research

American Politics Quarterly

American Psychologist

American Sociological Review

Canadian Journal of Political Science

Comparative Politics

Electoral Studies

Evolution and Human Behavior

International Studies Quarterly

Journal of Politics
Journal of Urban Affairs
Legislative Studies Quarterly
National Science Foundation
PLoS ONE
Policy Studies Review
Political Behavior
Political Communication
Political Psychology
Political Research Quarterly
Public Opinion Quarterly
Science
Security Studies
Social Forces
Social Science Quarterly
Western Political Quarterly

University Service:

Member, University Senate, 2021-2023.

Member, University Parking Committee, 2016-2022.

Member, University Benefits Committee, 2013-2016.

Internship Director for the Department of Political Science, 2004-2018.

Member, University Council, 2012-2013.

Invited Speaker, Rice Classroom Connect, 2016.

Invited Speaker, Glasscock School, 2016.

Invited Speaker, Rice Alumni Association, Austin, 2016.

Invited Speaker, Rice Alumni Association, New York City, 2016.

Invited Speaker, Rice TEDxRiceU , 2013.

Invited Speaker, Rice Alumni Association, Atlanta, 2011.

Lecturer, Advanced Topics in AP Psychology, Rice University AP Summer Institute, 2009.

Scientia Lecture Series: “Politics in Our Genes: The Biology of Ideology” 2008

Invited Speaker, Rice Alumni Association, Seattle, San Francisco and Los Angeles, 2008.

Invited Speaker, Rice Alumni Association, Austin, Chicago and Washington, DC, 2006.

Invited Speaker, Rice Alumni Association, Dallas and New York, 2005.

Director: Rice University Behavioral Research Lab and Social Science Computing Lab, 2005-2006.

University Official Representative to the Inter-university Consortium for Political and Social Research, 1989-2012.

Director: Rice University Social Science Computing Lab, 1989-2004.

Member, Rice University Information Technology Access and Security Committee, 2001-2002

Rice University Committee on Computers, Member, 1988-1992, 1995-1996; Chair, 1996-1998, Co-chair, 1999.

Acting Chairman, Rice Institute for Policy Analysis, 1991-1992.

Divisional Member of the John W. Gardner Dissertation Award Selection Committee, 1998

Social Science Representative to the Educational Sub-committee of the Computer Planning Committee, 1989-1990.

Director of Graduate Admissions, Department of Political Science, Rice University, 1986-1988.

Co-director, Mellon Workshop: Southern Politics, May, 1988.

Guest Lecturer, Mellon Workshop: The U.S. Congress in Historical Perspective, May, 1987 and 1988.

Faculty Associate, Hanszen College, Rice University, 1987-1990.

Director, Political Data Analysis Center, University of Georgia, 1982-1985.

External Consulting:

Expert Witness, LULAC, et al. v. Abbott, et al., Voto Latino, et al. v. Scott, et al., Mexican American Legislative Caucus, et al. v. Texas, et al., Texas NAACP v. Abbott, et al., Fair Maps Texas, et al. v. Abbott, et al., US v. Texas, et al. (consolidated cases) challenges to Texas Congressional, State Senate, State House, and State Board of Education districting, 2022.

Expert Witness, Robinson/Galmon v. Ardoyn, (Louisiana), racially polarized voting analysis, 2022.

Expert Witness, Christian Ministerial Alliance et al v. Arkansas, racially polarized voting analysis, 2022.

Expert Witness, Johnson v. Wisconsin Elections Commission, 2022.

Expert Witness, Rivera, et al. v. Schwab, Alonzo, et al. v. Schwab, Frick, et al. v. Schwab, (consolidated cases) challenge to Kansas congressional map, 2022.

Expert Witness, Grant v. Raffensperger, challenge to Georgia congressional map, 2022

Expert Witness, Brooks et al. v. Abbot, challenge to State Senate District 10, 2022.

Expert Witness, Elizondo v. Spring Branch ISD, 2022.

Expert Witness, Portugal v. Franklin County, et al., challenge to Franklin County, Washington at large County Commissioner's election system, 2022.

Consulting Expert, Gressman Math/Science Petitioners, Pennsylvania Congressional redistricting, 2022.

Consultant, Houston Community College – evaluation of election impact for redrawing of college board election districts, 2022.

Consultant, Lone Star College – evaluation of election impact for redrawing of college board election districts, 2022.

Consultant, Killeen ISD – evaluation of election impact for redrawing of school board election districts, 2022.

Consultant, Houston ISD – evaluation of election impact for redrawing of school board election districts, 2022.

Consultant, Brazosport ISD – evaluation of election impact for redrawing of school board election districts, 2022.

Consultant, Dallas ISD – evaluation of election impact for redrawing of school board election districts, 2022.

Consultant, Lancaster ISD – redrawing of all school board member election districts including demographic analysis and redrawing of election districts, 2021.

Consultant, City of Baytown – redrawing of all city council member election districts including demographic analysis and redrawing of election districts, 2021.

Consultant, Goose Creek ISD – redrawing of all board member election districts including demographic analysis and redrawing of election districts, 2021.

Expert Witness, Bruni et al. v. State of Texas, straight ticket voting analysis, 2020.

Consulting Expert, Sarasota County, VRA challenge to district map, 2020.

Expert Witness, Kumar v. Frisco ISD, TX, racially polarized voting analysis, 2019.

Expert Witness, Vaughan v. Lewisville ISD, TX, racially polarized voting analysis, 2019.

Expert Witness, Johnson v. Ardoyn, (Louisiana), racially polarized voting analysis, 2019.

Expert Witness, Flores et al. v. Town of Islip, NY, racially polarized voting analysis, 2018.

Expert Witness, Tyson v. Richardson ISD, racially polarized voting analysis, 2018.

Expert Witness, Dwight v. State of Georgia, racially polarized voting analysis, 2018.

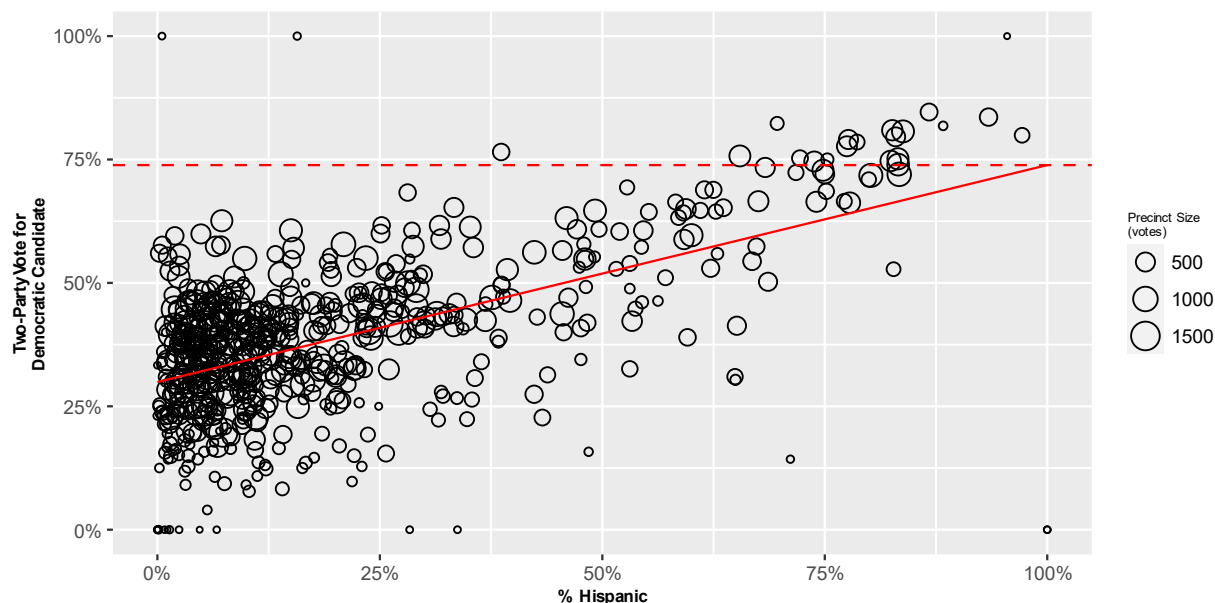
Expert Witness, NAACP v. East Ramapo Central School District, racially polarized voting analysis, 2018.

Expert Witness, Georgia NAACP v. State of Georgia, racially polarized voting analysis, 2018.

Appendix 2

Detailed Replication Results for 2020 Contests

2020 General Election: President



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Dem	Biden	76.7%	73.7%	79.4%	32.7%	32.0%	33.3%
Rep	Trump	23.3%	20.6%	26.3%	67.3%	66.7%	68.0%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Dem	Biden	84.4%	80.4%	88.0%	35.4%	34.6%	36.2%
Rep	Trump	15.6%	12.0%	19.6%	64.6%	63.8%	65.4%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Dem	Biden	72.1%	69.5%	74.6%	26.7%	26.0%	27.5%
Rep	Trump	27.9%	25.4%	30.5%	73.3%	72.5%	74.0%

Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic White Support for Candidate	Low 95% CI	High 95% CI
Dem	Biden	76.4%	73.9%	78.6%	25.7%	25.1%	26.2%
Rep	Trump	21.4%	19.5%	23.4%	70.9%	70.1%	71.4%

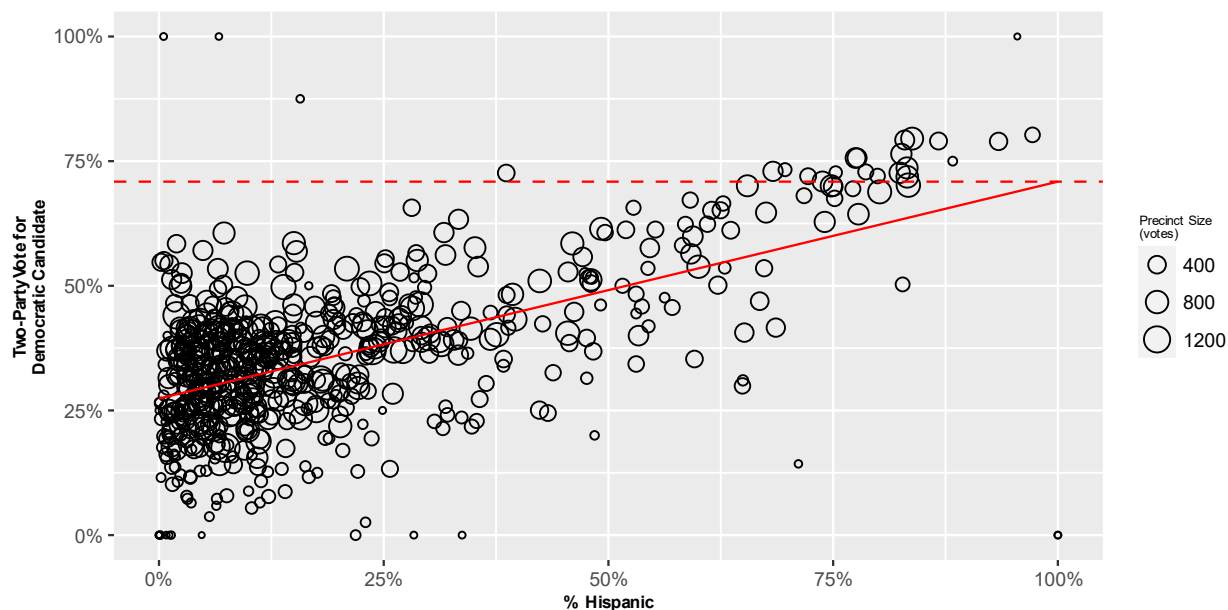
*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Collingwood Ecological Inference Estimates of Voter Support (rxc*)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic White Support for Candidate	Low 95% CI	High 95% CI
Dem	Biden	70.5%	63.9%	75.4%	29.0%	27.2%	33.4%
Rep	Trump	29.5%	24.7%	36.1%	71.0%	66.7%	72.8%

*These results were reported under the label “rxc,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

2020 General Election: Governor



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Inslee	73.5%	70.40%	76.43%	29.75%	29.05%	30.47%
Rep	Culp	26.5%	23.57%	29.60%	70.25%	69.53%	70.95%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Inslee	78.8%	73.9%	83.2%	32.7%	31.9%	33.5%
Rep	Culp	21.2%	16.8%	26.1%	67.3%	66.5%	68.1%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Inslee	68.6%	66.0%	71.2%	23.6%	22.8%	24.4%
Rep	Culp	31.4%	28.8%	34.0%	76.4%	75.6%	77.2%

Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Inslee	74.5%	72.2%	76.6%	23.8%	23.0%	24.8%
Rep	Culp	25.2%	22.7%	27.5%	75.8%	74.8%	76.7%

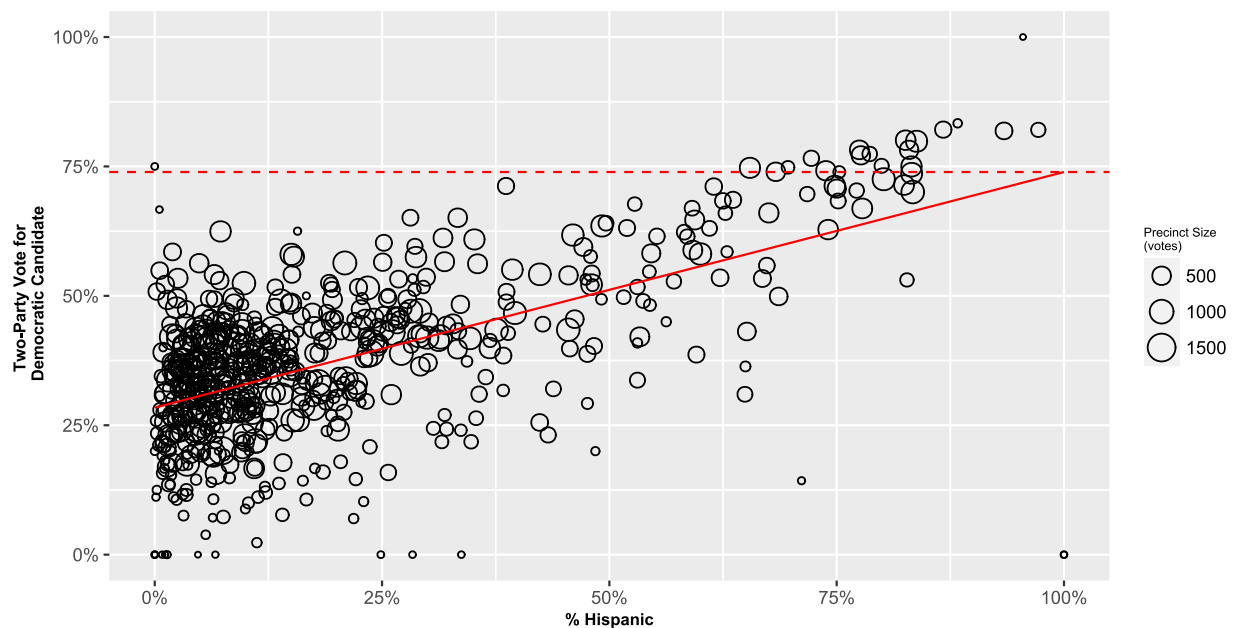
*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Collingwood Ecological Inference Estimates of Voter Support (rxc*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Inslee	67.9%	60.3%	71.7%	25.3%	23.5%	30.2%
Rep	Culp	32.1%	28.3%	39.7%	74.7%	69.8%	76.5%

*These results were reported under the label “rxc,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

2020 General Election: Attorney General



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Ferguson	76.5%	73.69%	79.17%	31.04%	30.40%	31.70%
Rep	Larkin	23.5%	20.83%	26.31%	68.96%	68.30%	69.60%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Ferguson	81.5%	76.9%	85.7%	34.2%	33.4%	35.1%
Rep	Larkin	18.5%	14.3%	23.1%	65.8%	64.9%	66.6%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Ferguson	71.9%	69.4%	74.6%	24.9%	24.2%	25.7%
Rep	Larkin	28.1%	25.4%	30.6%	75.1%	74.3%	75.8%

Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic White Support for Candidate	Low 95% CI	High 95% CI
Dem	Ferguson	78.2%	76.0%	79.8%	24.8%	24.1%	25.5%
Rep	Larkin	21.8%	20.1%	24.2%	75.1%	74.4%	75.8%

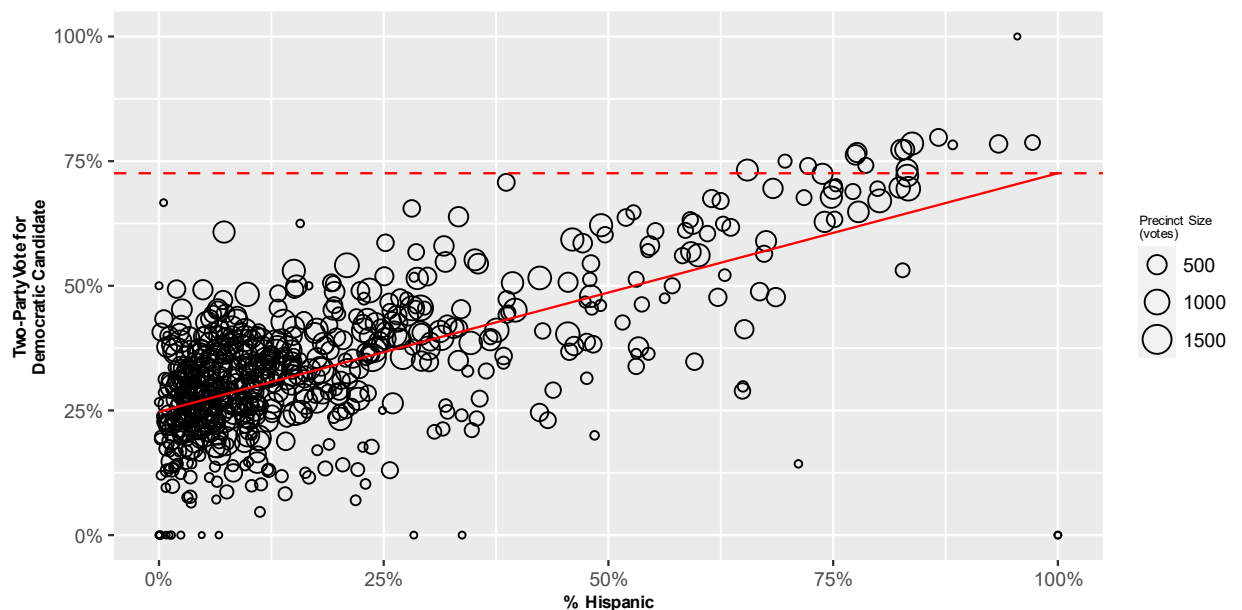
*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Collingwood Ecological Inference Estimates of Voter Support (rxc*)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic White Support for Candidate	Low 95% CI	High 95% CI
Dem	Ferguson	72.8%	71.1%	74.8%	25.4%	24.8%	26%
Rep	Larkin	27.2%	25.2%	28.9%	74.6%	74.0%	75.2%

*These results were reported under the label “rxc,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

2020 General Election: Treasurer



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Pellicciotti	75.0%	72.2%	77.8%	27.1%	26.4%	27.8%
Rep	Davidson	25.0%	22.2%	27.8%	72.9%	72.2%	73.6%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Pellicciotti	82.6%	78.1%	86.4%	30.1%	29.3%	31.0%
Rep	Davidson	17.4%	13.6%	21.9%	69.9%	69.0%	70.7%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Pellicciotti	70.1%	67.7%	72.5%	20.8%	20.0%	21.5%
Rep	Davidson	29.9%	27.5%	32.3%	79.2%	78.5%	80.0%

Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Pellicciotti	76.5%	74.4%	77.9%	20.9%	20.2%	21.7%
Rep	Davidson	23.5%	21.7%	25.0%	79.1%	78.6%	79.8%

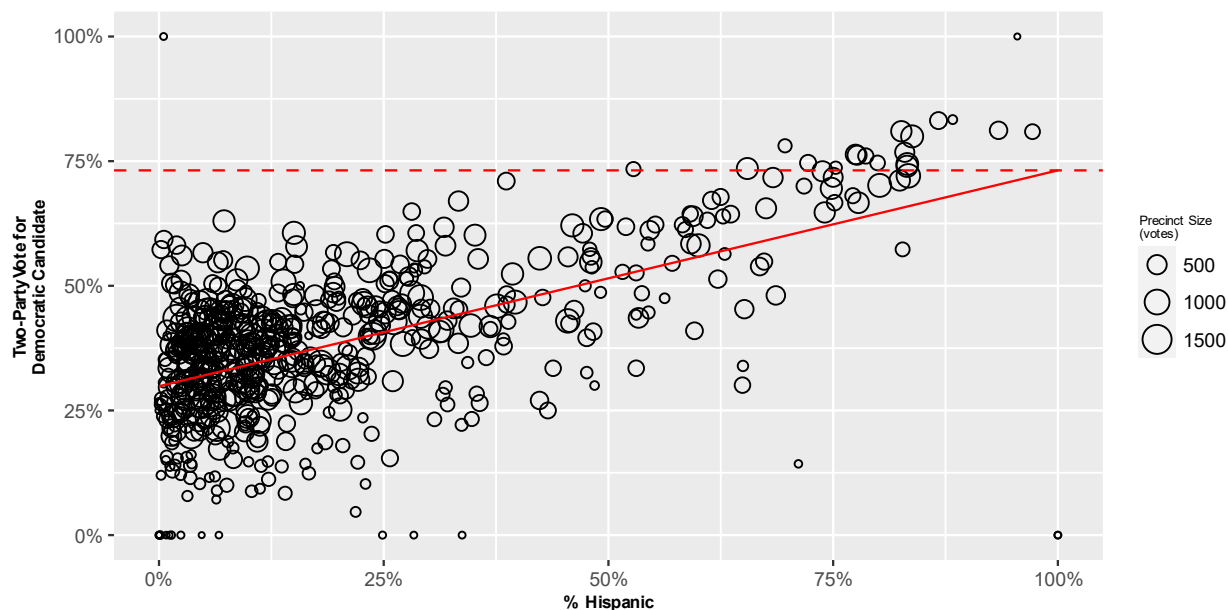
*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Collingwood Ecological Inference Estimates of Voter Support (rxc*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Pellicciotti	70.5%	68.7%	72.1%	21.2%	20.6%	21.8%
Rep	Davidson	29.5%	27.9%	31.3%	78.8%	78.2%	79.4%

*These results were reported under the label “rxc,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

2020 General Election: State Auditor



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI	High 95% CI
Dem	McCarthy	75.5%	72.4%	78.3%	32.7%	32.1%	33.5%
Rep	Leyba	24.5%	21.7%	27.6%	67.3%	66.5%	67.9%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI	High 95% CI
Dem	McCarthy	82.6%	77.6%	86.5%	35.6%	34.8%	36.4%
Rep	Leyba	17.4%	13.5%	22.4%	64.4%	63.6%	65.2%

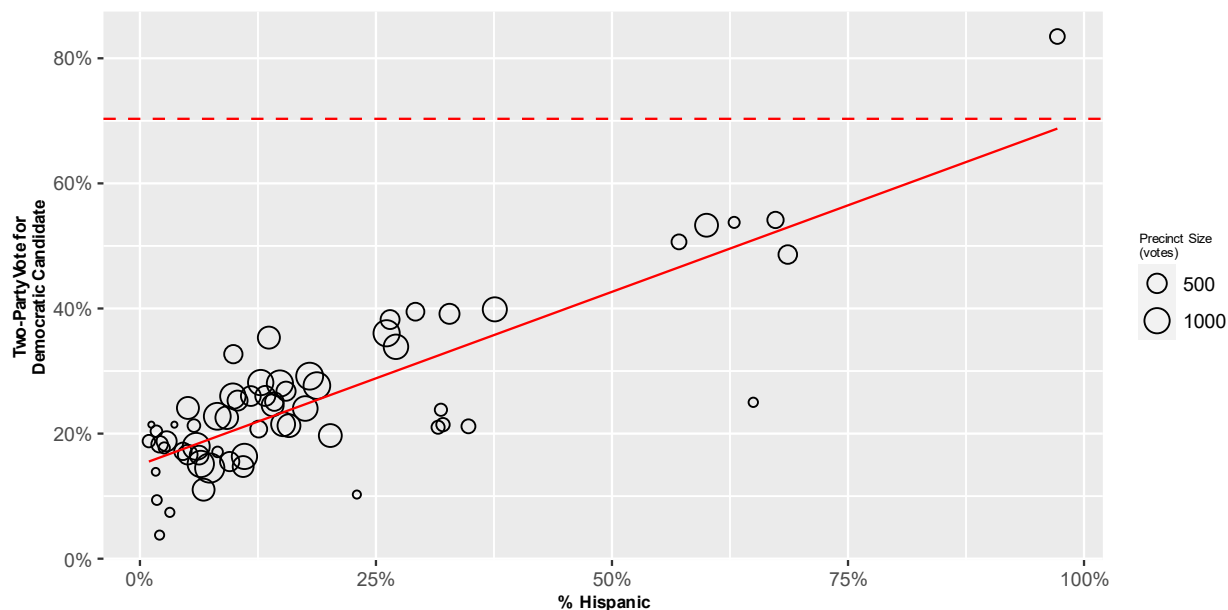
Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	McCarthy	70.9%	68.3%	73.3%	26.7%	26.0%	27.5%
Rep	Leyba	29.1%	26.7%	31.7%	73.3%	72.5%	74.0%

Note: Collingwood did not provide estimates for this contest

2020 General Election: LD13 Pos 1



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI		High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI		High 95% CI
Dem	Castaneda	70.4%	59.8%		80.1%	16.7%	14.6%		19.0%
Rep	Dent	29.6%	19.9%		40.2%	83.3%	81.0%		85.4%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI		High 95% CI	Non-Hispanic Support for Candidate	Low 95% CI		High 95% CI
Dem	Castaneda	74.7%	54.9%		89.8%	18.3%	14.8%		21.6%
Rep	Dent	25.3%	10.2%		45.1%	81.7%	78.4%		85.2%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI		High 95% CI	White Support for Candidate	Low 95% CI		High 95% CI
Dem	Castaneda	71.2%	60.6%		80.9%	12.4%	9.7%		15.7%
Rep	Dent	28.8%	19.1%		39.4%	87.6%	84.3%		90.3%

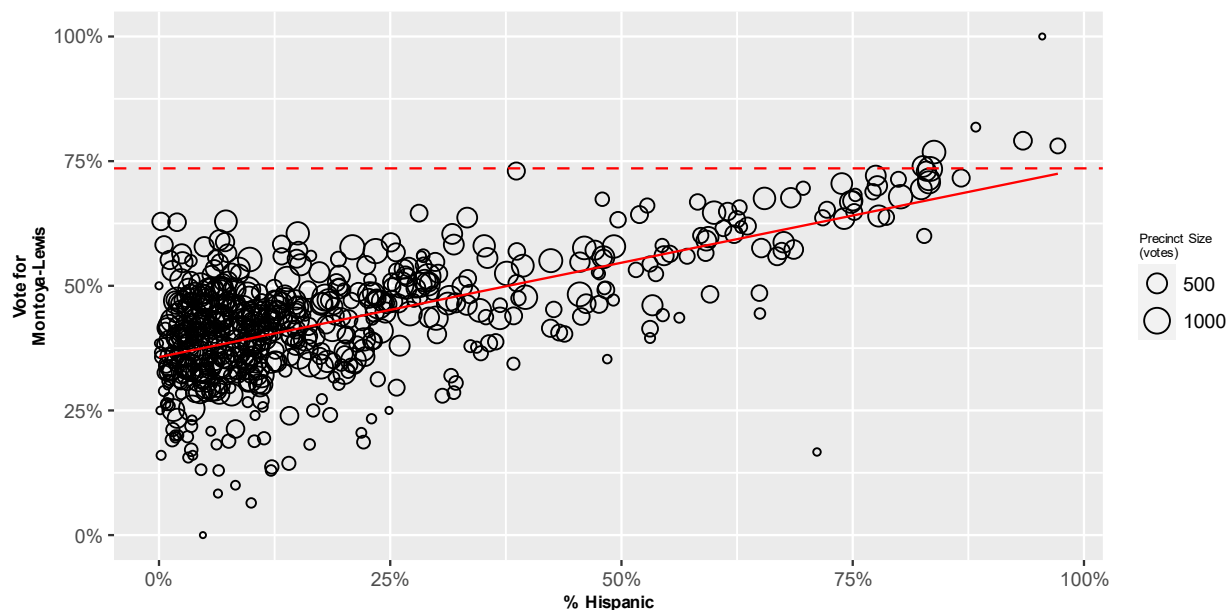
Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	Support for Candidate	Low 95% CI	High 95% CI
Dem	Castaneda	74.6%	70.4%	79.4%	12.8%	11.2%	14.9%
Rep	Dent	26.3%	21.2%	31.3%	87.2%	85.3%	88.9%

*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Note that Collingwood did not report “rxc” results for this contest

2020 General Election: State Supreme Court, Seat 3



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Non-Partisan	Montoya-Lewis	73.5%	71.3%	75.9%	38.2%	37.6%	38.7%
Non-Partisan	Larson	26.5%	24.1%	28.7%	61.8%	61.3%	62.4%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Non-Partisan	Montoya-Lewis	82.3%	77.7%	86.5%	40.1%	39.4%	40.9%
Non-Partisan	Larson	17.7%	13.5%	22.3%	59.9%	59.1%	60.6%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
		Candidate	Low 95% CI	High 95% CI	Candidate	Low 95% CI	High 95% CI
Non-Partisan	Montoya-Lewis	69.4%	67.1%	71.7%	33.0%	32.3%	33.8%
Non-Partisan	Larson	30.6%	28.3%	32.9%	67.0%	66.2%	67.7%

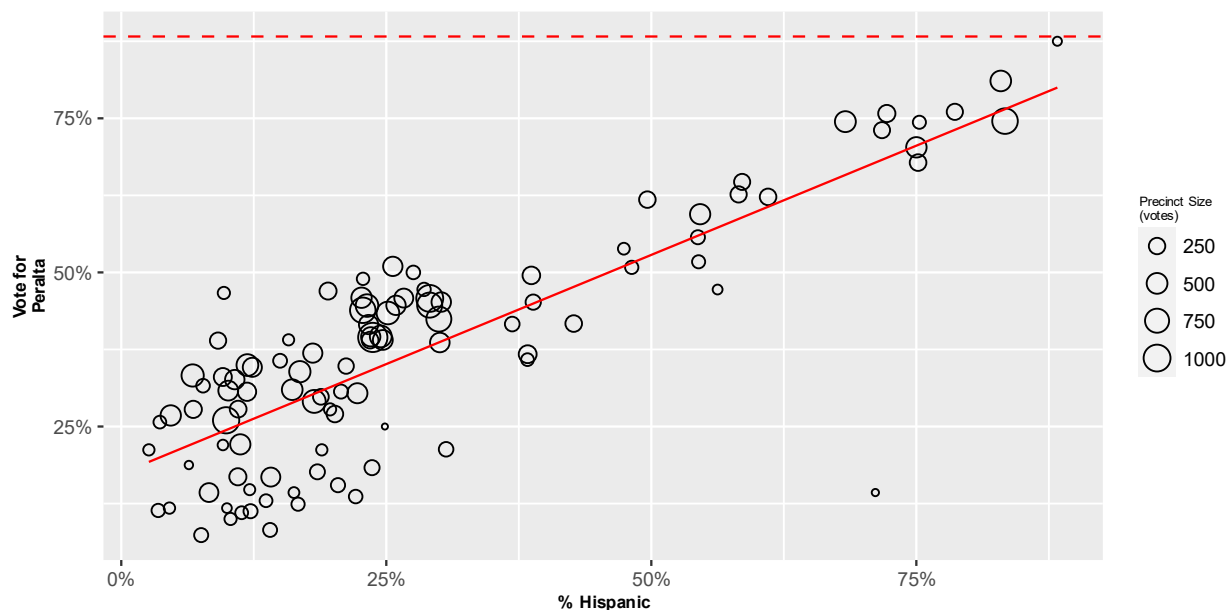
Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic White		
		Support for Candidate	Low 95% CI	High 95% CI	Support for Candidate	Low 95% CI	High 95% CI
Non-Partisan	Montoya-Lewis	73.8%	72.3%	75.2%	34.2%	33.8%	34.8%
Non-Partisan	Larson	26.0%	24.2%	27.8%	65.5%	65.0%	66.0%

*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Note that Collingwood did not report “rxc” results for this contest

2020 General Election: Franklin County Comm., D2



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Mullen	11.5%	7.1%	16.8%	78.3%	76.1%	80.1%
Non-Partisan	Peralta	88.5%	83.2%	92.9%	21.7%	19.9%	23.9%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Mullen	18.2%	10.2%	28.7%	65.9%	63.4%	68.8%
Non-Partisan	Peralta	81.8%	71.3%	89.8%	34.1%	31.2%	36.6%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Mullen	17.5%	12.7%	22.6%	85.4%	82.6%	87.7%
Non-Partisan	Peralta	82.5%	77.4%	87.3%	14.6%	12.3%	17.4%

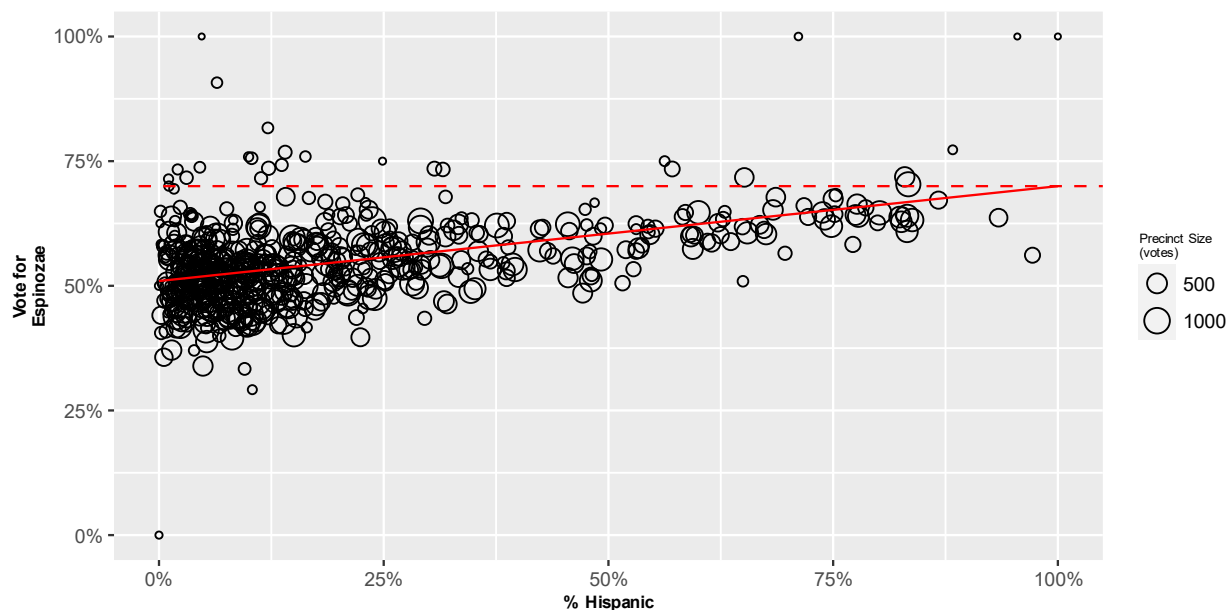
Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	Support for Candidate	Low 95% CI	High 95% CI
Non-Partisan	Mullen	11.9%	9.4%	14.5%	86.3%	84.3%	87.8%
Non-Partisan	Peralta	88.1%	86.2%	90.1%	13.5%	11.9%	14.9%

*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Note that Collingwood did not report “rxc” results for this contest

2020 General Election: Superintendent of Public Instruction



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Espinoza	67.6%	65.53%	69.59%	49.97%	49.46%	50.48%
Non-Partisan	Reykdal	32.4%	30.41%	34.47%	50.03%	49.52%	50.54%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Espinoza	78.2%	72.5%	83.1%	50.2%	49.6%	51.0%
Non-Partisan	Reykdal	21.8%	16.9%	27.5%	49.8%	49.0%	50.4%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			White Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Non-Partisan	Espinoza	68.8%	66.7%	71.0%	51.3%	50.4%	52.3%
Non-Partisan	Reykdal	31.2%	29.0%	33.3%	48.7%	47.7%	49.6%

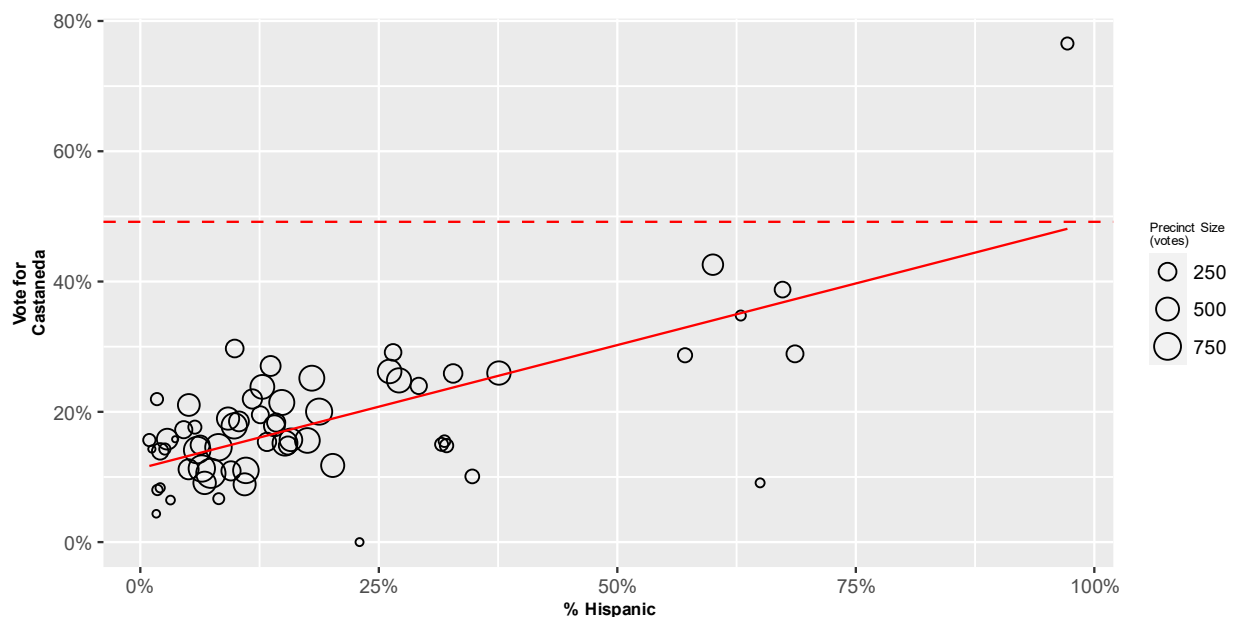
Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic			Non-Hispanic		
		Support for Candidate	Low 95% CI	High 95% CI	Support for Candidate	Low 95% CI	High 95% CI
Non-Partisan	Espinoza	67.8%	67.2%	68.5%	49.6%	49.3%	49.8%
Non-Partisan	Reykdal	32.1%	31.4%	32.7%	49.8%	49.3%	50.2%

*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results.

Note that Collingwood did not report “rxc” results for this contest

2020 Primary Election: LD13 Pos 1



- Red line is the regression line
- Red dotted line is the Goodman Regression (ER) estimate of Hispanic Support for the Democratic candidate in a hypothetical precinct that was 100% Hispanic.

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (BISG)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Castaneda	45.3%	35.65%	54.85%	13.23%	11.26%	15.20%
Dem	Malan	9.7%	5.53%	13.60%	1.73%	0.96%	2.58%
Rep	Dent	45.0%	35.56%	55.00%	85.04%	83.01%	86.98%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)

Hispanic/Non-Hispanic Voters (VAP)

Party	Candidate	Hispanic Support for Candidate			Non-Hispanic Support for Candidate		
			Low 95% CI	High 95% CI		Low 95% CI	High 95% CI
Dem	Castaneda	52.3%	33.1%	69.9%	14.6%	11.9%	16.9%
Dem	Malan	13.2%	7.0%	20.8%	1.9%	1.2%	2.6%
Rep	Dent	34.5%	16.5%	55.9%	83.5%	81.1%	86.2%

Alford Ecological Inference Estimates of Voter Support (Multinomial Dirichlet Model)
Hispanic/White/Other Voters (BISG)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Castaneda	46.0%	36.2%	55.2%	10.4%	8.0%	12.9%
Dem	Malan	6.7%	3.9%	9.9%	0.8%	0.5%	1.2%
Rep	Dent	47.2%	38.0%	57.1%	88.8%	86.3%	91.2%

Collingwood Ecological Inference Estimates of Voter Support (ei*)

Party	Candidate	Hispanic Support for Candidate	Low 95% CI	High 95% CI	White Support for Candidate	Low 95% CI	High 95% CI
Dem	Castaneda	57.0%	48.9%	65.0%	10.2%	8.5%	11.7%
Dem	Malan	-	-	-	-	-	-
Rep	Dent	36.2%	27.3%	46.3%	83.4%	81.3%	85.0%

*These results were reported under the label “ei,” but the report is not clear on the exact statistical model this refers to and plaintiffs declined to provide the code used to produce the results. Collingwood did not report results for Malan.