

Zoraida RIOS-ANDINO, Ney Rivera Garcia, Jasmine Guadalupe, Rosario Martinez, Plaintiffs, v.  
ORANGE COUNTY, Defendant.

No. 6:12-cv-1188-Orl-22KRS.  
United States District Court, M.D. Florida,  
Orlando Division.

Date of Report: March 1, 2013.

Expert: Matthew A. Barreto

## **I. Objectives**

1. I have been retained by Plaintiffs to do the following:

a) determine whether the redistricting plan put forth in 2011 for the Orange County Commission reduces or dilutes Latino  
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voting strength in Commissioner District 3; and,

b) assess whether elections in Orange County, Florida are characterized by racially polarized voting with respect to Latino candidates and voters, specifically, do Latino residents of Orange County vote as a cohesive political group, and do non-Latinos bloc vote against Latino-preferred candidates.

## **II. Expert Credentials**

2. I am currently an Associate Professor of Political Science and Director of the Washington Institute for the Study of Ethnicity, Race & Sexuality (WISER) at the University of Washington, Seattle. I am also an affiliated faculty member of the Center for Statistics and the Social Sciences (CSSS) at the University of Washington and an adjunct Associate Professor of Law in the University of Washington School of Law. At the University of Washington, I teach courses on the Voting Rights Act, Latino Politics, Electoral Politics, Public Opinion, Immigration, and Introduction to Statistical Analysis, and Advanced Statistical Analysis for Ph.D. students.

3. I completed a Ph.D. in Political Science, with an emphasis on racial and ethnic politics in the United States, political behavior, and public opinion at the University of California, Irvine in 2005, where Professor Bernard Grofman, a well-known expert in voting rights research, served as my principal dissertation advisor.

4. I am also a principal and co-founder of the research and polling firm, Latino Decisions. Latino Decisions is an independent, non-partisan research organization that conducts public opinion surveys, primarily of Latino voters. In recent years, I have worked with clients such as Univision Television, ABC News, the Los Angeles Times, impreMedia, the National Association of Latino Elected and Appointed Officials (NALEO) and others in conducting polls of Latino voters. During the 2012 election, I was quoted regularly in news stories about Latino voting patterns including newspapers such as The New York Times, Wall Street Journal, The Washington Post, the Los Angeles Times, the Miami Herald, Politico, Huffington Post. I also appeared as an independent analyst to discuss the Latino vote on news outlets such as National Public Radio, CNN, MSNBC, NBC, CBS, ABC, FOX and many local outlets.

5. Beyond this, I have conducted extensive research on polarized voting and the statistical methodology of ecological inference in contests with Latino candidates across the United States, serving as an expert consultant, expert witness, and as an academic researcher since 1999.

6. Most recently, in 2012, I was qualified as an expert witness in *Rodriguez v. Harris County*,<sup>2</sup> a Section 2 lawsuit regarding County Commission redistricting, where I provided a report and testimony on vote dilution and racially polarized voting with respect to Latino candidates. Also in 2012, I testified as an expert witness in the Pennsylvania voter identification lawsuit *Applewhite v. Commonwealth of Pennsylvania*.<sup>3</sup> Further, in 2011, I was retained as the lead expert consultant for the State of California's Citizen Redistricting Commission, and was specifically asked to advise the Commission on Section 2 and Section 5 of the Federal Voting Rights Act and conduct research on polarized voting and vote dilution. Serving in this capacity throughout the 2011 redistricting cycle in California, I provided internal memos and regularly briefed the members of the California Redistricting Commission and their counsel. After the redistricting maps were complete, I served as expert consultant in various lawsuits against the State, all of which the California Redistricting Commission won.

7. My first book, *Ethnic Cues*, takes up the direct question of racial bloc voting in elections with Latino candidates. I have published more than 40 academic journal articles and book chapters on the topics of Latino voting behavior, polarized voting, public opinion, racial and ethnic politics, and electoral politics.

8. My full Curriculum Vitae, which details my academic appointments, full list of published books and articles, and expert consulting work, is included as Appendix B. In addition, Mr. Sergio Garcia-Rios, who holds a Master's degree in Political Science from the University of Texas, El Paso, and is currently pursuing a Ph.D. in Political Science at the University of Washington, assisted me in compiling the data and creating tables for this report. I was paid an hourly consulting rate of \$250 per hour for my work on this project.

### **III. Overview of Report**

9. As part of the effort to evaluate Latino electoral opportunities, it is imperative to examine whether Latino voting strength has been diluted or diminished. This report examines the change in the Latino population in each of the County Commissioner districts in Orange County, Florida to determine if the new district boundaries in 2011 increased or decreased Latino voting strength, especially in Commissioner District 3, historically held by a Latino candidate.

10. In addition to assessing vote dilution through population change, this report examines whether evidence of racially polarized voting exists in Orange County, Florida that makes it difficult for Latino candidates to win office. In this particular study, I looked at the degree of racially polarized voting within Orange County as a whole, as well as within specific county commissioner districts, and examined the support received by 37 different Latino candidates across 32 different non-partisan elections from 2000 to 2012 for local and county elections (a full description of these elections and candidates is found below in Table 4 at 9, and also in Appendix A at A-1). The focus of this inquiry is whether Latinos vote differently from non-Latinos, and whether bloc voting against Latino candidates is diluting their vote and systematically preventing them from winning office under the recent redistricting plan adopted by the County in 2011. I relied on six methods of analysis to assess racially polarized voting that I explain in more detail below (*see* Section V, Subsection D at 10). These methods are Pairwise Correlation, Homogenous Precinct Analysis, Goodman's Ecological Regression, Scatterplots, King's Ecological Inference, and Ecological Density Plots.

### **IV. Vote Dilution**

11. To assess changes in the Latino share of each district, I reviewed copies of the Orange County Board of County Commissioners final approved map and spreadsheets, which contained data on the total population, voting age population, and registered voter population by race and ethnicity. Data were obtained from Orange County as specified in Appendix C. I recompiled the data from Orange County and present it in summary tables below that show the percent of the population

that is Latino in each Commissioner District under the 2001 district boundaries and 2011 district boundaries. (*See* Tables 1-3, *infra* at 6.)

12. Despite an 83% increase in the total Latino population countywide from 2000 to 2010,<sup>4</sup> the redistricting effort in 2011 reduced Latino influence in Commissioner District 3 from 44.5% of the total population to 41.4% of the total population, as evidenced in Table 1. Overall, the Latino population share grew by 8.1 percentage points, or at a rate of 43.1% countywide from 2000 to 2010. Despite this robust growth, the County adopted a redistricting map that decreased the Latino population in District 3. In fact, District 3 witnessed the largest decrease in Latino population of any of the six commissioner districts. This trend is consistent when examining the voting age population (adults, age 18 and over) as well, as reported in Table 2 on page 6.

13. Further, the County redistricting plan reduces the share of registered Latino voters within the new Commissioner District 3 boundaries. Under the previous plan adopted in 2001, Commissioner District 3 was 34.1% Latino among registered voters. This share drops to 29.9% Latino under the new map, a decrease of more than 4 percentage points (*see* Table 3 at 6).

14. Because Commissioner District 3 was over-populated by more than 30,000 in 2011, some redistribution of the population was necessary to achieve an equal population distribution of approximately 191,000 residents in each of the districts to comply with one person, one vote standards. However, because District 3 grew primarily through an increase in its Latino population from 2000 to 2010, reducing the Latino population in District 3 was not necessary. In fact, plans were put forth that maintained or even grew the Latino population in District 3 that would not have resulted in vote dilution, including one of the final two plans (Public Proposal E<sup>6</sup>) submitted by the Redistricting Advisory Committee for consideration to the Board. Rather than maintain or grow the Latino population, the County approved a plan that fractured or cracked the Latino population, moving a large portion into the adjacent Commissioner District 4. While it was possible to adopt a map that created a majority-Latino district, the County ultimately approved a plan that shifted the large Latino population into two districts such that neither had a Latino population large enough to meaningfully influence election results.

15. The challenge to Latinos posed by the County's actions is evident when examining the competitive elections that have taken place in Commissioner District 3 since the 2001 redistricting effort. For example, in the first commissioner election under the 2001 approved boundaries, Hispanic candidate Mildred Fernandez narrowly defeated non-Hispanic candidate Liu Damiani in 2004, winning by fewer than 2 percentage points in the general election. Thus, a decrease in the share of Latino registered voters by over 4 percentage points in Commissioner District 3 in the 2011 map as compared to the 2001 map (*see* Table 3 at 6), represents a considerable challenge to the future viability of Latino candidates in Commissioner District 3, and is clear evidence of vote dilution. Put simply, using the 2011 map, which reduced the share of Latino registered voters to 29.9%, would have resulted in Mildred Fernandez losing the 2004 general election to Liu Damiani given that Fernandez won an estimated 95% of the Latino vote in 2004 general election according to King's Ecological Inference (*see* Table 5 at 15).

Table 1: Latino Population Change 2000 to 2010 by Commissioner District Percent of total population that is Latino in each district

TABLE

Table 2: Latino Voting Age Population Change 2000 to 2010 by Commissioner District Percent of total adult population that is Latino in each district

TABLE

Table 3: Percent Latino Among Registered Voters by Commissioner District Comparing current totals under 2001 and 2011

TABLE

## V. Racially Polarized Voting

16. Analysis of racially polarized voting is a key component of Section 2 challenges under the Voting Rights Act. Specifically, courts<sup>8</sup> have asked for evidence of minority political cohesiveness and white bloc voting against minority interests, which can be assessed through racially polarized voting analysis. Put simply, racially polarized voting occurs when minority and non-minority voters favor different candidates, or would have elected different candidates to office, when a minority candidate is running for office. In this specific instance, I compare Latino and non-Latino voters.

### A. Sources of Data

17. I have compiled data on the percent of all voters who are Latino, by precinct, and merged that with precinct-level vote choice from relevant election results. The Orange County Supervisor of Elections maintains a public database of recent election results at the precinct level, and also maintains a database of precinct demographics including race and ethnicity. All data used herein were obtained from the Orange County, Florida, Supervisor of Elections website<sup>9</sup> and all data used herein are publicly available and can be reproduced upon request.

18. For nearly all analyses performed, I used the precinct election results and the precinct racial/ethnic demographics from the corresponding election and year examined. For the year 2000, however, the County did not provide voter demographics on their website. Faced with this limitation, I merged the 2000 election data with voter demographics from 2002, the closest year for which data were available. If more data become available, I reserve the right to supplement this report with additional analysis. In this report, I examined election results from 2000 to 2010, the decade preceding the 2011 redistricting process, which contains the elections that are the most relevant for understanding current voting trends. These elections are the most representative of the current voting patterns in Orange County. In addition, I added an analysis of election results from 2012 to continue to assess racially polarized voting to date.

### B. Candidates Examined

19. Of the broad range of non-partisan elections in Orange County, I examined 32 elections that contained at least one Latino candidate running against at least one non-Latino candidate. In total, these 32 elections contained 37 Latino candidates for office (*see* Table 4 at 9; *see* also Appendix A at A-1). The ethnicity of candidates was determined by reviewing the names of candidates, and then confirming with news accounts, candidate statements and biographies. I focused on elections with a Latino versus a non-Latino candidate because political scientists overwhelmingly find that co-ethnic candidates (candidates of the same race/ethnicity as voters) are the leading candidates of choice for minority voters in non-partisan elections.<sup>10</sup>

20. A common finding in political science research is that Latino voters feel better represented by Latino candidates,<sup>11</sup> and that Latino voters are more likely to trust that the government is doing what is right and feel a sense of efficacy when they are represented by Latino officeholders.<sup>12</sup> Studies have also found higher levels of Latino involvement in politics and voting in districts with Latino representatives,<sup>13</sup> and that Latino representatives are more likely to support and advocate for issues with which their Latino constituents agree.<sup>14</sup> A list of all candidates analyzed can be found in Appendix A on page A-1.

Table 4: List of Elections Analyzed, Orange County, Florida 2000 - 2012

TABLE

### ***C. Elections Examined***

21. In this report, I examine 32 elections containing 37 candidates and assess the overall degree of polarized voting in Orange County, Florida. I focus on five types of non-partisan elections in Orange County. My first focus, and the jurisdiction in question here, is on elections for County Commissioner. These are considered *endogenous* elections because they represent the exact type of election in the plaintiff's lawsuit. That is, the lawsuit contends an unfair vote dilution in County Commissioner districts, thus elections concerning County Commissioner contests are the first focus and considered endogenous. Here, I examined the eight elections for Commissioner since the year 2000 in which nine Latino candidates ran for office.

22. Because the Commissioner elections are non-partisan, we can also learn much about voting patterns in Orange County by examining other non-partisan local and county elections. Because these elections are not the exact office in contention, they are considered *exogenous* elections; however, they remain very relevant and probative to our inquiry. Thus, I also considered non-partisan elections for School Board, Judicial office, Soil and Water Conservation Districts, and County Chairman. These elections are all quite similar to County Commissioner elections in that they are non-partisan and local. I examined five elections for School Board, eight elections for Court offices, ten elections for Soil and Water, and one election for County Chair. In total, I examined 24 exogenous, non-partisans elections from 2000 to 2012. Across this wide range of contests, it is possible to assess the extent to which Latinos may be considered a politically cohesive unit in Orange County and the extent to which non-Latinos bloc voted for or against Latino candidates. The full list of elections examined is detailed in Table 4 on page 9, and full list of candidates in Appendix A on page A-1.

### ***D. Racially Polarized Voting Methodology***

23. I undertook an analytic approach that allows for a reliable estimate of racially polarized voting using aggregate precinct data. To assess voting preferences, I employed a variety of statistical methods that make it possible to infer from aggregate level precinct information how individuals within given political sub-units have voted and how Latinos may have voted differently from non-Latinos.

24. In this particular report, I relied on six well-established methods that have been employed in previous redistricting matters and are all considered mainstream and highly reliable. For each of the elections, I ran the following six methods: Pairwise Correlation, Homogenous Precinct Analysis, Goodman's Weighted Ecological Regression, King's Ecological Inference Regression, and graphical plots of the regression results (Scatterplots and Density Plots).

#### ***1. Pairwise Correlation.***

25. I begin with the results of pairwise correlation comparing the degree to which the percent of the vote for the Latino candidate co-varies with the percent of all voters who are Latino, and returns a correlation coefficient between -1 and +1. Correlation analysis shows the degree to which two variables are linearly related to one another. To the extent that there is variation in each of the two variables - in this case percent Latino within a precinct and percent vote for a Latino candidate - the correlation will measure the degree to which both variables increase or decrease, and whether this movement happens in tandem, or not. Larger positive values indicate a strong degree of correlation between race and voting.

## 2. Homogenous Precinct Analysis

26. Next, I examined homogenous precincts (identified as T-test in Appendix A). Homogenous precincts are those that are the most alike within a dataset, according to the race or ethnicity of the voters. While the overall dataset may contain more than 200 precincts, during homogenous precinct analysis, the focus is on just the two tails of the distribution: those that have among the highest concentration of Latino voters and those that have the least amount of Latino voters. At the very least, this allows for a comparison of whether heavily Latino and heavily non-Latino parts of jurisdiction are voting differently. Statistically, I conduct a comparison of means t-test, a method to test whether two homogenous groupings of data have different means from one another. In this specific instance, I am comparing homogenous precincts that are low-density versus high-density Latino among the Orange County electorate.

## 3. Goodman's Ecological Regression.

27. The third approach to the issue of polarized voting uses ecological regression techniques made possible through the method of ecological analysis, which offers another methodological approach to overcoming ecological data problems (*see* Goodman 1953<sup>15</sup>). In this set of results, I provide estimates of polarization derived from Goodman's weighted ecological regression model. Because I have data on the proportion of voters in each precinct who are Latino, I can employ a simple single-equation strand of Goodman's regression to provide specific percentage point estimates of the Latino and non-Latino vote for each candidate. Weighting the regression by precinct size (the total number of voters in a precinct) provides an important correction and allows the results of the Goodman's regression to be more directly compared to King's ecological inference, which takes account of precinct size. While the correlation tells us the degree to which two variables are related, the regression allows us to estimate the specific amount of relationship between our two variables. That is, we want to know if the independent variable *percent Latino* causes the dependent variable *percent vote for Latino candidate* to move, and if so, by exactly how much.

28. The regression attempts to fit a linear relationship between the two variables and returns three important results (for a visual example, the scatter plot illustrates the regression line). First, the adjusted  $R^2$  tells us how much of the variance in vote choice is explained entirely by the racial characteristics of the precinct. This value will range between 0 and 1, and higher values indicate a better predictive model, suggesting race is quite salient. Second, we are interested in the coefficient for the constant (also called intercept). The constant tells us the starting point for our regression line, when the independent variable *percent Latino*, takes on a value of zero. Thus, the constant represents the predicted vote that non-Latinos gave to the Latino candidate. Third, the coefficient for *percent Latino* indicates how many percentage points higher or lower the Latino vote for the Latino candidate was. In essence, it represents the gap between Latinos and non-Latinos. Directly underneath the regression, I provide a table for aggregated vote estimates for Latinos and non-Latinos. These values can be compared favorably to the King's aggregate quantities of interest in the ecological inference.

## 4. Scatterplot with Regression Line.

29. After the Goodman's ecological regression, graphical plots are presented that detail how each precinct cast its ballots. The scatterplot takes every single precinct, depicted as a dot or circle, and graphs them on an X-Y axis to record the percent of the vote won by the Latino candidate (the vertical Y axis) and the percent of all voters who are Latino (the horizontal X axis). If the dots appear in total random fashion, scattered with no pattern, then we can conclude no relationship exists between ethnicity and voting. However, if the dots appear in a linear arrangement, it reveals a pattern of racially polarized voting. This allows the reader to easily determine whether differences exist between Latino and non-Latino precincts by comparing the left and right sides of the scatter plot. Further, by mapping out the vote results for all precincts, we can assess the consistency or inconsistency of the Latino vote, and whether any "outlier" precincts exist. Consistent differences between Latino and non-Latino voters in the levels of support demonstrated here augment similar findings that emerge through the correlations, homogenous precinct

t-tests and ecological regression and inference techniques. Within each scatterplot array, I also plot the regression fit line and 95% confidence interval for the vote choice estimates.

### **5. King's Ecological Inference.**

30. Building on the Goodman regression, Harvard Political Scientist Gary King developed a maximum likelihood estimator<sup>16</sup> to more accurately predict voter turnout and minority vote choice with aggregate-level precinct data. King's ecological inference has been recognized as the leading technique in creating precise point estimates for minority and white voters to examine polarized voting. Here, I employed the latest version of King's ecological inference software, adapted for the statistical software package R.<sup>17</sup> King's model takes all the precinct data for percent Latino, percent of the vote for Latino candidate, and size of the precinct, and relies on Bayesian statistics to run hundreds of iterations of the regression model, rather than just a single run in Goodman. Across these iterations, King's method finds the best statistical fit and reports these results under the aggregate quantities of interest. The mean coefficient listed for Bb (which stands for Beta B, where the "B" originally referred to "Black") provides the estimated vote that the minority group (here Latinos) gave to the minority candidate. In comparison, the mean coefficient listed for Bw (which stands for Beta W, where the "W" originally referred to "White") provides the estimated vote that the non-minority group (here non-Latinos) gave to the minority candidate. King's method also makes an important contribution in that it provides bounds on the estimates so that the estimated vote share is always between 0% and 100%.

### **6. Ecological Density Plots.**

31. The last technique employed is a second graphical presentation, this time of the King's ecological inference regression, in the form of density plots. Two density plots are reported that provide an approximate "Bell Curve," depicting exactly where the Latino and non-Latino vote are centered and the absolute range of the vote estimate. The density plots allow us to assess how politically cohesive Latino and non-Latino voters are by examining how tight (or skinny) each plot is or, in contrast, how wide each plot is. In this case, the density plots give us a picture of how far apart the non-Latino and Latino voters are and how cohesive or tight the vote estimates are.

### **E. Summary of Results**

32. In Appendix A, I present the results of 222 different analyses of racially polarized voting in which a Latino candidate ran for office. In full, there are 37 Latino candidates who I analyzed and for whom I present results (as noted in Appendix A at A-1). For all 37 candidates, I analyzed the results countywide for Orange County, and then focused on just those precincts within the individual Commissioner Districts, for districted elections. A brief summary of the Goodman's regression and King's ecological inference analyses and polarized voting results for all 37 Latino candidates is found in Table 5 on page 15.

33. For all 37 candidates, the table includes the adjusted  $R^2$  coefficient, a measure from the Goodman's Ecological Regression, which tells us the overall amount of variance in a candidate's vote share that was explained by the ethnicity of voters. Table 5 also includes the estimated vote for the candidate among Latinos and among non-Latinos based on the results of the King's

Table 5: Summary Results of Ecological Inference Analyses Estimated vote for Latino candidates among Latino and non-Latino voters

TABLE

Ecological Inference analysis. Throughout years and across different types of elections, the data reveal strong, consistent and statistically significant evidence of racially polarized voting. There is no question that Latinos are a cohesive political unit, voting in strong support for Latino candidates, while non-Latinos bloc vote against Latino candidates.

34. Across the 37 candidates from 2000 to 2012, 33 demonstrate statistically significant racially polarized voting. Four candidates did not produce polarized voting: Lasso, Ramirez, Johnson, Vivaldi. Two were in contests in which another Latino candidate was the Latino-preferred candidate and racially polarized voting was quite evident: (1) Lasso versus Aviles in the 2012 County Commissioner District 3 primary election, (at A2 - A9 in Appendix A) and (2) Ramirez versus Cruz in the 2012 Soil and Water District 3 general election (at A90 - A97 in Appendix A). In the 2012 Commissioner District 3 primary, Lasso did not produce racially polarized voting, but another Latino candidate, Aviles, was greatly preferred by Latinos. In the 2012 Soil and Water District 3 primary, Ramirez did not produce racially polarized voting, but another Latino candidate, Cruz, was greatly preferred by Latinos. A third candidate without polarization was a well-known Latina incumbent with a non-Spanish surname, named Mary Ann Johnson, who ran in the 2000 County Commissioner District 3 primary. The fourth candidate without polarization was Peter Vivaldi in the 2012 School Board election. He has a less commonly identified Latino surname and was a less experienced candidate who received less media coverage in the Latino community. Additionally, he faced off against a well-established incumbent.

35. Thus for 89% of the candidates analyzed (33 of 37), and in 94% of the contests examined (30 of 32), there was strong and consistent evidence of polarized voting, in which the polarization between Latino and non-Latino voters was statistically significant. Further, the degree of polarization was often extreme, which I characterize as a difference of more than 35 percentage points. As presented in Table 5 on page 15, in 22 instances, the gap between Latino and non-Latino vote preference exceeded 35 percentage points (*see* column F, labeled “Diff”). In 22 instances, the degree of Latino cohesiveness exceeded 70% (*see* column D, labeled “Latino vote”). In contrast, in 28 instances, non-Latino voters gave less than 30% of their vote to Latino candidates (*see* column E, labeled “non-Latino vote”), and in only two instances did non-Latinos evidence over a 50% vote for Latino candidates (also in column E).

36. The trend of polarized voting is consistent across the decade, looking at the data presented in Table 5. For example in 2002, Norman Quintero received an estimated 88% of the Latino vote and only 6% of the non-Latino vote in a contest for School Board District 3. In 2004, Mildred Fernandez won 86% of the Latino vote compared to 9% among non-Latinos in her primary election for County Commissioner District 3. In 2006, J.P. Quiñones won 72% of the Latino vote and just 4% from non-Latinos in the election for County Commissioner District 4. In 2008, David Montanez received 73% of the vote from Latinos but only 4% from non-Latinos in the Soil and Water District 5 election. In 2010, Jacqueline Centeno won an estimated 98% of the Latino vote compared to 24% from non-Latinos in the election for School Board District 3. Racially polarized voting is not a phenomenon found in just one year, or with one particular Latino candidate--it is widespread.

37. Across the elections analyzed, I found that Latino voters demonstrated very strong vote cohesion and that non-Latinos voted against Latino-preferred candidates with almost no exceptions. Regardless of whether I analyzed elections for County Commissioner, Circuit Court Judge, School Board, or Soil & Water District, racially polarized voting was present.

#### ***F. Example of Interpreting the Results***

38. I have discussed the sources of data, elections and candidates analyzed, and general summary of results, and now I turn to an example of interpreting the full results that are found in Appendix A. The full results provide both a statistical percent estimate of vote choice, as well as a visual depiction of voting patterns in Orange County. Regarding the former, the Goodman's ecological regression analysis allows us to consider the exact percentage of the vote won by each Latino candidate, among Latinos and non-Latinos separately. Following each regression, I provide the aggregated ecological vote choice estimates for



Latinos and non-Latinos in each election. The estimates were derived by taking the constant or intercept, which represents the estimated vote given to the Latino candidate by non-Latinos, and then adding the coefficient for “percent Latino” to arrive at the overall vote percentage given by Latinos.

39. In the very first example for Michael Aviles in 2012 (as shown below; *see also* Appendix A, 1.1.3 at A3), the constant of 0.0198 in Table 1 “Goodman's Ecological Regression: Vote for Candidate” represents an estimated 1.98% vote in favor of Aviles among non-Latinos, to which we then add the coefficient of 0.361 for “pctlatino” to get an overall Latino estimate of 38.0% vote in favor of Aviles - which made him the top choice among Latino voters in the 2012 District 3 primary. The absolute value of the coefficient, in this case 0.361, represents the gap between Latino and non-Latino voting preference, which, for Aviles, was a 36 point gap - a sizable gap in a five person primary contest.

### 1.1.3 Goodman's Weighted Ecological Regression

Table 1: Goodman's *Ecological Regression: Vote for Candidate*

(1) Florida

pctlatino 0.361\*\*\* (0.0316)

totalvote 0.000000546 (0.0000230)

Constant 0.0198 (0.0187)

Observations 38

Adjusted  $R^2$   
0.808

Standard errors in parentheses

$p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 2: *Aggregated Vote Estimates*

Florida

Latino Vote 38.0

Non Latino Vote 2.0

40. After the Goodman's regression results and the scatterplots, I also provide King's Ecological Inference results (as shown below; *see also* 1.1.5 on page A4) for Latino versus non-Latino precincts. Within the King's Ecological Inference results, we can find vote estimates under the section “Aggregate Quantities of Interest.” Again, looking at the results for Aviles, we note the Bb mean of .3606, which translates to 36.06% vote for Aviles among Latinos, and the Bw of .0264, which translates to 2.64% vote Aviles among non-Latinos - both of which are very consistent with the results noted in the Goodman's ecological regression. Thus, across all methods examined, the data on Aviles point to significant racially polarized voting.

## TABLE

41. Finally, assessing racially polarized voting can vary depending on how many candidates are running for election. In an election with just two candidates, a vote for one is a direct trade-off with votes for the second, and thus polarized voting often appears to be more pronounced. In primary elections with multiple candidates, the vote is often split more ways and coefficients may appear smaller, even when polarized voting was quite strong. For example, the case of Aviles in 2012 was strong evidence of polarization indicated, not only by the vote choice results, but also the adjusted  $R^2$ , which had a value of .808.

## VI. Conclusion

42. Across the data considered in this report, three consistent findings emerge:

1. the 2011 redistricting plan dilutes the Latino vote in Commissioner District 3 by decreasing the share of voters who are Latino in the district;
2. Latino voters greatly prefer to vote for Latino candidates, representing a cohesive bloc; and,
3. non-Latino voters demonstrate a statistically significantly lower vote for Latino candidates than do Latinos by large margins, constituting bloc voting against Latino-preferred candidates.

43. Not only are these results consistent when analyzing all voting precincts in Orange County, but also when focusing just on those voting precincts inside key commissioner districts, racially polarized voting continues to be very strong. Coupled with the evidence presented earlier in this report of decreases in the Latino population in Commissioner District 3 (*see* Tables 1-3 at 6), the polarized voting evidence demonstrates Latino candidates will have a very hard time winning office in the newly drawn Commissioner District 3 - a result already evidenced in the 2012 primary election. The data and election results make clear that non-Latinos bloc vote against Latino-preferred candidates in Orange County, Florida. The statistical analyses produced here provide clear evidence of two of the three *Gingles* prongs: (1) minority political cohesiveness and (2) non-minority bloc voting against minority candidates.

44. I declare under the penalties of perjury that the foregoing is true and accurate to the best of my knowledge and belief, and I affirm that I have written this report.

## Footnotes

- 1 Throughout this report I use the terms Latino and Hispanic interchangeably to refer to people who self-identify as Hispanic or Latino ethnicity.
- 2 *Rodriguez et. al. v. Harris County*, No. 4:11-cv-02907 (S.D. TX 2012).
- 3 *Applewhite et. al. v. Commonwealth of Pennsylvania*, No. 330 CD 2012 (Pa. Commw. Ct. 2012).
- 4 <http://quickfacts.census.gov/qfd/states/12112095.html>
- 6 Public Proposal E, as found on the Redistricting Committee Document Archive website: [http://www.ocfl.net/DesktopModules/DNNCorp/DocumentLibrary/Components/FileDownloader/FileDownloaderPage.aspx?tabid=403&did=3580&pid=O&lrf=/DesktopModules/DNNCorp/DocumentLibrary/App\\_LocalResources/DocumentLibrary&c=US&mcs=@DesktopModules@DNNCorp@DocumentLibrary@&uarn=Administrators&cd=false&tmid=1579&ift=1](http://www.ocfl.net/DesktopModules/DNNCorp/DocumentLibrary/Components/FileDownloader/FileDownloaderPage.aspx?tabid=403&did=3580&pid=O&lrf=/DesktopModules/DNNCorp/DocumentLibrary/App_LocalResources/DocumentLibrary&c=US&mcs=@DesktopModules@DNNCorp@DocumentLibrary@&uarn=Administrators&cd=false&tmid=1579&ift=1)
- 8 *See Thornburg v. Gingles*, 478 U.S. 30 (1986).
- 9 All data were downloaded from: <http://www.ocfelections.com/countywide.aspx>, see also Appendix C
- 10 For example, see Hill, K., Moreno, D., & Cue, L. (2001). Racial and partisan voting in a tri-ethnic city: The 1996 Dade County mayoral election. *Journal of Urban Affairs*, 23, 291-307.; Barreto, Matt, Mario Villarreal and Nathan

- Woods. 2005. "Metropolitan Latino Political Behavior: Turnout and Candidate Preference in Los Angeles." *Journal of Urban Affairs*. 27(February); Barreto, Matt 2007. "Si Se Puede! Latino Candidates and the Mobilization of Latino Voters." *American Political Science Review*. 101 (August).
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