

EXPERT DECLARATION OF WALTER RICHARD MEBANE, JR.
ON BEHALF OF PLAINTIFFS

I, Walter Richard Mebane, Jr., declare to the following under penalty of perjury at law in support of the Plaintiffs' lawsuit against election officials in the Commonwealth of Virginia.

A. Qualifications

1. My academic position is Professor, Department of Political Science and Department of Statistics, University of Michigan, Ann Arbor. I received my doctorate in Political Science from Yale University in 1985. I was an Associate Professor of Government at Cornell University from 1989 to 2003. I was promoted to Professor of Government at Cornell in 2003 and taught there until 2007. From 1985 to 1989 I was Assistant Professor in the Department of Political Science at University of Michigan, Ann Arbor. My full curriculum vitae is attached as Exhibit One.
2. My expertise lies in the areas of American National Institutions and Elections, Political Economy, Political Behavior; Methodology (Statistics, Computation, Research Design); Mathematical Modeling (Formal Theory, Dynamical Systems). I regularly teach courses to undergraduate and graduate students on those topics. As my curriculum vitae, attached as Exhibit A, shows I have published more than 25 scholarly articles and a few other occasional pieces such as book reviews, and I have written three statistical application packages that are widely distributed and used.

3. My recent work includes: Machine Errors and Undervotes in Florida 2006 Revisited (pdf) Prepared for the symposium How We Vote, Institute of Bill of Rights Law, William & Mary School of Law, Williamsburg, VA, March 14, 2008; Mebane, Walter R., Jr. 2008; Election Forensics: Outlier and Digit Tests in America and Russia (pdf); (postscript) Prepared for presentation at The American Electoral Process conference, Center for the Study of Democratic Politics, Princeton University, May 1--3, 2008; Herron, Michael C., Walter R. Mebane Jr. and Jonathan N. Wand. 2008 Voting Technology and the 2008 New Hampshire Primary (pdf) Working paper. Data and program files; Mebane, Walter R., Jr. 2007. Election Forensics: Statistical Interventions in Election Controversies (pdf); (postscript) Prepared for presentation at the 2007 Annual Meeting of the American Political Science Association, Chicago, Aug 30-Sep 2; Mebane, Walter R., Jr. 2007. Statistics for Digits (pdf); (postscript) Prepared for presentation at the 2007 Summer Meeting of the Political Methodology Society, Pennsylvania State University, July 18—21; Mebane, Walter R., Jr. 2007. Election Forensics: Statistics, Recounts and Fraud (pdf); (postscript) Prepared for presentation at the 2007 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 12—16; Mebane, Walter R., Jr. 2007; Evaluating Voting Systems To Improve and Verify Accuracy (pdf); (postscript) Prepared for presentation at the 2007 Annual Meeting of the American Association for the Advancement of Science, San Francisco, CA, February 16, 2007, and at the Bay Area Methods Meeting, Berkeley, CA, March 1, 2007; Mebane, Walter R., Jr., and David L. Dill. 2007. Factors Associated with the Excessive CD-13 Undervote in the 2006

General Election in Sarasota County, Florida (pdf). Draft of January 18, 2007;
Mebane, Walter R., Jr. 2006. Election Forensics: The Second-digit Benford's
Law Test and Recent American Presidential Elections (pdf); (postscript) Prepared
for delivery at the Election Fraud Conference, Salt Lake City, Utah, September
29--30, 2006; Mebane, Walter R., Jr. 2006. Election Forensics: Vote Counts and
Benford's Law (pdf); (postscript) Prepared for delivery at the 2006 Summer
Meeting of the Political Methodology Society, UC-Davis, July 20-22; Mebane,
Walter R., Jr. 2006. ` Detecting Attempted Election Theft: Vote Counts, Voting
Machines and Benford's Law (pdf); (postscript) Prepared for delivery at the 2006
Annual Meeting of the Midwest Political Science Association, April 20-23,
Palmer House, Chicago; Mebane, Walter R., Jr. 2005. `` Timing and Turnout in
Ohio" TomPaine.com, 21 July 2005; Mebane, Walter R., Jr. 2005. ``Voting
Machine Allocation in Franklin County, Ohio, 2004: Response to U.S.
Department of Justice Letter of June 29, 2005."`

B. Background

4. On October 21, 2008, I was contacted by Jim Freeman of Advancement Project and Maria Blanco of the Earl Warren Institute at UC Berkeley Law School to determine if I would like to analyze and testify about the allocation of voting machines and poll workers in Norfolk, Richmond, and Virginia Beach, Virginia. I am being paid \$200 per hour for my work on this case, plus expenses. I have reviewed the following documents provided to me by Jim Freeman and Maria Blanco:

- a. October 6, 2008 Letter to Nancy Rodrigues, Secretary State Board of Elections from Advancement Project and other non-profit organizations concerning the disparity in voting machines and poll worker allocations in Virginia Beach, Richmond and Norfolk, Virginia;
- b. 2008 voter registration files for Virginia Beach, Richmond, and Norfolk, Virginia;
- c. 2004 General Election voter registration and voter turnout files for Virginia Beach, Richmond, and Norfolk, Virginia;
- d. Documents provided by the registrars of Virginia Beach, Richmond, and Norfolk, Virginia showing the projected allocation of voting machines and poll workers, by precinct, for the November 4, 2008 General Election;
- e. Documents provided by the registrars of Virginia Beach, Richmond, and Norfolk, Virginia showing the actual allocation of voting machines and poll workers, by precinct, for the 2004 General Election;
- f. News reports documenting lines at the polls in Virginia Beach, Richmond, and Norfolk, Virginia for the 2004 General Election;
- g. Sample ballots and candidate lists indicating the number of races at issue in Virginia Beach, Richmond, and Norfolk, Virginia for the 2008 General Election;
- h. Documents indicating the 2008 General Election turnout projected by election officials in jurisdictions throughout the Commonwealth of Virginia;

- i. A data set prepared by Karin MacDonald and Nicole Boyle of Q2 Data and Research, LLC showing the racial composition of all the 2008 precincts in Virginia Beach, Richmond and Norfolk, Virginia.

C. Research on Effects of Resource Allocations on Voter Participation

5. My research into the effects of polling place resource allocations on voter participation indicates that mis-allocating polling place resources can lead to mass disenfranchisement. More specifically, having fewer machines and poll workers per registered voter leads to a greater likelihood of long lines to vote and “lost” voters. In other words, having fewer resources increases the chance of long lines forming at polling places, and the knowledge of the long lines, the sight of long lines upon arriving at their polling places, or simply having to wait in line for an extended period of time, deters voters from casting a ballot.
6. For example, I conducted a study of the 2004 General Election in Ohio and found serious problems with the administration of that election. I found a clear relationship between precincts having higher ratios of registered voters to machines and long lines when the polls were supposed to close. Also, not providing a sufficient number of voting machines in each precinct was associated with roughly a three percent reduction in voter participation, presumably due to delays that deterred many people from voting.
7. In a study just of Franklin County, Ohio, I found the allocation of voting machines was clearly biased against voters in precincts with high proportions of African-Americans. My research indicated that the allocation of voting machines

there reduced voter participation more among African American voters than among White voters.

8. A field of mathematical analysis called queueing theory has been demonstrated to help understand the implications of insufficient election resource provision. Queueing theory suggests what to expect from having an increasing number of voters for each voting machine. In general, if the rate at which voters arrive at the polls is much less than the rate at which voters successfully finish voting, then there may be a line of people waiting to vote but the line will tend to be short. If more people arrive during each unit of time than finish voting during that time, then the line length and waiting times grow without bound. Facing very long lines, the proportion of voters who cannot wait increases, and consequently voter participation declines.

D. Allocation of Resources Across Precincts in Norfolk, Richmond, and Virginia Beach

9. I have conducted a similar analysis of the resource allocation plans in Norfolk, Richmond, and Virginia Beach, Virginia for the 2004 and 2008 General Elections. I have analyzed the distribution of voting machines and poll workers across precincts for those two elections, including how that distribution affects precincts with high proportions of African-Americans. I have also analyzed the impact of voting machine allocation on voter participation in the 2004 election, and the potential impact of current machine allocations on the November 2008 election. The tables and graphs with my findings are attached at Exhibit Two.

10. In looking at the allocation of voting machines across precincts in these three cities, I found substantial variances across precincts in the number of registered voters per machine. In other words, some precincts have many more registered voters per machine than others. The differences, as measured by standard deviation and interquartile range, are of the magnitude that can cause voters in different precincts to have very different experiences when they try to cast their votes: some precincts will be crowded and others will not.
11. Similarly, in examining the allocation of poll workers across precincts, I found substantial differences of the magnitude that could result in qualitative differences in the administration of the election across precincts.
12. I also found that, in looking at both 2004 and 2008 allocations of voting machines, the average level of registered voters per machine is similar in both Norfolk and Virginia Beach. That is particularly concerning because news reports indicate that there were long lines in both cities in 2004, and voter participation is expected by Virginia elections officials to be far greater this year, suggesting that the lines to vote could be far worse than they were in 2004 and large numbers of voters could be deterred from casting a ballot.

E. Impact of Machine Allocations on African-Americans

13. I also found that the distribution of machines in both Richmond and Virginia Beach for the upcoming election is clearly biased against voters in precincts with high proportions of African-Americans. In other words, precincts with high proportions of African-Americans have substantially more registered voters per

allocated machine than precincts with fewer African-Americans. There were similar relationships in the allocation of voting machines in 2004.

14. One way to quantify these disparities is to separate precincts into groups based the proportion of the voting age population in each precinct that is Black. I define quartiles of this race measure for the set of precincts in all three counties, which is to say I find the values that put one-quarter of the precincts into each group. The first quartile includes precincts with less than 11.5 percent Black and the third quartile includes precincts with between 22.8 and 56.3 percent Black. The fourth quartile has an upper bound of 97.3 percent Black. In Richmond, the mean number of registered voters per allocated machine is 232 in the first quartile, 274 in the third quartile and 308 in the fourth quartile. Virginia Beach has only one precinct in the fourth quartile, so I look at the mean in the first three. These means increase as one moves from the first to the third quartile: from 310 to 328 to 354 registered voters per allocated machine. In both Richmond and Virginia Beach, as the proportion of the voting age population that is African-American increases, the mean number of registered voters per voting machine also increases.

F. Effects of Machine Allocations on Voter Participation in Norfolk, Richmond, and Virginia Beach

15. In examining the registration, turnout, and machine allocation data from the 2004 election, I found that higher ratios of registered voters per machine were associated with lower levels of voter participation in Norfolk, Richmond, and Virginia Beach. This indicates that voters in those precincts with relatively many voters for each

machine were more likely to be deterred from voting than voters in precincts with fewer voters for each machine.

16. I estimated a set of statistical models to try to isolate the effects of higher ratios of registered voters per machine on voter participation. The models suggest that in Norfolk, voter participation rapidly declines as the ratio increases in precincts with more than about 300 to 350 registered voters per machine. In Richmond, there are rapid declines in voter participation for ratios greater than about 400 registered voters per machine. In Virginia Beach, voter participation declines steadily throughout the range of ratios observed in the city. The magnitude of the declines is substantial: from the peak value to the lowest the decrease in voter participation is on the order of five to ten percent.
17. When I applied the findings from 2004 to the 2008 resource allocations and assumed that the same percentage of registered voters will attempt to vote, I found that the 2008 allocations are likely to lead to the same effects as in 2004 in both Norfolk and Virginia Beach, meaning that even at current resource levels voter participation is likely to be depressed in precincts with high ratios of registered voters per machine.
18. I have also applied the findings from 2004 to an analysis that predicts a surge in voter participation, reflecting the projections of election officials across Virginia. I considered a surge from 70 percent turnout up to 85 percent turnout, a level I understand election officials in several Virginia counties have stated is what they expect. Such a surge in the number of registered voters who present on Election Day to vote will create an even greater probability that voter participation will be depressed by long lines and “lost” voters in Norfolk, Richmond, and Virginia Beach.

19. Because of the maldistribution of voting machines that disadvantages precincts with high proportions of African-Americans in Richmond and Virginia Beach, the deterrence of voters due to insufficient resources is more likely to affect African-American voters in these cities. In other words, precincts in Richmond and Virginia Beach that have high proportions of African-Americans face a higher likelihood of long lines and “lost” voters on Election Day than precincts with more White voters.

G. Addressing the Maldistribution of Resources in Norfolk, Richmond, and Virginia Beach

20. Re-allocating voting machines and poll workers in a more equitable fashion would address some of the problems identified above. In particular, remedying the racial disparities in machine allocation is advisable for reasons of both fundamental fairness and the likelihood that voter participation patterns in the upcoming election are likely to be quite different than previous elections, with more African-American voters likely to turn out.

21. However, my analysis indicates that even if Norfolk, Richmond, and Virginia Beach were to re-allocate their resources in a more equitable fashion, there is still a substantial likelihood that voters will be deterred from voting by long lines at the polls. In other words, re-allocation by itself may not be enough to prevent disenfranchisement of voters due to excessive lines at the polls, thus indicating that additional remedies are needed to ensure eligible voters who present to vote are able to cast a ballot in a timely fashion. Three possible solutions are (a) providing additional machines to relatively under-resourced precincts; (b) offering paper ballots to voters when lines have formed at machines; and (c) extending polling place hours.

All would have the effect of reducing congestion at the polls, and would likely lead to more voters being able to cast a ballot on Election Day.

H. Conclusion

22. The evidence I have examined indicates that unless election officials address the administrative failure described above, there could be substantial disenfranchisement in Norfolk, Richmond, and Virginia Beach on November 4, 2008, particularly of African-American voters.

* * *

Based on my extensive experience studying the allocation of polling place resources in elections, I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the statements in this document are true and correct.

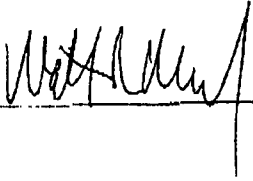
Signed  Executed on 27 October 2008

EXHIBIT ONE

Walter Richard Mebane, Jr.

Home: 1722 Shadford Rd
Ann Arbor, MI 48104
734/769-7137

homepage: <http://www.umich.edu/~wmebane>

Office: Department of Political Science
University of Michigan
Ann Arbor, MI 48109-1045
phone: 734/763-2220
FAX: 734/764-3522
email: wmebane@umich.edu

Born November 30, 1958 in Long Branch, New Jersey.

EDUCATION:

Ph.D. Yale University, New Haven, CT, December 1985 (Political Science).
M.Phil. Yale University, New Haven, CT, December 1981 (Political Science).
M.A. Yale University, New Haven, CT, December 1980 (Political Science).
A.B. Harvard College, Cambridge, MA, June 1979 (Government).

HONORS AND AWARDS:

A.B. *magna cum laude*; *Phi Beta Kappa*; National Science Foundation Graduate Fellowship (1979–1982); Danforth Graduate Fellowship (1979–1983); American Political Science Association Graduate Fellowship (1979); Midwest Political Science Association Brooks-Cole Award (1982); 1996 Harold Gosnell Award (with Jonathan Wand); Cornell University Robert A. and Donna B. Award for Excellence in Advising (2003–2004).

RESEARCH INTERESTS:

American National Institutions and Elections, Political Economy, Political Behavior; Methodology (Statistics, Computation, Research Design); Mathematical Modeling (Formal Theory, Dynamical Systems).

WORK EXPERIENCE:

Professor. Department of Political Science and Department of Statistics, University of Michigan, Ann Arbor (9/07–).
Visiting Professor. Department of Political Science, University of Michigan, Ann Arbor (7/07–8/07).
Visiting Scholar. Center for Basic Research in the Social Sciences, Harvard University (Spring 2004).
Professor. Department of Government, Cornell University (7/03–6/07).
Visiting Associate Professor. Department of Social and Decision Sciences, Carnegie Mellon University (9/97–12/97).
Associate Professor. Department of Government, Cornell University (7/89–6/03; tenured 11/93).
Assistant Professor. Department of Political Science, University of Michigan (9/85–6/89).
Instructor. Department of Political Science, University of Michigan (9/83–8/85).
Study Director. National Election Studies Development Project on Political Reasoning (1/84–8/84).
Assistant Research Scientist. Center for Political Studies, University of Michigan (1/83–8/83).
Research Assistant. *Sociotropic Politics*, Donald R. Kinder, Yale University (1980–82).
Teaching Fellow. Introduction to American Government and Politics, F. Christopher Arterton, Yale University (Fall 1981).
Research Assistant. *World Handbook of Political and Social Indicators*, Charles L. Taylor and David A. Jodice, Harvard University and Science Center Berlin (Summer 1978–Summer 1979).
Research Assistant. *Injury to Insult*, Sidney Verba, Harvard University (Summer 1978).

PUBLICATIONS:

“Machine Errors and Undervotes in Florida 2006 Revisited.” *William & Mary Bill of Rights Journal*, forthcoming

“Voting Technology and the 2008 New Hampshire Primary” (with Michael C. Herron and Jonathan N. Wand). *William & Mary Bill of Rights Journal*, forthcoming

“Genetic Optimization Using Derivatives: The Rgenoud Package for R.” *Journal of Statistical Software*, forthcoming.

“Election Forensics: The Second-digit Benford’s Law Test and Recent American Presidential Elections.” In R. Michael Alvarez, Thad E. Hall and Susan D. Hyde, eds., *Election Fraud: Detecting and Deterring Electoral Manipulation*. Washington, DC: Brookings Press, 2008, pp. 162–181.

“Inferences from the DNC Provisional Ballot Voter Survey.” Section V of *Democracy at Risk: The 2004 Election in Ohio*. Democratic National Committee, Voting Rights Institute, June 22, 2005.

“Ohio 2004 Election: Turnout, Residual Votes and Votes in Precincts and Wards” (with Michael C. Herron) and “Ohio 2004 Election: New Registrants, Provisional Ballots, Voting Machines, Turnout and Polls Open Elapsed Times in Franklin County Precincts.” Section VI of *Democracy at Risk: The 2004 Election in Ohio*. Democratic National Committee, Voting Rights Institute, June 22, 2005.

“Interim Report on Alleged Irregularities in the United States Presidential Election of 2 November 2004” (with Henry E. Brady, Guy-Uriel Charles, Benjamin Highton, Martha Kropf and Michael Traugott). National Research Commission on Elections and Voting, Social Science Research Council, December 22, 2004.

“The Wrong Man is President! Overvotes in the 2000 Presidential Election in Florida.” 2004. *Perspectives on Politics* 2 (September): 525–535.

“Robust Estimation and Outlier Detection for Overdispersed Multinomial Models of Count Data” (with Jasjeet S. Sekhon). 2004 *American Journal of Political Science* 48 (April): 392–411.

“Law and Data: The Butterfly Ballot Episode” (with Henry E. Brady, Michael Herron, Jasjeet S. Sekhon, Kenneth Shotts and Jonathan Wand). 2002. In Arthur J. Jacobson and Michael Rosenfeld, eds., *The Longest Night: Polemics and Perspectives on Election 2000*. Berkeley: University of California Press. (slightly condensed version of the *PS* 2001 article)

“Coordination and Policy Moderation at Midterm” (with Jasjeet S. Sekhon). 2002. *American Political Science Review* 96 (March): 141–157.

“The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida” (with Jonathan N. Wand, Kenneth Shotts, Jasjeet S. Sekhon, Michael Herron and Henry E. Brady). 2001. *American Political Science Review* 95 (December): 793–810.

“Detection of Multinomial Voting Irregularities” (with Jasjeet S. Sekhon and Jonathan N. Wand). 2001. *2001 Proceedings of the American Statistical Association*, Social Statistics Section [CD-ROM]. Alexandria, VA: American Statistical Association.

“A Comparative Analysis of Multinomial Voting Irregularities: Canada 2000” (with Jonathan N. Wand and Jasjeet S. Sekhon). 2001. *2001 Proceedings of the American Statistical Association*, Social Statistics Section [CD-ROM]. Alexandria, VA: American Statistical Association.

“The Effects of Rape Law Reform on Rape Case Processing” (with Stacy Futter). 2001. *Berkeley Women’s Law Journal* 16: 72–139.

“Law and Data: The Butterfly Ballot Episode” (with Henry E. Brady, Michael Herron, Jasjeet S. Sekhon, Kenneth Shotts and Jonathan Wand). 2001. *PS: Political Science and Politics* 34: 59–69.

“Coordination, Moderation, and Institutional Balancing in American Presidential and House Elections.” 2000. *American Political Science Review* 94 (March): 37–57.

“Congressional Campaign Contributions, District Service and Electoral Outcomes in the United States: Statistical Tests of a Formal Game Model with Nonlinear Dynamics.” 2000. In Diana Richards, ed., *Political Complexity: Nonlinear Models of Politics*. Ann Arbor: University of Michigan Press.

“Genetic Optimization Using Derivatives” (with Jasjeet Sekhon). 1999. *Political Analysis* 7: 187–210.

Political Analysis, volume 7. 1999. Editor.

“The Presidency and Interest Groups: Why Presidents Cannot Govern” (with Benjamin Ginsberg and Martin Shefter). 1994. In Michael Nelson, ed., *The Presidency and the Political System*. 4th ed. Washington, DC: CQ Press. (updated for 5th edition, 1997, and 6th edition, 2000)

“Fiscal Constraints and Electoral Manipulation in American Social Welfare.” 1994. *American Political Science Review* 88 (March): 77–94.

“Analyzing the Effects of Local Government Fiscal Activity I: Sampling Model and Basic Econometrics.” 1994. *Political Analysis* 4: 1–39.

“Problems of Time and Causality in Survey Cross-sections.” 1990. *Political Analysis* 2: 101–121.

“Economics and Politics in Everyday Life” (with Donald Kinder). 1983. In Kristen Monroe, ed., *The Political Process and Economic Change*. New York: Agathon Press.

REVIEWS AND COMMENTS:

“Can We Trust the Machines?” 2008. Review of *Electronic Elections: The Perils and Promises of Digital Democracy* (Alvarez and Hall), *Science* forthcoming.

“Counting Frustrated Voter Intentions.” 2008. Comment on “Florida 2006: Can Statistics Tell Us Who Won Congressional District-13?” (Ash and Lamperti), *Chance* 21 (3): 26–27.

SPONSORED RESEARCH:

“Strategic Coordination Among American Voters” (P.I. at Cornell University-Endowed, with subcontract to Jasjeet Sekhon at Harvard University). National Science Foundation Award Number SES-0214965 (\$99,171; June 1, 2002–April 30, 2005).

“What Difference Does Nader Make?” Approved for inclusion in Time-sharing Experiments for the Social Sciences, NSF Grant 0094964, Diana C. Mutz and Arthur Lupia, Principal Investigators.

COMPUTER SOFTWARE:

“Multinomial Robust Regression (MultinomRob)” (with Jasjeet Sekhon). 2004. Package for R. Source code along with LINUX and Windows binaries are available from the Comprehensive R Archive Network (CRAN, <http://cran.r-project.org/>) and at <http://sekhon.berkeley.edu/robust/>.

“Genetic Optimization Using Derivatives for R (RGENOUD)” (with Jasjeet Sekhon). 2002. Package for R. Source code along with LINUX, Windows, and MacOS binaries are available from the Comprehensive R Archive Network (CRAN, <http://cran.r-project.org/>) and at <http://sekhon.berkeley.edu/rgenoud/>.

“Genetic Optimization Using Derivatives (GENOUD)” (with Jasjeet Sekhon). 1998. Source code in C. Posted at <http://macht.arts.cornell.edu/wrm1/genoud.generic.zip>.

“Genetic Optimization and Bootstrapping of Linear Structures (GENBLIS)” (with Jasjeet Sekhon). 1998. Available (with documentation) from <http://sekhon.berkeley.edu/genblis/>.

OP-ED:

“Timing and Turnout in Ohio.” 2005. *TomPaine.com*. July 21, 2005.

“Ideological Differences. Re “Who’s Nader Now?,” by Paul Krugman (column, Jan. 2).” Letter to the *New York Times*, January 7, 2004.

CONFERENCE PAPERS:

“Election Forensics: Outlier and Digit Tests in America and Russia,” Presented at The American Electoral Process conference, Center for the Study of Democratic Politics, Princeton University, May 1–3, 2008.

“Machine Errors and Undervotes in Florida 2006 Revisited,” Presented at the William & Mary School of Law: How We Vote Symposium. March 14, 2008.

“Election Forensics: Statistical Interventions in Election Controversies,” Presented at the 2007 Annual Meeting of the American Political Science Association, Chicago, Aug 30–Sept 2.

“Statistics for Digits.” Presented at the 2007 Summer Meeting of the Political Methodology Society, Pennsylvania State University, July 18–21.

“Election Forensics: Statistics, Recounts and Fraud,” Presented at the 2007 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 12–16.

“Evaluating Voting Systems To Improve and Verify Accuracy,” Presented at the 2007 Annual Meeting of the American Association for the Advancement of Science, San Francisco, CA, February 16, 2007, and at the Bay Area Methods Meeting, Berkeley, March 2, 2007.

“Election Forensics: The Second-digit Benford’s Law Test and Recent American Presidential Elections,” Presented at the Election Fraud Conference, Salt Lake City, Utah, September 29–30, 2006.

“Election Forensics: Vote Counts and Benford’s Law,” Presented at at the 2006 Summer Meeting of the Political Methodology Society, UC-Davis, July 20–22.

“Detecting Attempted Election Theft: Vote Counts, Voting Machines and Benford’s Law,” Presented at at the 2006 Annual Meeting of the Midwest Political Science Associate, Chicago, IL, April 20–23.

“Does it Help or Hurt Kerry if Nader is on the Ballot?” (with Israel Waismel-Manor). Presented at the 2005 Annual Meeting of the Midwest Political Science Association, Chicago, Illinois, April 7–10.

“Cuing and Coordination in American Elections.” Presented at the 2004 Political Methodology Summer Meeting, Stanford, California, July 29–31.

“Situational Coordination in American Elections.” Prepared for delivery at the 2004 Annual Meeting of the Midwest Political Science Association, Chicago, Illinois, April 15–18.

“Imitative and Evolutionary Processes that Produce Coordination Among American Voters.” Presented at the 2003 American Political Science Association Annual Meeting, August 27–31, Philadelphia, PA, .

“Imitative and Evolutionary Processes that Produce Coordination Among American Voters.” Presented at the 2003 Political Methodology Summer Meeting, Minneapolis, Minnesota, July 17–19.

“Adaptive, Imitative and Evolutionary Processes that Produce Coordination Among American Voters.” Prepared for delivery at the 2003 Annual Meeting of the Midwest Political Science Association, Chicago, Illinois, April 3–6.

“Robust Estimation and Outlier Detection for Overdispersed Multinomial Models of Count Data, with an Application to the Elián Effect in Florida” (with Jasjeet S. Sekhon). 2002. Presented at the 2002 American Political Science Association Annual Meeting, August 28–September 2, San Francisco, CA.

“Robust Estimation and Outlier Detection for Overdispersed Multinomial Models of Count Data, with an Application to the Elián Effect in Florida” (with Jasjeet S. Sekhon). 2002. Presented at the 2002 Political Methodology Summer Meeting, Seattle, Washington, July 18–20.

“The Elián Effect: Detecting Multinomial Voting Irregularities in Florida” (with Jasjeet S. Sekhon). 2002. Presented at the 2002 Annual Meeting of the Midwest Political Science Association, Chicago, Illinois, April 25–28.

“The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida” (with Jonathan N. Wand, Kenneth Shotts, Jasjeet S. Sekhon, Michael Herron and Henry E. Brady). Presented at the 2001 American Political Science Association Annual Meeting, August 30–September 2, San Francisco, CA.

“The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida” (with Jonathan N. Wand, Kenneth Shotts, Jasjeet S. Sekhon, Michael Herron and Henry E. Brady). Presented at the 2001 Joint Statistical Meetings, American Statistical Association, Social Statistics Section, August 5–9, Atlanta, Georgia.

“Detection of Multinomial Voting Irregularities” (with Jasjeet S. Sekhon and Jonathan N. Wand). 2001. Presented at the 2001 Joint Statistical Meetings, American Statistical Association, Social Statistics Section, August 5–9, Atlanta, Georgia.

“A Comparative Analysis of Multinomial Vote Outliers: 2000 Canadian Federal Election” (with Jonathan N. Wand and Jasjeet S. Sekhon). 2001. Presented at the 2001 Joint Statistical Meetings, American Statistical Association, Social Statistics Section, August 5–9, Atlanta, Georgia.

“Detection of Multinomial Voting Irregularities” (with Jasjeet S. Sekhon and Jonathan N. Wand). 2001. Presented at the 2001 Political Methodology Summer Meeting, July 19–21, Atlanta, Georgia.

“Legislative Context, Legislator Quality and Campaign Contributions” (with Marc T. Ratkovic and Michael W. Tofias). Presented at the 2001 Annual Meeting of the Midwest Political Science Association, April 19–22, Palmer House, Chicago.

“Coordination among American Voters with Heterogeneous Expectations”. 2001. Presented at the 2001 Annual Meeting of the Public Choice Society, March 9–11, San Antonio, Texas.

“Evidence of Excessive Buchanan Vote Share in Palm Beach County, Florida” (with Jonathan Wand, Kenneth Shotts, Jasjeet S. Sekhon, Michael Herron and Henry E. Brady). 2001. Presented at the 2001 Annual Meeting of the Public Choice Society, March 9–11, San Antonio, Texas.

“Legislator Quality and Campaign Contributions” (with Marc T. Ratkovic and Michael W. Tofias). Presented at the 2000 Summer Methods Conference, July 20–22, UCLA.

“Do American Midterm House Electors Coordinate?” (with Jasjeet Sekhon). Presented at the 2000 Annual Meeting of the Midwest Political Science Association, April 27–30, Palmer House, Chicago.

“Coordination, Moderation and Institutional Balancing in American House Elections at Midterm” (with Jasjeet Sekhon). Presented at the 1999 American Political Science Association Annual Meeting, September 2–5, Atlanta, GA.

“The Dynamics of Campaign Contributions in U.S. Congressional Elections” (with Jonathan Wand). Presented at the 1999 American Political Science Association Annual Meeting, September 2–5, Atlanta, GA.

“Poisson-Normal Dynamic Generalized Linear Mixed Models of U.S. House Campaign Contributions” (with Jonathan Wand). Presented at the 1999 Summer Political Methodology Meetings, July 15–18, Texas A&M University.

“A Policy Moderating Model of Individual Contributions to House Candidates” (with Jonathan Wand). Presented at the 1999 Midwest Political Science Association Annual Meeting, April 15–17, Palmer House Hilton, Chicago, IL.

“Rational Expectations Coordinating Voting in American Presidential and House Elections.” Presented at the 1998 Summer Methods Conference, July 22–26, University of California, San Diego.

“Rational Expectations Coordinating Voting in American Presidential and House Elections.” Presented at the 1998 Midwest Political Science Association Annual Meeting, April 23–25, Palmer House Hilton,

Chicago, IL.

“The Coalition-oriented Evolution of Vote Intentions across Regions and Levels of Political Awareness during the 1993 Canadian Election Campaign: Quotidian Markov Chain Models using Rolling Cross-section Data” (with Jonathan Wand). Presented at the 1997 American Political Science Association Annual Meeting, August 28–31, Washington, DC.

“Coordinating Voting in American Presidential and House Elections.” Presented at the 1997 Summer Methods Conference, Ohio State University, Columbus, July 24–27.

“Markov Chain Models for Rolling Cross-section Data: How Campaign Events and Political Awareness Affect Vote Intentions and Partisanship in the United States and Canada” (with Jonathan Wand). Presented at the 1997 Midwest Political Science Association Annual Meeting, April 10–12, Palmer House Hilton, Chicago, IL.

“Generic Tests for a Nonlinear Model of Congressional Campaign Dynamics.” Presented at the 1996 Annual Meeting of the American Political Science Association, August 29–September 1, San Francisco Hilton and Towers Hotel, San Francisco, CA.

“Bootstrap Methods for Non-nested Hypothesis Tests” (with Jasjeet Sekhon). Presented at the 1996 Summer Methods Conference, University of Michigan, Ann Arbor, July 17–21.

“Developments in Rape Law Reform in the U.S. and Impacts of Reform on Rape Reports and Arrests, 1970–1992” (with Stacy Futter). Presented at the 1996 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL.

“Sunspots and other Political Storms: Macroeconomics and Protest Events in the United States 1984–1988” (with Jasjeet Sekhon). Presented at the 1995 Annual Meeting of the American Political Science Association, August 31–September 3, Chicago Hilton and Towers, Chicago, IL.

“The Robustness of Normal-theory LISREL Models: Tests Using a New Optimizer, the Bootstrap, and Sampling Experiments, with Applications” (with Jasjeet Sekhon and Martin Wells). Presented at the 12th Annual Political Methodology Summer Conference, Bloomington, IN, July 27–30, 1995.

“The Robustness of Normal-theory LISREL Models: Tests Using a New Optimizer, the Bootstrap, and Sampling Experiments, with Applications” (with Jasjeet Sekhon and Martin Wells). Presented at the 1995 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 6–8.

“The Politics of Impoundment: A Switching Tobit Analysis of Impoundment Control Mechanisms in the Reagan Era” (with Gregory Wawro). Presented at the 1995 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 6–8.

“Developments in Rape Law Reform in the U.S. and Impacts of Reform on Rape Case Processing, 1970–1992” (with Stacy Futter). Presented at the 1995 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 6–8.

“Genetic Monte Carlo Cross-validation” (with Gregory Wawro). Presented at the 1994 Annual Meeting of the American Political Science Association, New York Hilton, New York, NY, September 1–4.

“Genetic Monte Carlo Cross-validation” (with Gregory Wawro). Presented at the Eleventh Annual Conference on Political Methodology, University of Wisconsin, Madison, July 21–24, 1994.

“Pork, Money and Votes in U.S. House Elections: A Strongly Nonlinear Econometric Model Implied by a Dynamic Formal Model.” Presented at the 1994 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 14–16.

“The Changing Relationship between Conflict and Mobilization in American Politics” (with Benjamin Ginsberg and Martin Shefter). Presented at the 1993 Annual Meeting of the Social Science History

Association, Radisson Plaza Lord Baltimore, Baltimore, MD, November 4–7.

“The Disjunction between Political Conflict and Electoral Mobilization in Contemporary America” (with Benjamin Ginsberg and Martin Shefter). Presented at the 1993 Annual Meeting of the American Political Science Association, Washington Hilton, Washington, DC, September 2–5, 1993.

“Pork Barrel Politics in Presidential Elections” (with Gregory Wawro). Presented at the 1993 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 15–17, 1993.

“A Dynamical System Model of Special Interest Benefits and Campaign Contributions in a Congressional Election.” Presented at the 1993 meetings of the Public Choice Society, The Monteleone, New Orleans, LA, March 19–21, 1993.

“Censoring in U.S. House Elections.” Presented at the 1992 Annual Meeting of the American Political Science Association, Palmer House Hilton, Chicago, IL, September 3–6, 1992.

“A Dynamical System Model of Federal Expenditures and Congressional Campaign Finance.” Presentation at the Ninth Annual Conference on Political Methodology, Harvard University, Cambridge, July 16–19, 1992.

“Congressional Campaign Finance and the Pork Barrel.” Presented at the 1992 Annual Meeting of the Midwest Political Science Association, Palmer House Hilton, Chicago, IL, April 9–11, 1992.

“Rational Self-restraint in Americans’ Voting Decisions: Institutions, Individuals’ Strategies and State Legitimacy” (with Sam Kaufman). Presented at the “Workshop on New Institutional Theory,” Comparative Analysis Program, Department of Sociology, Cornell University, November 8–10, 1991.

“Parties, Elections and Social Welfare Policy in the United States, 1948–87.” Presented at the 1991 Annual Meeting of the American Political Science Association, Washington, DC, August 29–September 1, 1991.

“Analyzing the Effects of Local Government Fiscal Activity I: Sampling Model and Basic Econometrics.” Presented at the Eighth Annual Conference on Political Methodology, Duke University, Durham, July 17–21, 1991.

“Local Government Fiscal Activity and Economic Growth: Evidence from Local Areas in the U.S. through the 1970s and 1980s” (with Paul Gregory). Presented at the 1990 Annual Meeting of the American Political Science Association, San Francisco, CA, August 30–September 2, 1990.

“Spatially Aggregated Analysis using the Censuses and Annual Surveys of Governments.” Presented at the Seventh Annual Conference on Political Methodology, Washington University, St. Louis, July 19–21, 1990.

“Voting and Non-voting in American National Elections: A Theory of Rational Expression” (with Sam Kaufman). Presented at the 1990 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 5–7, 1990.

“Quasi-likelihood Time Series Regression Models: Analytical Techniques.” Presentation at the Sixth Annual Conference on Political Methodology, University of Minnesota, Minneapolis, July 13–15, 1989.

“Balancing Forces in Spheres of Influence: A Large-scale Dynamic Model.” Presented at the 1989 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 13–15, 1989.

“Local Economic Conditions and Votes in the U.S.” (with Richard Forshee). Presented at the 1988 Annual Meeting of the American Political Science Association, Washington, DC, September 1–4, 1988.

“Popular Evaluations of Economic Conditions and Policy in the United States, 1978–1985.” Presented at the Fifth Conference on Political Methodology, Los Angeles, CA, July 14–16, 1988.

“The Dubious Exogeneity of Demographics in Survey Cross-sections.” Presented at the 1988 Annual Meeting of the Midwest Political Science Association, Chicago, April 14–16, 1988.

“The Political Basis of Survey Analysis.” Presented at the 1987 Annual Meeting of the American Political Science Association, Chicago, IL, September 3–6, 1987.

“Evaluations of Government Economic Policy in the United States, 1978–1985.” Presented at the Fourth Conference on Political Methodology, Durham, NC, August 6–9, 1987.

“Varieties of Economic Evaluation over Time.” Presented at the 1987 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 9–11, 1987.

“*E Pluribus Unum?* Three General Problems with Trying to Make Valid Causal Inferences about Attitudes by Means of Survey Analysis.” Presented at the 1986 Annual Meeting of the American Political Science Association, Washington, DC, August 27–31, 1986.

“An Aggregate Multivariate Time Series Model of the Relationship between Economic Fluctuations and Economic Policy Evaluations.” Presented at the Third Annual Conference on Political Methodology, Cambridge, MA, August 7–10, 1986.

“Project on Political Reasoning” (with Donald Kinder). Memo to the National Election Studies Board of Overseers, June 1984.

“Pilot Project on Political Reasoning” (with Donald Kinder). Memo to the National Election Studies Planning Committee and Board of Overseers, April 1983.

“Measuring Covariance and Noncentrality for Few-category Variables in Maximum Likelihood Estimation of Linear Structures.” Presented at the 1982 Annual Meeting of the American Political Science Association, Denver, CO.

“The Warp of Sociotropic Thinking.” Presented at the 1982 Annual Meeting of the Midwest Political Science Association, Milwaukee, WI.

“Everyday Accounts for Economic Predicaments” (with Donald Kinder). Presented at the conference, “The Political Process and Economic Change,” New York University, October 29–November 1, 1981.

INVITED TALKS:

Seminar, Voting Analysis in Mathematics and Politics: Interdisciplinary Research and Education, Morehouse College, Atlanta, Georgia, April 25, 2008.

Seminar, Applied Statistics Seminar, Dartmouth College, January 25, 2008.

Seminar, Democracy International, Washington, DC, March 26, 2007.

Seminar, Department of Political Science, Washington University, St. Louis, February 24, 2006.

Seminar, Department of Political Science, Stanford University, May 19, 2005.

Seminar, NSF Workshop on Empirical Implications of Theoretical Models, Duke University, June 30, 2004.

Seminar, Department of Political Science, New York University, November 14, 2003.

Seminar, NSF Workshop on Empirical Implications of Theoretical Models, Washington University, St. Louis, June 25, 2003.

Seminar, Center for the Study of Democratic Politics, Princeton University, April 28, 2003.

Seminar, Department of Political Science, University of Minnesota, April 23, 2003.

Seminar, Department of Political Science, Washington University, St. Louis, October 11, 2002.

Seminar, Department of Political Science, University of Rochester, April 12, 2002.

Lecture, Applied Ethics, Fairness and Electoral Reform Series, Rochester Institute of Technology, November 14, 2001.

Lecture, Quantitative Methods and Political Science Departments, Applied Statistics Program and Local Chapter of the American Statistical Association, Syracuse University, October 26, 2001.

Seminar, Department of Politics, Princeton University, March 29, 1995.

Seminar, Department of Political Science, University of North Carolina, Chapel Hill, March 25, 1994.

PUBLICATIONS (NON-POLITICAL SCIENCE):

“Use of Bayes Theorem to Estimate the Impact of the Proposed CD4-Based Expansion of the AIDS Case Definition” (with Mitchell H. Katz, Nancy A. Hessol, Susan P. Buchbinder, Paul O’Malley, George F. Lemp and Scott D. Holmberg). 1993, *Journal of Acquired Immune Deficiency Syndromes* 6:295–297.

WORK IN PREPARATION:

“Machine Errors and Undervotes in Florida 2006 Revisited,” March 14, 2008. Working paper.

“Voting Technology and the 2008 New Hampshire Primary” (with Michael C. Herron and Jonathan N. Wand), January 19, 2008. Working paper.

“Factors Associated with the Excessive CD-13 Undervote in the 2006 General Election in Sarasota County, Florida” (with David L. Dill), January 23, 2007. Working paper.

“Voting Machine Allocation in Franklin County, Ohio, 2004: Response to U.S. Department of Justice Letter of June 29, 2005,” July 7, 2005. Working paper.

PROFESSIONAL ACTIVITIES:

American Political Science Association: Political Methodology Section, Treasurer: 1992–1994; 1994 Annual Meeting Program Committee, Political Methodology Section Chair; Committee on the Status of Blacks in the Profession, Member, 1994–1997; Section on Political Economy, Best Book Prize Committee Chair, 1995; ad hoc Committee on Minority Fellowship Programs, Member, 1997–1998; PROceedings focus group, 1998; ad hoc advisory committee on reappointment of the APSR Editor, 2004; Comparative Politics Section, Data Set Award Committee Chair, 2006.

Midwest Political Science Association: Brooks-Cole Prize Committee, 1986; Annual Meeting Program Committee, Methodology Section Chair, 1999; Council, 2003–2006.

Political Methodology Society: Conference Planning Committee, 1991; Poster Prize Committee, 2002, 2004; Gosnell Prize Committee Chair, 2003.

Editorial Board: *American Political Science Review* (1995–2001); *American Politics Quarterly* (1993–1995); *Journal of Politics* (2004–2006); *Perspectives on Politics* (2005–); *Political Analysis* (1989–1996, 2003–).

Memberships: American Political Science Association; Midwest Political Science Association; American Statistical Association.

National Science Foundation: Information Technology Research large pre-proposals panel (January 2002); SBE/CISE Workshop (March 15–16, 2005); Human and Social Dynamics panel (May 16–17, 2005); Political Science panel (2004–2006); Political Science Committee of Visitors (March 10, 2007).

National Research Council: Ford Foundation Postdoctoral and Dissertation Fellowships for Minorities Program applications evaluation panel, March 1995, March 1996.

American Political Science Association Annual Meeting Panel Chair, Discussant or Roundtable

Participant: 1986, 1987, 1988, 1992, 1993, 1994, 2000, 2004, 2005, 2006, 2008.

Midwest Political Science Association Annual Meeting Panel Chair, Discussant or Roundtable Participant: 1986, 1990, 1991, 1992, 1999, 2000, 2002.

Annual Conference on Political Methodology, Participant: 1986–2008.

Consultant: Democratic National Committee study of the 2004 Election in Ohio (January–June, 2005).

National Academies: Planning Meeting: Developing a Sound Analytical Basis for Improving Public Participation and Confidence in 21st Century Elections. Washington, DC (December 5–6, 2005).

Cornell-In-Washington: Conference, “The New Electoral Map: From the Gingrich Revolution to 2008,” Woodrow Wilson Center, Washington, DC, March 31, 2006.

American National Election Study: Board of Overseers, Member (2006–).

ACCURATE (A Center for Correct, Usable, Reliable, Auditable, and Transparent Elections): Advisory Board member (2007–).

National Annenberg Election Study: Power Workshop, Philadelphia, PA (January 12, 2007).

National Annenberg Election Study: Advisory Board, Member (2007–).

Benford’s Law Conference (Santa Fe, NM, December 17–18, 2007).

William & Mary School of Law: How We Vote Symposium (March 14, 2008).

October 22, 2008

EXHIBIT TWO

Voting Machine Provision and Allocation in the Virginia
2008 General Election: Relations to Precinct Racial
Composition and Implications for Voter Turnout in
Norfolk, Richmond and Virginia Beach Counties

Walter R. Mebane, Jr.¹

October 27, 2008

¹Professor of Political Science and Professor of Statistics, University of Michigan. 7735 Haven Hall, Ann Arbor, MI 48109-1045. Phone: 734-763-2220. Email: wmebane@umich.edu.

Table 1: Distributions of Voting Resources to Registered Voters

County	Characteristic	Year					
		2008			2004		
		mean	sdev	IQR	mean	sdev	IQR
Norfolk	Reg Voters per Machine	358.9	63.9	62.4	359.0	86.8	126.4
Richmond	Reg Voters per Machine	266.2	56.5	77.4	481.7	107.9	128.1
Virginia Beach	Reg Voters per Machine	321.8	62.1	58.5	346.3	75.3	107.9
Norfolk	Reg Voters per Poll Worker	188.2	49.1	74.0	—	—	—
Richmond	Reg Voters per Poll Worker	156.1	26.2	32.8	193.8	36.6	45.4
Virginia Beach	Reg Voters per Poll Worker	187.6	47.0	59.1	385.6	88.4	117.9

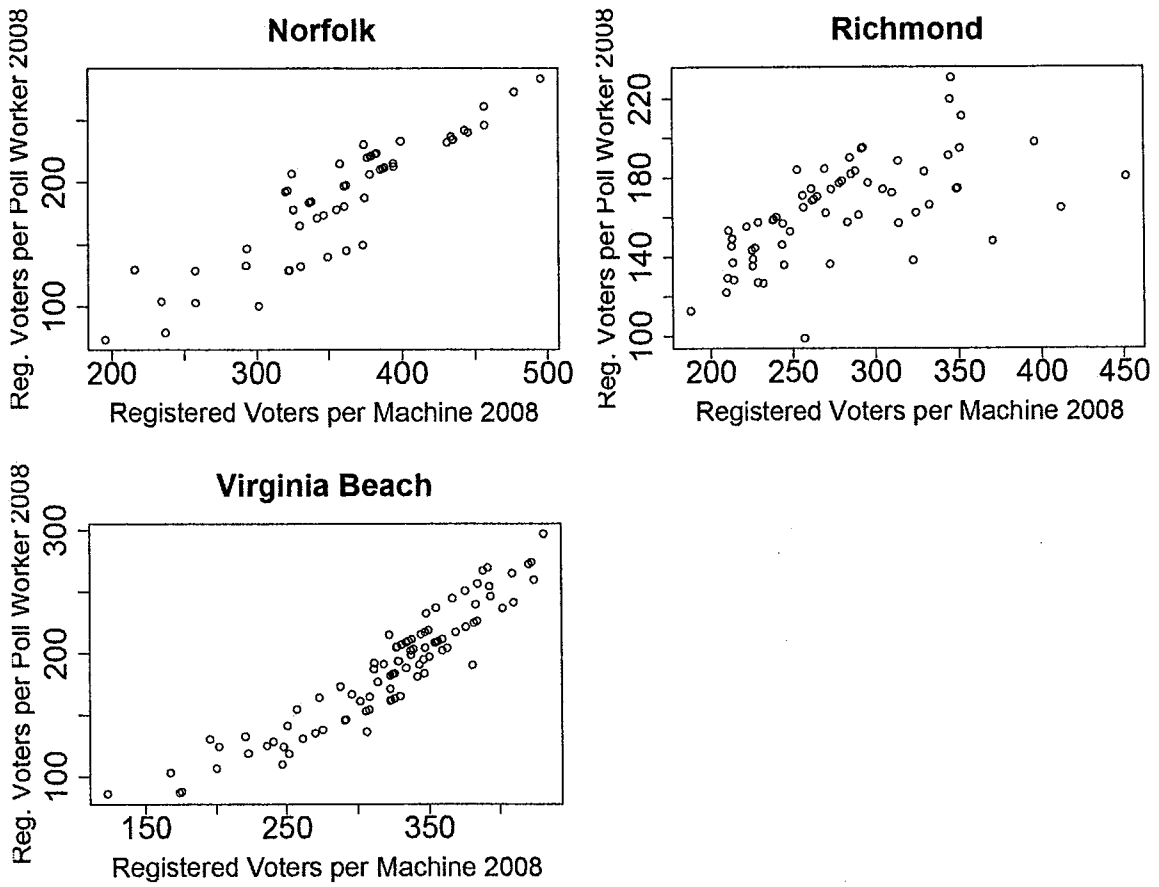


Figure 1: 2008 Registered Voters per Poll Worker by 2008 Registered Voters per Machine

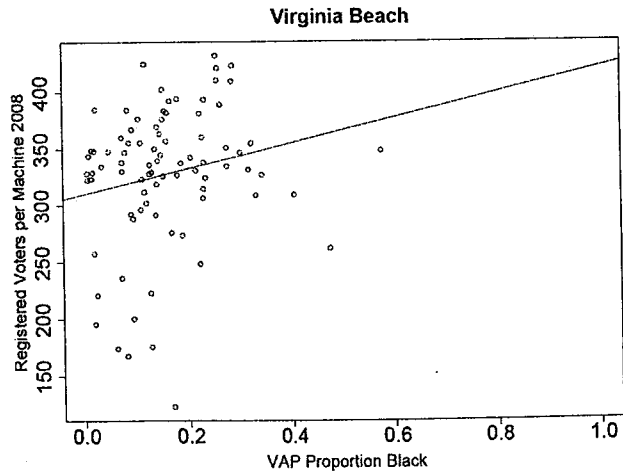
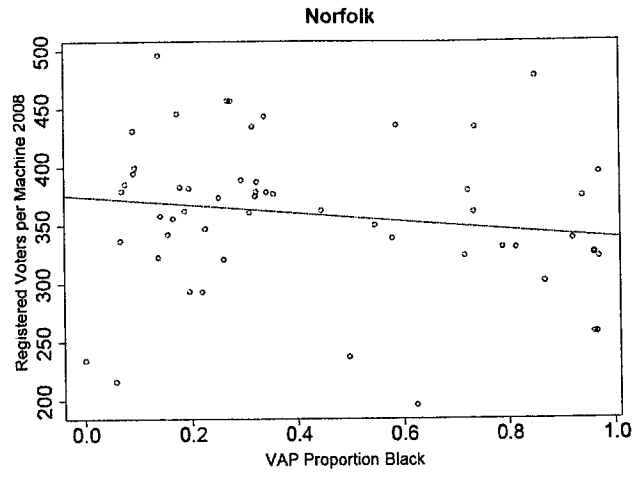


Figure 2: 2008 Registered Voters per Machine by VAP Black Proportions

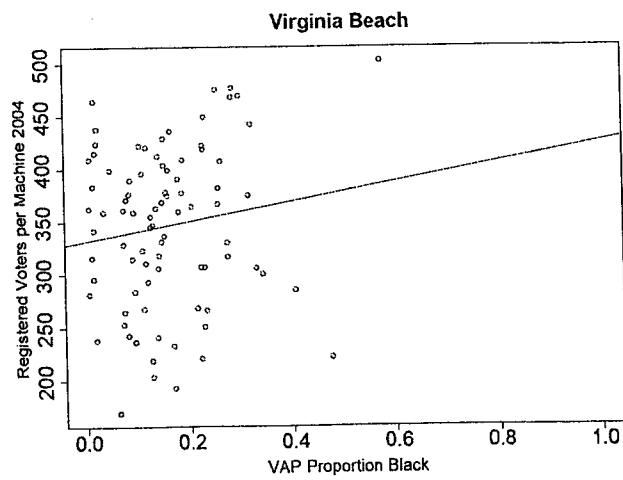
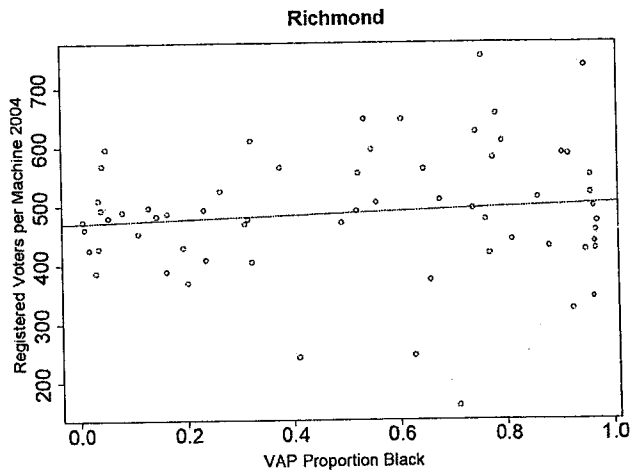
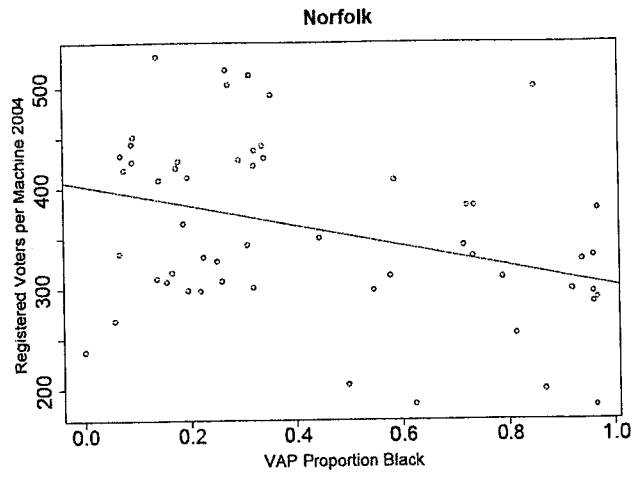


Figure 3: 2004 Registered Voters per Machine by VAP Black Proportions

Table 2: Linear Models for 2004 Turnout among Registered Voters

County	Variable	Model 1		Model 2	
		coef.	<i>t</i> -stat.	coef.	<i>t</i> -stat.
Norfolk	Intercept	0.674	3.62	1.10	5.84
	RV per Machine	-0.000483	-1.02	-0.00111	-2.46
	VAP Prop. Black	—	—	-0.449	-4.80
Richmond	Intercept	1.26	5.44	1.33	7.90
	RV per Machine	-0.000832	-1.97	-0.000351	-1.08
	VAP Prop. Black	—	—	-0.659	-6.52
Virginia Beach	Intercept	1.16	7.49	1.21	11.60
	RV per Machine	-0.00172	-3.96	-0.00116	-3.95
	VAP Prop. Black	—	—	-1.54	-8.01

Notes: Robust (tanh) overdispersed binomial regression estimates (Mebane and Sekhon, 2004a). For each precinct, the dependent variable counts the number of registered voters voting versus the number of registered voters not voting. Norfolk: $n = 55$; model 1, $\sigma = 5.7$; model 2, $\sigma = 4.8$. Richmond: $n = 63$; model 1, $\sigma = 6.0$; model 2, $\sigma = 4.6$. Virginia Beach: $n = 85$; model 1, $\sigma = 7.6$; model 2, $\sigma = 5.6$.

Table 3: Inverse Linear Models for 2004 Turnout among Registered Voters

County	Variable	Model 3		Model 4	
		coef.	<i>t</i> -stat.	coef.	<i>t</i> -stat.
Norfolk	Intercept	0.474	2.78	0.459	2.94
	1/(RV per Machine)	5.18	0.08	74.8	1.30
	VAP Prop. Black	—	—	-0.408	-4.56
Richmond	Intercept	0.775	4.02	1.18	7.50
	1/(RV per Machine)	27.6	0.29	-12.7	-0.19
	VAP Prop. Black	—	—	-0.678	-6.65
Virginia Beach	Intercept	0.0646	0.49	0.429	4.36
	1/(RV per Machine)	164.0	3.88	129.0	4.52
	VAP Prop. Black	—	—	-1.61	-8.63

Notes: Robust (tanh) overdispersed binomial regression estimates (Mebane and Sekhon, 2004a). For each precinct, the dependent variable counts the number of registered voters voting versus the number of registered voters not voting. Norfolk: $n = 55$; model 3, $\sigma = 5.7$; model 4, $\sigma = 4.9$. Richmond: $n = 63$; model 3, $\sigma = 6.1$; model 4, $\sigma = 4.6$. Virginia Beach: $n = 85$; model 3, $\sigma = 7.6$; model 4, $\sigma = 5.6$.

Table 4: Quadratic Models for 2004 Turnout among Registered Voters

County	Variable	Model 5		Model 6	
		coef.	<i>t</i> -stat.	coef.	<i>t</i> -stat.
Norfolk	Intercept	-1.26	-2.31	-0.676	-1.25
	RV per Machine	0.0102	3.49	8.49e-3	3.08
	(RV per Machine) ²	-0.000014	-3.69	-1.25e-5	-3.51
	VAP Prop. Black	—	—	-0.415	-3.93
Richmond	Intercept	-0.881	-1.72	0.104	0.21
	RV per Machine	7.75e-3	3.64	4.49e-3	2.34
	(RV per Machine) ²	-8.32e-6	-3.81	-4.73e-6	-2.46
	VAP Prop. Black	—	—	-0.610	-5.98
Virginia Beach	Intercept	0.402	0.74	1.93	4.80
	RV per Machine	2.74e-3	0.83	-5.32e-3	-2.22
	(RV per Machine) ²	-6.31e-6	-1.31	5.95e-6	1.69
	VAP Prop. Black	—	—	-1.68	-8.10

Notes: Robust (tanh) overdispersed binomial regression estimates (Mebane and Sekhon, 2004a). For each precinct, the dependent variable counts the number of registered voters voting versus the number of registered voters not voting. Norfolk: $n = 55$; model 5, $\sigma = 5.4$; model 6, $\sigma = 4.7$. Richmond: $n = 63$; model 5, $\sigma = 5.6$; model 6, $\sigma = 4.5$. Virginia Beach: $n = 85$; model 5, $\sigma = 7.5$; model 6, $\sigma = 5.7$.

Table 5: Inverse Quadratic Models for 2004 Turnout among Registered Voters

County	Variable	Model 7		Model 8	
		coef.	<i>t</i> -stat.	coef.	<i>t</i> -stat.
Norfolk	Intercept	-0.718	-1.80	-0.819	-2.12
	1/(RV per Machine)	793.0	3.20	925.0	3.84
	1/(RV per Machine) ²	-1.21e+5	-3.35	-1.31e+5	-3.69
	VAP Prop. Black	—	—	-0.430	-4.38
Richmond	Intercept	-0.183	-0.55	0.570	2.04
	1/(RV per Machine)	774.0	3.08	448.0	2.39
	1/(RV per Machine) ²	-1.28e+5	-3.05	-7.88e+4	-2.65
	VAP Prop. Black	—	—	-0.641	-6.45
Virginia Beach	Intercept	-0.56	-1.15	0.44	1.21
	1/(RV per Machine)	558.0	1.95	122.0	0.58
	1/(RV per Machine) ²	-5.86e+4	-1.47	1.12e+3	0.038
	VAP Prop. Black	—	—	-1.61	-8.23

Notes: Robust (tanh) overdispersed binomial regression estimates (Mebane and Sekhon, 2004a). For each precinct, the dependent variable counts the number of registered voters voting versus the number of registered voters not voting. Norfolk: $n = 55$; model 7, $\sigma = 5.5$; model 8, $\sigma = 4.7$. Richmond: $n = 63$; model 7, $\sigma = 5.8$; model 8, $\sigma = 4.5$. Virginia Beach: $n = 85$; model 7, $\sigma = 7.6$; model 8, $\sigma = 5.8$.

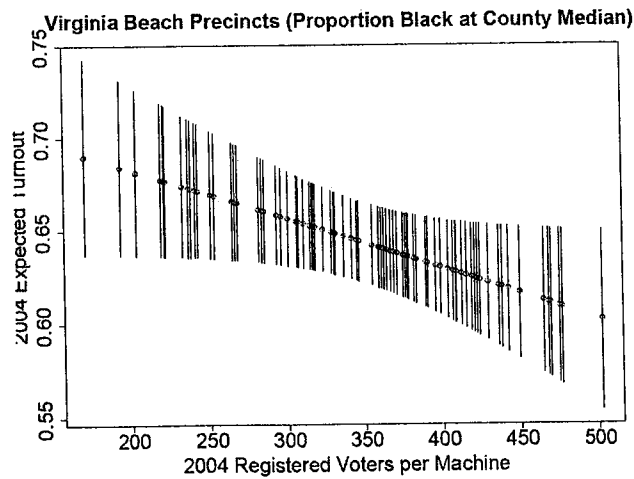
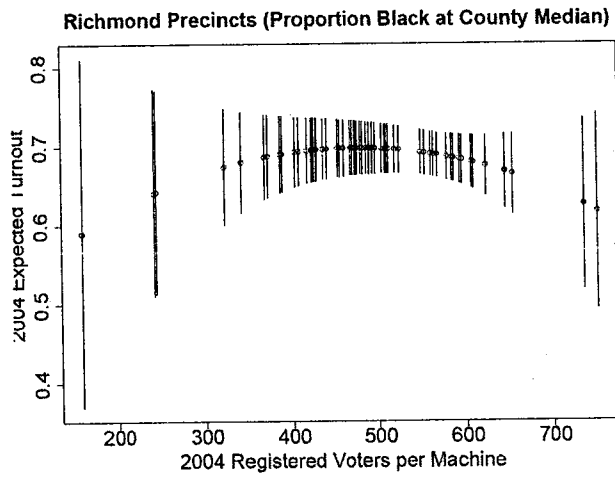
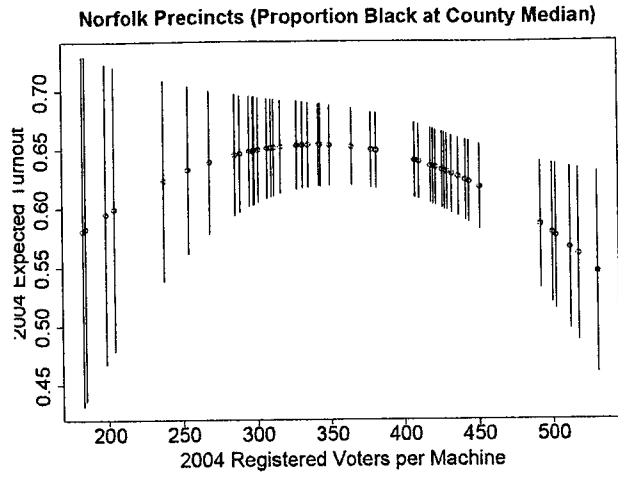


Figure 4: Expected 2004 Voter Turnout, Quadratic and Linear Models, Fixing 2000 VAP Black Proportions at Median

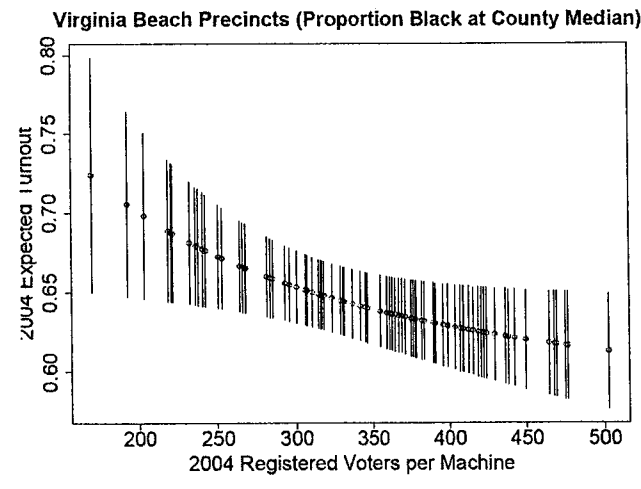
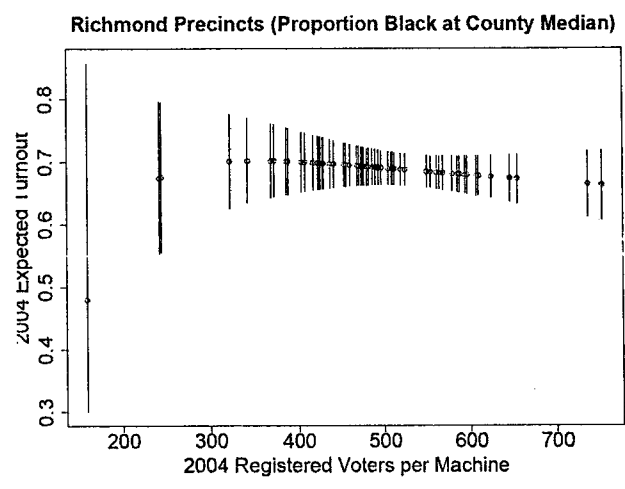
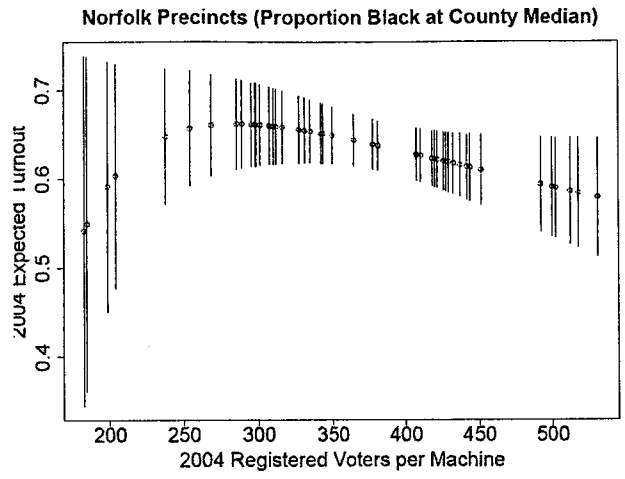


Figure 5: Expected 2004 Voter Turnout, Inverse Quadratic and Inverse Linear Models, Fixing 2000 VAP Black Proportions at Median

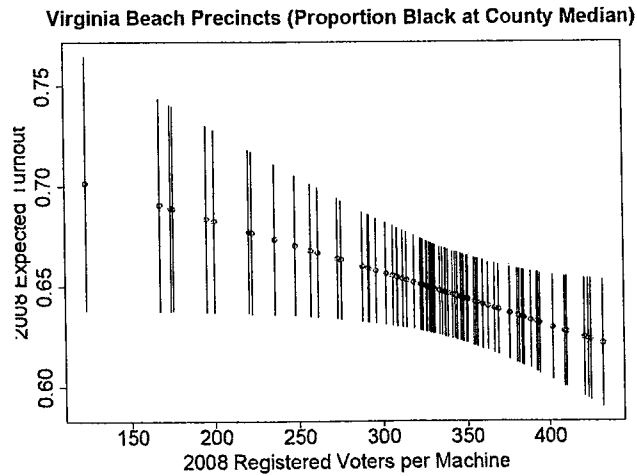
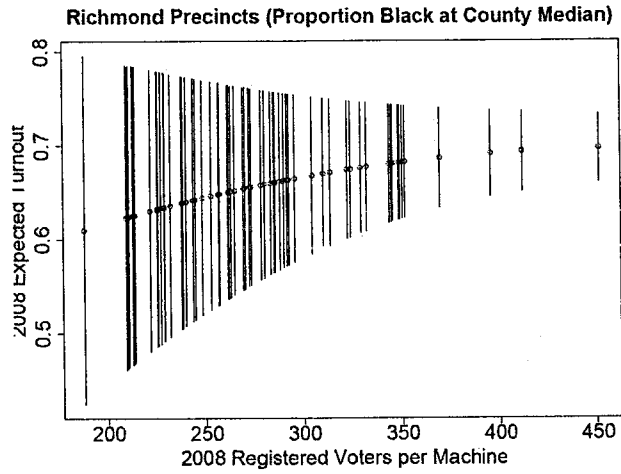
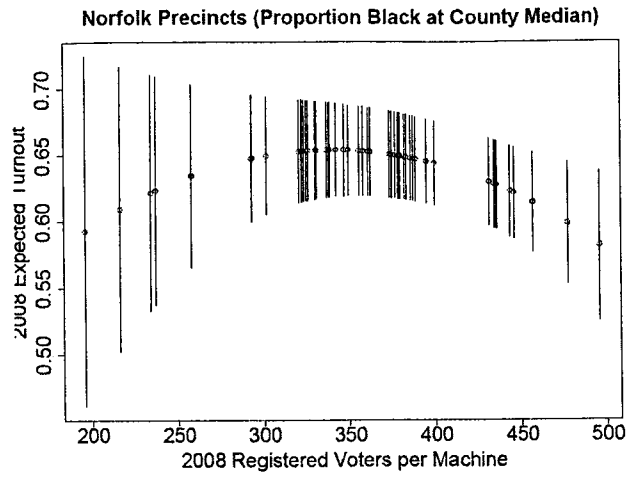


Figure 6: Predicted 2008 Voter Turnout, Quadratic and Linear Models, Fixing 2000 VAP Black Proportions at Median

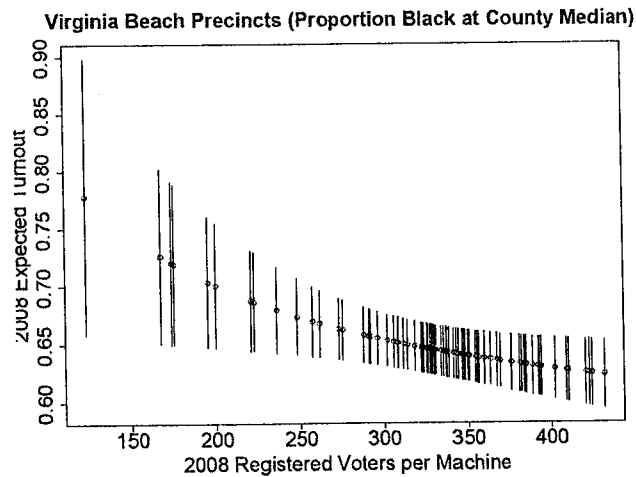
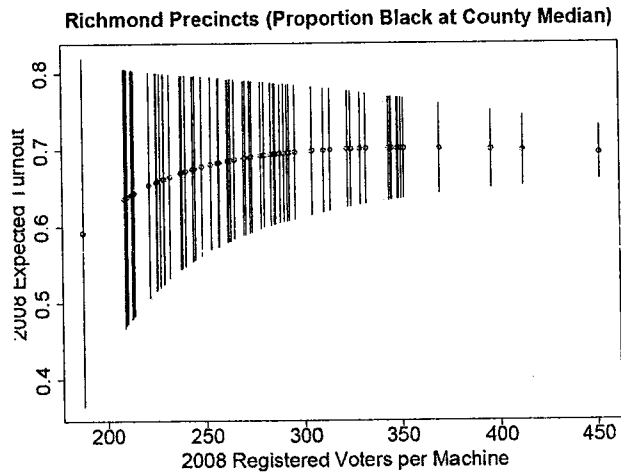
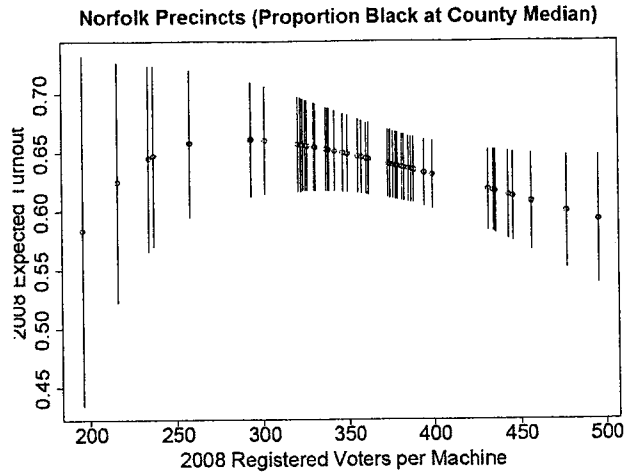


Figure 7: Predicted 2008 Voter Turnout, Inverse Quadratic and Inverse Linear Models, Fixing 2000 VAP Black Proportions at Median

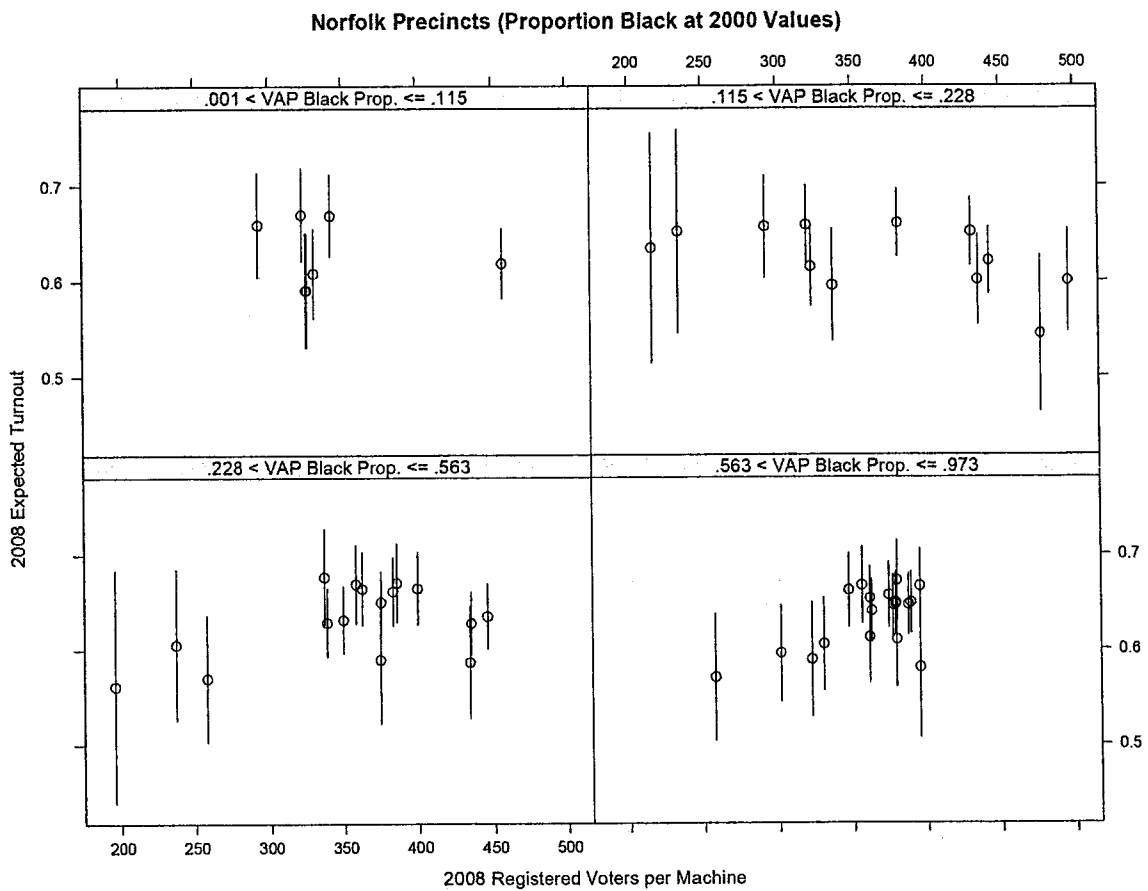


Figure 8: Predicted 2008 Voter Turnout in Norfolk Precincts, Quadratic Model, Using 2000 VAP Black Proportions

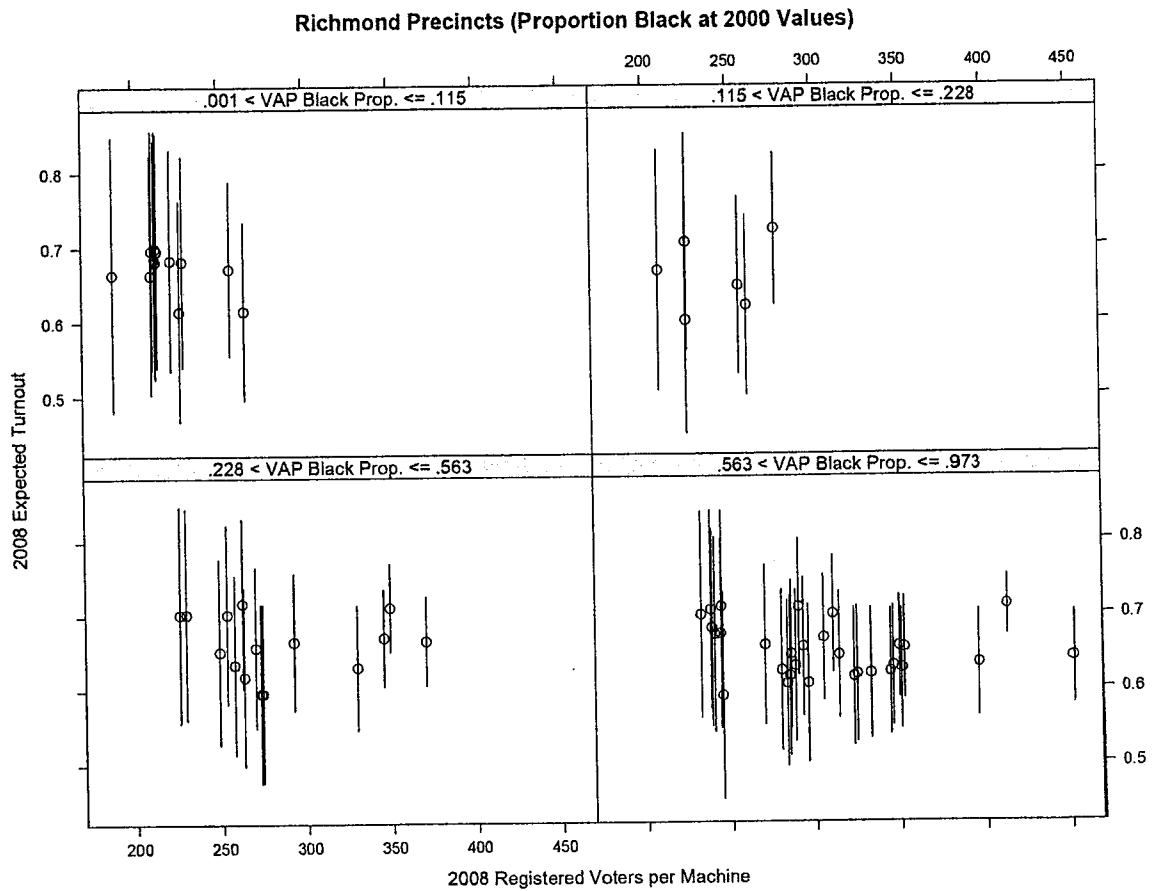


Figure 9: Predicted 2008 Voter Turnout in Richmond Precincts, Quadratic Model, Using 2000 VAP Black Proportions

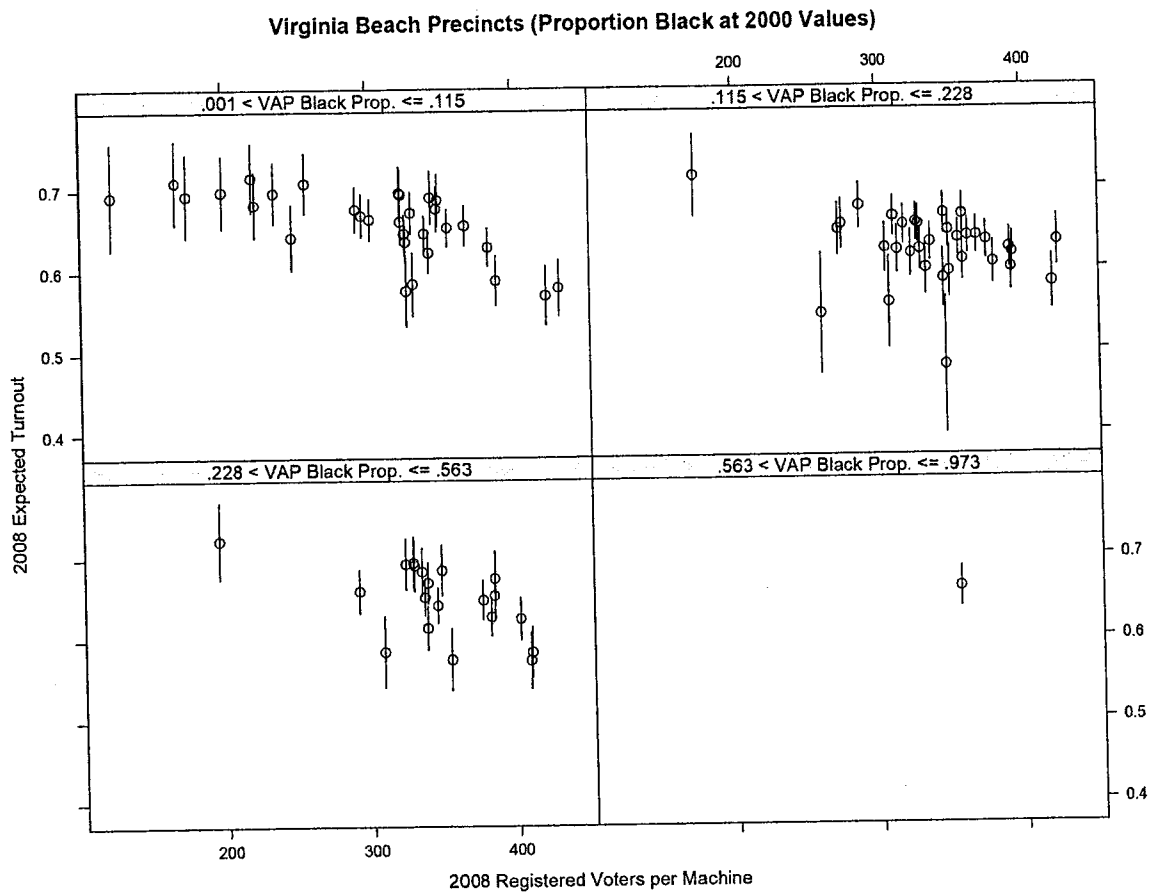


Figure 10: Predicted 2008 Voter Turnout in Virginia Beach Precincts, Linear Model, Using 2000 VAP Black Proportions

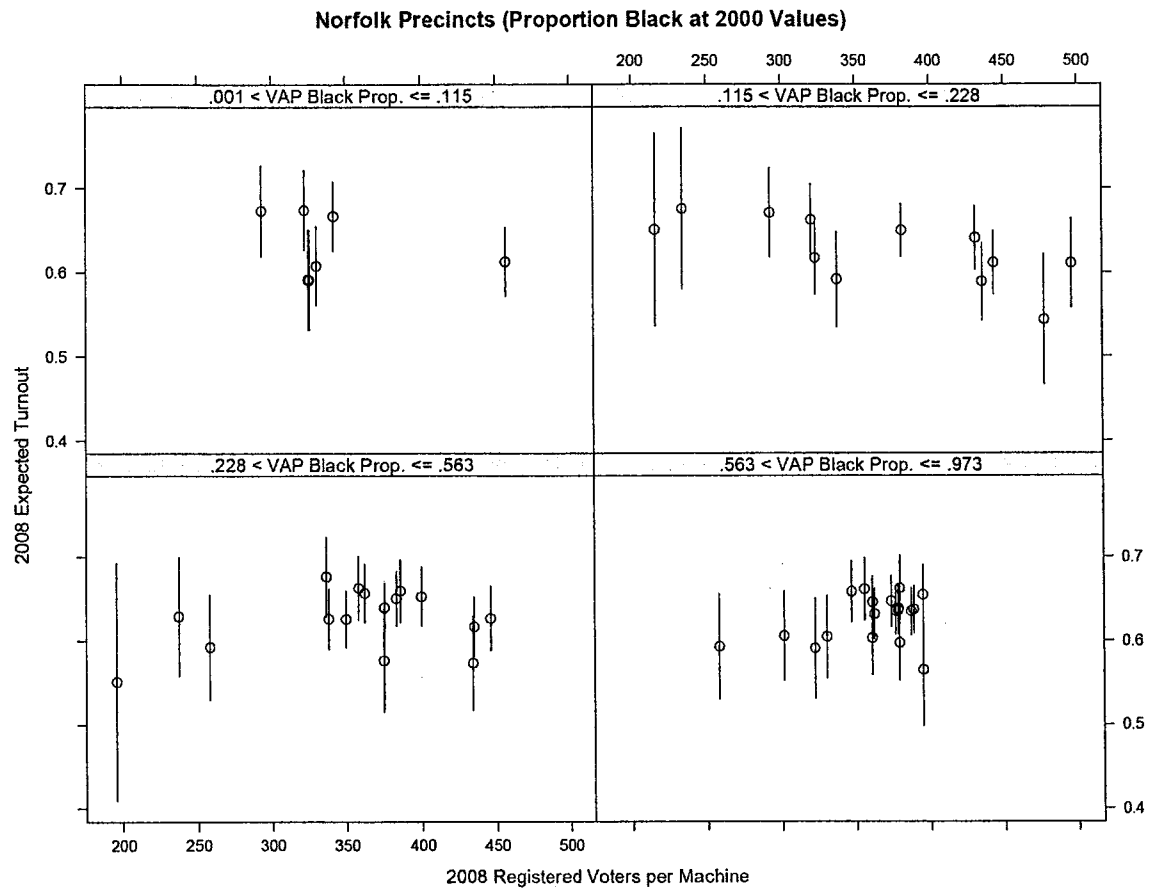


Figure 11: Predicted 2008 Voter Turnout in Norfolk Precincts, Inverse Quadratic Model, Using 2000 VAP Black Proportions

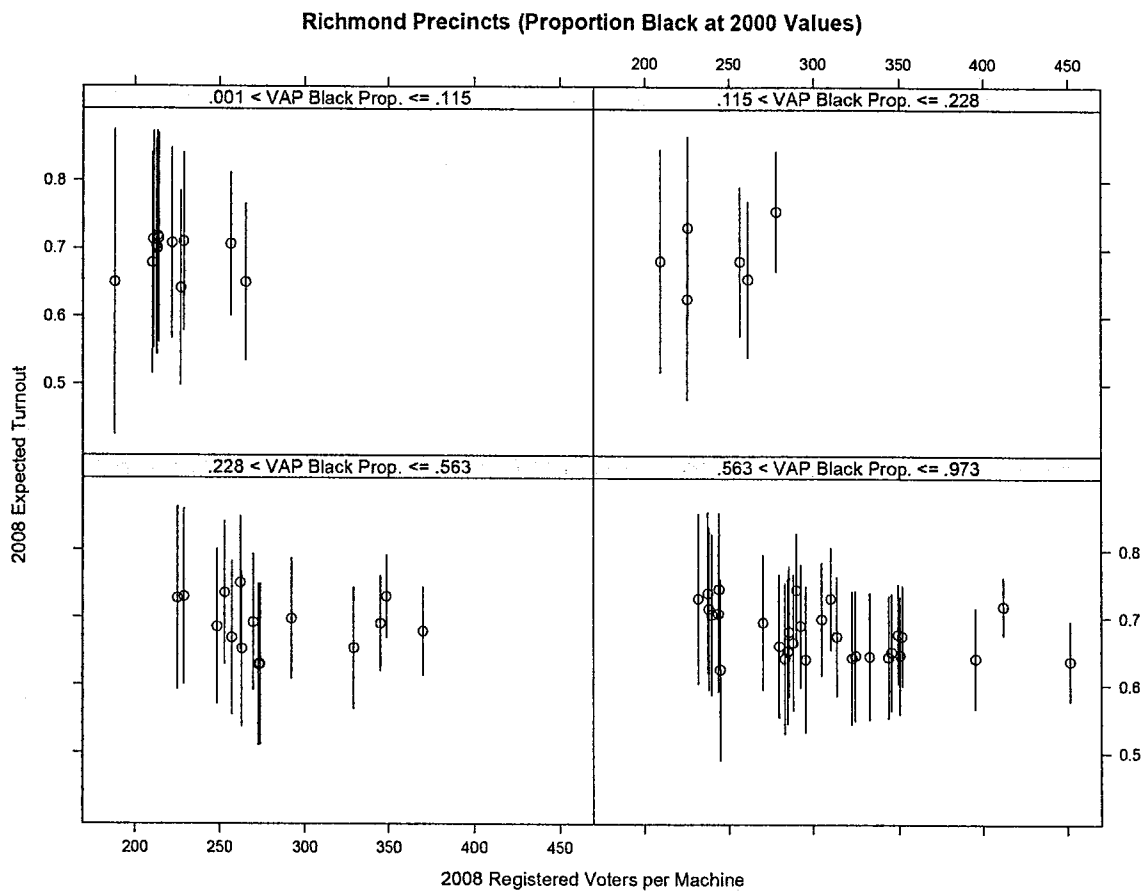


Figure 12: Predicted 2008 Voter Turnout in Richmond Precincts, Inverse Quadratic Model, Using 2000 VAP Black Proportions

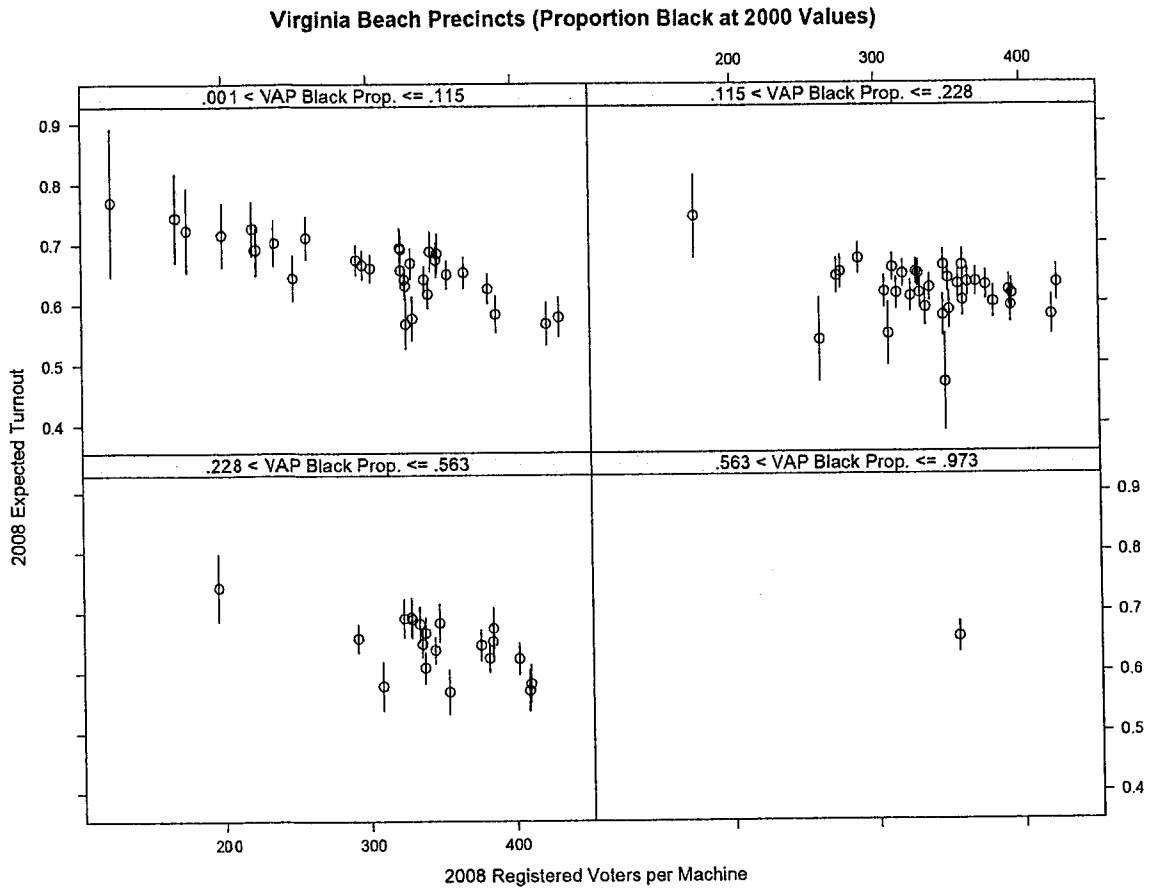


Figure 13: Predicted 2008 Voter Turnout in Virginia Beach Precincts, Inverse Linear Model, Using 2000 VAP Black Proportions

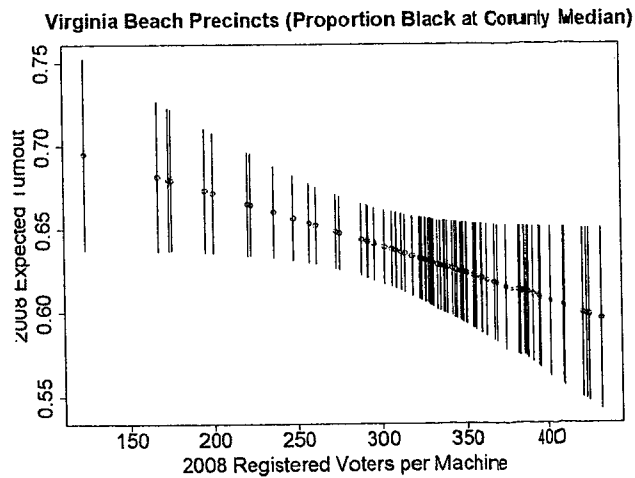
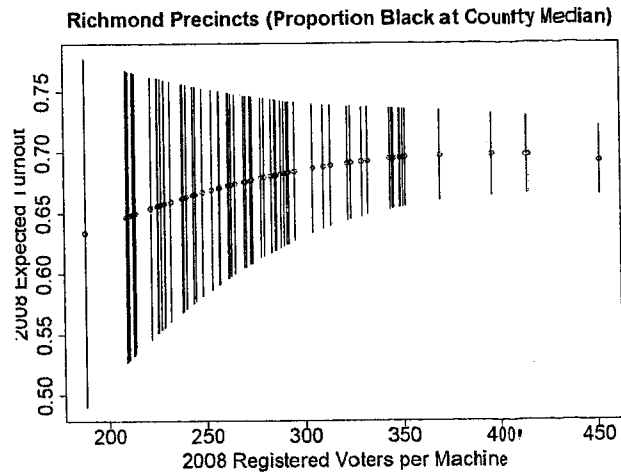
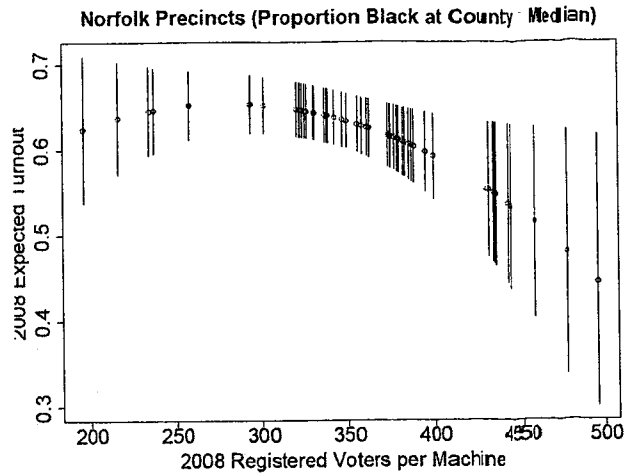


Figure 14: Predicted 2008 Voter Turnout, Inverse Quadratic and Inverse Linear Models, Fixing 2000 VAP Black Proportions at Median, Surging Arrivals from .7 to .85