



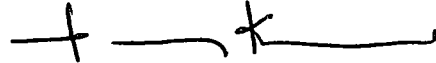
1 Exhibit B: Expert Report of Jonathan Katz, Ph.D

2 Exhibit C: List of Persons Attempting to Correct County Errors Regarding  
3 Signature Verification

4 Exhibit D: List of Voters Who Claim Their Ballots Were Wrongly Rejected by  
5 Counties for Signature Match Problems.

6 I declare under penalty of perjury under the laws of the State of Washington that  
7 the foregoing is true and correct to the best of my knowledge and belief.

8  
9 Executed at Seattle, Washington, this 15<sup>th</sup> day of April, 2005.

10  
11 

12 HARRY KORRELL

**EXHIBIT A**

# Report Regarding Invalid Ballots Cast in the 2004 Washington State Gubernatorial Race

Anthony Gill, Ph.D.  
Associate Professor  
Political Science, Box 353530  
University of Washington  
Seattle, WA 98195-3530

## **Executive Summary**

- 1) Based upon a tipping point analysis, there are a sufficient number of uncontested invalid ballots in King County alone to believe the 2004 Washington State gubernatorial election may have resulted in a victory for Mr. Dino Rossi had those invalid votes not been cast or expunged prior to the manual recount completed on December 23, 2004. (See Section C of this report.)
- 2) Using precinct level data to estimate how invalid votes would have been distributed across all candidates (and “other” write-in or non-votes), the analysis shows that expunging the invalid ballots prior to the completion of the manual recount would have resulted in an electoral victory for Mr. Rossi. In all cases where the likely vote distribution of invalid ballots included King County – where the largest number of invalid ballots were cast – the result of the manual recount would likely have been altered to give Mr. Rossi an electoral victory if invalid votes had not been counted. An analysis of King County alone reveals that the invalid vote distribution would result in a Rossi victory, even when excluding contested votes (as of April 4, 2004) from the analysis. (See Section D of this report.)
- 3) Based upon previous research by Profs. Christopher Uggen and Jeff Manza, it is likely that the estimate of how felons voted in this analysis is too conservative, giving Ms. Gregoire the benefit of the doubt. In other words, the rate at which felons vote for a Democratic candidate is likely to be higher than the estimates provided by the precinct-level of analysis here. (See Section E of this report.)

## **A. Introductory Statements**

### **A.1. Background.**

In early February of 2005, I, Anthony Gill, was contacted by lawyers from the Dino Rossi for Governor Campaign (forthwith "Rossi Campaign") regarding the possibility of testifying as an expert witness in the trial involving the 2004 Washington State Gubernatorial Election. The general task to be assigned to me was to evaluate data on invalid votes to determine whether this subset of ballots could have affected the outcome of the election, which was decided by 129 votes favoring Christine Gregoire following a manual recount of ballots.

In mid-February of 2005, I was contacted by Clark Bensen and Polidata ® Political Data Analysis of Lake Ridge, VA and Mark Braden, a lawyer working for the Rossi Campaign. Clark Bensen was responsible for providing me with the datasets to be analyzed. From that point in time, we remained in contact regarding the progress being made on the construction of various datasets.

### **A.2. Biography.**

Dr. Anthony Gill is a tenured associate professor in the Department of Political Science at the University of Washington, Seattle, where he has been employed since the autumn of 1994. Tenure and promotion to associate professor were granted in autumn of 2000. My primary fields of study include comparative politics, religion and politics and political methodology. I have taught numerous classes in these fields, including introductory undergraduate courses in political statistics and graduate courses in research design and statistics. In 1999, I was awarded the University of Washington's Distinguished Teaching Award. My publications include a book and numerous articles on religion and politics employing a variety of methodological techniques including statistical analysis.

I received a B.A. in political science and history at Marquette University (1987) and an M.A. (1989) and Ph.D. (1994) from the University of California, Los Angeles. While in graduate school, my major fields of concentration included methodology (including research design, formal theory and statistics) and comparative politics. A minor concentration in political economy rounded out my coursework and training at UCLA.

Between the summer of 1990 and autumn of 1991, I was employed as a research analyst for I/H/R Research, a privately-owned marketing research firm in Tustin, California. The company also operated two related firms – Restaurant Research Associates and Scientific Telephone Samples – where I was also employed. My work for these companies included the statistical analysis of survey data and generation of random telephone numbers for marketing research polls.

### **A.3. The Datasets Used**

As mentioned in Section A.1, datasets were provided by Clark Bensen and Polidata. Two datasets were provided for analysis in the court case: 1) a statewide file of election results broken down by precincts with identified felons placed in the precincts where their ballots were cast; and 2) a file of King County election results broken down by precinct with invalid votes. The version of the statewide file used here for analysis was received April 10, 2005 and version of the King County file was used here was received April 8, 2005.

The statewide election result file was compiled based upon information gathered by the Rossi Campaign and Polidata using the official canvass from each county elections office. With respect to invalid votes, the statewide file only included invalid votes cast by felons. The seven contested felon votes were not identified in this file. The statewide file did not include information regarding deceased voters, invalid scanned provisional ballots, dual multi-state ballots, dual in-state ballots and non-citizen ballots. The dataset provided the precinct location of each invalid felon ballot.

The King County election result data file was compiled using information provided directly from the King County Elections Office. This file included not only data on felon voters, but invalid ballots based upon deceased voters, invalid scanned provisional ballots, dual multi-state, dual in-state, and non-citizen ballots. The file provided the precinct location of each invalid ballot cast. It also included information on invalid ballot challenges and which precincts those challenged invalid ballots were located.

Additional questions regarding the construction and proofing of the datasets should be directed towards Clark Bensen and Polidata (Lake Ridge, VA). The reasoning behind the determination of invalid ballots should be directed to the relevant parties as I played no role in determining what constituted an invalid ballot cast.

**All analysis forthwith was based upon data and results from the manual recount of ballots certified by the Washington State Secretary of State on December 23, 2004.**

## **B. Central Objective and Considerations**

### **B.1. Central Objectives**

The central objective of this study is to determine whether the invalid ballots could have made a difference in the Washington State gubernatorial election outcome between Christine Gregoire and Dino Rossi. The final results of the manual recount posted on 23 December 2004 show that Christine Gregoire received 129 more votes than Dino Rossi. **Based upon statistical calculations of invalid votes, is there reason to believe that this 129 vote gap between Ms. Gregoire and Mr. Rossi could be erased?**

## **B.2. Level of Analysis.**

The ideal situation in resolving whether the set of invalid ballots could have made a difference in the gubernatorial election outcome would be to specifically identify each invalid ballot cast and note whether that ballot was cast for either Ms. Gregoire, Mr. Rossi, another candidate (including write-in candidates) or was cast as an undervote (no vote tallied) or an overvote (multiple candidates marked). This is not possible in this instance given that ballots are cast anonymously and all ballots – both valid and invalid – are part of a large voting pool.

Given that it is not possible to identify the exact invalid ballot and examine it directly, the next best solution is to examine how ballots were cast at the individual precinct level.

**Examining ballots at the precinct level is possible given how ballots are tallied and reported.** An examination of the election canvass reveals that votes often cluster by geographic region; rural precincts tend to vote for Republicans in higher numbers than Democrats and urban regions tend to favor Democrats more than Republicans. Additionally, precincts tend to contain individuals with similar demographic traits such as income level, marital status, race/ethnicity, and other characteristics that have been shown to be significant factors in voting behavior. For instance, a precinct with a large number of rental apartments is more likely to contain a higher percentage unmarried and childless individuals as compared to a precinct in suburban areas with single family homes. This is not to say that all individuals within a precinct are identical, but rather there is a tendency towards clustering. **Considering the tendency for important demographic traits to cluster in small geographic areas, using the smallest level of aggregation for votes – i.e., the precinct in this case – is the most appropriate means of estimation.**

**Thus, for all calculations estimating the probable breakdown of invalid ballots, the precinct-level analysis will be the most preferred.** Nonetheless, this report will examine one other level of aggregation – the county level – to provide an alternative view. It should be noted that counties have a wider variation of demographic characteristics than lower level precincts.

## **B.3. Other Considerations.**

To illustrate the various techniques used, I will provide the reader with hypothetical and simplified examples. Through my teaching experience, I have found that people understand a concept better if they see a demonstration of a hypothetical and simplified example and then apply the techniques learned in that example to a real-life situation. All hypothetical and simplified examples, along with the procedures used to calculate results, will be presented in a shaded box and properly labeled.

All statistical tables are labeled to correspond to the section in which they appear in this report.



#### **B.4. Summary of Invalid Votes**

In the datasets provided to me for analysis (see section A.3), it was determined that between these two datasets there were 1,053 invalid votes cast. There were a total of 879 ballots cast by felons, with 8 of these ballots being contested in King County. (Because it was not possible to identify the precinct of one of the challenged felon ballots in King County by the time of my analysis, this felon vote was not tagged in the dataset. The inability to locate the precinct of this challenged felon ballot would have no effect on the substantive conclusions drawn in this analysis.<sup>1</sup> In the table below, then, I only report 7 challenged felon ballots in the King County dataset.) Of these 879 ballots cast by felons, 660 were identified to have been cast in King County, with the remaining ones scattered throughout 12 other counties. It was reported to me that five of the felon ballots cast outside of King County were challenged, but the location of these ballots was not reported to me in the statewide analysis. Nonetheless, I did account for these challenges in the analysis. The remaining invalid votes, all determined to be from King County, included invalid scanned provisional ballots, ballots cast by deceased individuals, ballots cast by individuals voting twice (either in-state or in Washington and one other state), and non-citizen ballots. Sixteen of these non-felon invalid votes were challenged in King County and their precinct location was identified in the King County dataset. Two non-felon invalid ballots were challenged outside of King County but the dataset I used for calculations based on statewide results did not include non-felon invalid votes.

Table B.4-1 provides a breakdown of the invalid votes as provided to me in the two datasets described above. Table B.4-2 provides the county-by-county breakdown of felon votes. If a county was not listed in Table B.4-2, then no felon ballots were reported for that county.

---

<sup>1</sup> In the analysis in Section D, where the invalid vote distribution between the candidates is conducted at the precinct level, the inability to identify the exact precinct of this additional challenged felon vote would not affect the substantive results. We could cautiously assume that this ballot was cast for Mr. Rossi and subtract one ballot from the felon vote differential between Gregoire and Rossi and the substantive results – i.e., that there are more than enough felon ballots to have altered the election results given the current distribution of these votes – would still hold.

Table B.4-1  
Summary of Invalid Votes  
As of April 4, 2005

Type	Total	King County Only	Other Counties	Statewide Dataset (Felons Only)
Felons	879	660	219	219
Deceased	53	39	14	NA
Dual Multi-State	5	4	1	NA
Dual In-State	22	20	2	NA
Other (non-citizens)	2	2	0	NA
Invalid Scanned Provisionals	92	92	0	NA
Sum	1053	817	236	219
Felon Challenges	12	7	5	NA
Other Challenges	18	16	2	NA
Provisional Sum	1023	794	229	219

NA = data not available in the statewide dataset provided by Polidata.

Table B.4-2  
 Breakdown of Felon Ballots by County  
 (Includes Contested Felon Ballots)

County	Number of Felons
Benton	16
Clark	33
King	660
Kitsap	6
Lewis	7
Pierce	28
Skagit	1
Snohomish	26
Spokane	20
Thurston	37
Walla Walla	2
Whatcom	13
Yakima	30
Total	879

## C. Tipping Point Analysis

### C.1. Explanation of the Tipping Point Concept.

As noted above, the Washington State gubernatorial election was decided by 129 votes out of over 2.8 million ballots cast. A “tipping point” analysis asks whether there were a sufficient number of invalid votes cast that had these invalid ballots been identified beforehand and removed from the vote total, could they have altered (or “tipped”) the election outcome? **The “tipping point” is the minimum number of invalid ballots that would be required to have possibly changed (or “tipped”) the election outcome.**

#### C.1.a. Baseline Tipping Point

The baseline tipping point is simply the number of votes that separate the top two candidates. If there are more invalid ballots than the number of votes separating the two candidates, and if there is a possibility that all those invalid votes were cast for the winning candidate, then the election result could be altered by expunging those invalid votes from the vote count (or, alternatively, having identified those invalid ballots prior to the final electoral certification and removing them from the vote tallies).

#### **Hypothetical Illustration of a Baseline Tipping Point**

Imagine an election wherein 1 million votes were cast. In this election, Candidate A received 100 more votes than Candidate B. Following the election, it was revealed that 80 votes were cast illegally. In this hypothetical scenario, those invalid votes would not have made the difference. All these ballots could have been removed from Candidate A’s vote tally and Candidate A would still have won the election by 20 votes (the 100 vote margin minus the 80 invalid votes).

However, if it was determined that there were 1,000 illegal votes cast, it is possible that all 1,000 votes were cast for Candidate A and if one subtracts those votes from Candidate A it would result in a 900 vote victory for Candidate B (i.e., the 100 vote margin favoring Candidate A minus the 1,000 illegal votes for Candidate A). In this situation, the election would have been “tipped” in favor of candidate B.

In this scenario, the minimum number of invalid ballots required to create a baseline tipping point resulting in an electoral deadlock would be 100 -- the difference between the two candidates. A situation with 100 invalid ballots creates a situation wherein if all those ballots were cast for the winning candidate, erasing these 100 ballots would result in a tie. The minimum number of invalid ballots required to create a baseline tipping point that changes the victor in the election would be 101.

### C.1.b. Probabilistic Tipping Point Analysis

While the baseline tipping point analysis described above provides us with a floor with which to begin a challenge to an electoral contest, it could be asserted that not all invalid ballots would go to the winning candidate. There is a possibility that all the invalid ballots were cast for the losing candidate, which in that case those ballots would not have an effect on the election outcome. Realistically, the vote breakdown for the candidates is likely to be divided between the two candidates. We can use the best available information on how votes broke down between the two candidates – i.e., the final election canvass – to estimate what the percentage breakdown of those invalid ballots might be. Here, we would need to calculate how many invalid ballots would need to be cast given the current percentage difference between the two top candidates to determine a probabilistic tipping point. Allow me to illustrate with a hypothetical example.

#### Hypothetical Illustration of Probabilistic Tipping Point

Imagine the election above wherein Candidate A and Candidate B were separated from each other by 100 votes. We noticed that in a specific geographic area (e.g., a small town within a county) there were some irregularities in the processing of ballots that resulted in some number of invalid ballots being cast. We know from the final electoral canvass that in this small town, 60% of the residents voted for Candidate A and 40% of the residents voted for Candidate B. This means that the difference between the two candidates was 20% or, stated in proportions,<sup>2</sup> 0.20. If 100 votes separated the two candidates in the entire election, how many invalid ballots would be required to create a tipping point in this small town if the percentage breakdown of the invalid ballots matched the percentage breakdown of the total canvass in the small town? This can be calculated as follows:

$$\textit{Tipping\_Point} = \frac{\textit{Vote\_Difference}}{\textit{Proportion\_difference\_between\_candidates}}$$

Since we know the vote difference and the proportion difference between the two candidates, we can estimate the minimum number of invalid ballots required to create a tipping point through simple algebra. In our hypothetical town the calculation would run as follows, where 100 = vote difference between the two candidates and the candidates are separated by 0.20 (or 20%).

$$\textit{Tipping\_Point} = \frac{100}{0.20} = 500$$

In other words, it would take 500 invalid ballots wherein candidates were divided by 100 votes in a town that voted 60/40 for the winning candidate

<sup>2</sup> A proportion is a percentage divided by 100. Statistical calculations are conducted in proportions.

for the election to be affected if those invalid ballots were also split at a 60/40 ratio (or, stated in different terms, a 20% percentage point differential between the candidates).

To verify this result, you could multiply the 500 ballot tipping point by the percentage breakdown in the hypothetical small town. Thus, 500 multiplied by 0.60 (or stated differently, 60% of 500) yields 300 invalid votes for Candidate A and 500 multiplied by 0.40 for Candidate B yields 200 invalid votes. If all five hundred invalid votes were expunged, we would take away 300 invalid votes from Candidate A and 200 votes from Candidate B, resulting in an electoral deadlock (since they were separated by 100 votes initially). To calculate the tipping point for where the election would have yielded a victory for Candidate B, we would use the level of 101 to calculate our tipping point, in that a swing of 101 votes would result in Candidate B winning in this hypothetical scenario.

## **C.2. Importance of a Tipping Point Analysis**

Why would a tipping point analysis be necessary for an electoral challenge based on invalid ballots? In the case of the Washington gubernatorial election, it has been widely reported by various media outlets that a variety of invalid votes have been discovered over the course of the past several months. Additionally some of the ballots that were declared to be invalid by one party were contested by another party. In essence, the actual number of invalid ballots tends to be shifting. The tipping point analysis will give us some basic threshold to keep in mind while the number of invalid ballots shifts. **If the number of uncontested invalid ballots remains above this tipping point, there are sufficient grounds to believe that these invalid ballots could have affected the election outcome. This tipping point analysis allows us to continue examining the election results even as a small handful of invalid ballots are being contested.**

## **C.3. Baseline Tipping Point for the 2004 Gubernatorial Election**

The 2004 Washington gubernatorial election was decided by a margin of 129 votes. At a minimum, it would be necessary to identify 129 votes for the election to have been altered. In the case that there were 129 invalid ballots cast, and all 129 invalid ballots were cast in favor of Ms. Gregoire, the election would have resulted in a deadlock after subtracting those 129 invalid votes. In the case that there were 130 or more invalid ballots cast, and all of those ballots were cast in favor of Ms. Gregoire, the result of erasing those invalid votes would result in a victory for Mr. Rossi. Thus, we can state a minimum number of invalid ballots cast to begin questioning whether the election results might be affected by the removal of these invalid votes is 129 for an electoral tie and 130 for a change in the victor from Ms. Gregoire to Mr. Rossi.

**Baseline Tipping Point (Deadlocked Election) = 129**

**Baseline Tipping Point (Altered Result) = 130**

Looking across the entire state (Table B.4-1), we see that the total number of invalid ballots (1,053) and uncontested invalid ballots (1,023) exceeds the baseline tipping point by a substantial margin. However, on a more cautious note and for reasons explained in the first paragraph of C.4), we could look solely at a single county – King County – and see as well that the number of uncontested invalid ballots (794) exceeds the baseline tipping point by a substantial margin of 665 for a deadlocked election and 664 for an altered result.

**The current number of uncontested invalid ballots both statewide and in King County alone exceeds the baseline tipping point for both a deadlocked election and an altered result, giving us sufficient reason to continue examining the invalid ballots.**

#### **C.4. Probabilistic Tipping Point Calculation – County Level**

In the state of Washington, election processing – including the maintenance of voter registration records, processing absentee ballots and assigning poll workers – is done by county governments, typically a county election board. Indeed, during both the machine and manual recounts of the 2004 gubernatorial election, it was the county governments that were responsible for tabulating and reporting results. For this reason, the tipping point analysis should be done at no level of aggregation higher than the county level. Irregularities regarding ballots would typically appear at that level. Moreover, looking at Tables B.4-1 and B.4-2, we can see that invalid ballots tended to be concentrated in certain areas, namely King County. In no other county did the number of invalid ballots exceed the 129 vote margin between Ms. Gregoire and Mr. Rossi (see Table B.4-2),<sup>3</sup> thus there is no need to calculate a tipping point for those counties. For this reason, the probabilistic tipping point is only calculated for King County based upon the information in Table C.4-1 below which was derived from the King County dataset I was provided with and checked against the official manual recount results as posted on the Washington Secretary of State's website (<http://vote.wa.gov>) as of April 10, 2005.<sup>4</sup>

---

<sup>3</sup> Although non-felon invalid votes were not reported in the statewide dataset I was provided with, one could easily see that the addition of 17 invalid ballots to the total number of felon ballots in any given county would not exceed the 129 baseline tipping point. If all 17 non-felon invalid votes were in Thurston county, the county with the highest number of felon ballots, the maximum number of invalid ballots in that county given current information would be 54.

<sup>4</sup> The Secretary of State's website did not include a tally of write-in votes, undervotes and overvotes. The numbers checked were only each candidate's vote tally.

Table C.4-1 King County Manual Recount Results – Entire County			
	Votes	Proportion of Vote	Gregoire-Rossi Difference
Gregoire	506,194	0.5629	0.1722
Rossi	351,306	0.3907	
Bennett	18,952	0.0211	
Write-in (scatter)	1,363	0.0015	
Undervotes	21,297	0.0237	
Overvotes	87	0.0001	
Total	899,199	1.0000	
Precincts Reporting = 2,616			

Based upon the results above, we can calculate the county-wide probabilistic tipping point for both a deadlocked election and an altered results.

$$Tipping\_Point\_Deadlock = \frac{129}{0.1722} = 749.13$$

$$Tipping\_Point\_Altered\_Result = \frac{130}{0.1722} = 754.94$$

If we round up in both cases – a more cautious approach that would set the level of proof at a higher standard – the results would be a tipping point of 750 invalid ballots for an electoral deadlock and 755 invalid ballots for an altered election result, both calculated at the countywide margin of victory for Ms. Gregoire (17.22% or 0.1722).

**Examining Table B.4-1, we can see that the number of invalid ballots (817) and uncontested invalid ballots (794) for King County alone exceeds both tipping point calculations. For that reason, it would be sufficient for us to expect that the presence of these invalid ballots could have affected the results of the November 2004 gubernatorial election.**

#### **C.5. Additional Tipping Point Calculation – Problem Precinct Level (Pooled)**

There is yet another, and I would argue more accurate, tipping point analysis that can be conducted. It should be noted that the invalid ballots were not randomly and evenly distributed throughout King County, but tended to cluster in certain areas. In keeping with an effort to get down to the lowest level of aggregation, we can calculate the pooled election results for only the precincts where **at least one uncontested invalid ballot** was cast. Note, this is a more cautious analysis than one that would rely upon all invalid ballots – both uncontested and contested; I am assuming that the contested invalid ballots



may actually be valid – an assumption that may or may not prove true over time, but one that would favor Ms. Gregoire in a tipping point analysis.

The canvass results for this analysis, based on the King County dataset provided by Polidata, are summarized in the Table C.5-1.

	Votes	Proportion of Vote	Gregoire-Rossi Difference
Gregoire	121,176	0.5917	0.2368
Rossi	72,677	0.3549	
Bennett	5,244	0.0256	
Write-in (scatter)	391	0.0019	
Undervotes	5,277	0.0258	
Overvotes	36	0.0002	
Total	204,801	1.0000	
Precincts = 552			

As can be seen in Table C.5-1, in the 552 pooled precincts where there was at least one invalid vote cast, Ms. Gregoire received a higher percentage of the vote (59.17%) than in the countywide canvass (56.29%). Likewise, Mr. Rossi received a lower percentage of the vote in the pooled precincts with at least one invalid ballot cast. The resulting percentage difference between the two candidates for the pooled precincts with invalid ballots was 23.68% (or 0.2368 stated in proportions). The resulting calculations for the probabilistic tipping point are:

$$Tipping\_Point\_Deadlock = \frac{129}{0.2368} = 544.76$$

$$Tipping\_Point\_Altered\_Result = \frac{130}{0.2368} = 548.97$$

If we round up in both cases – a more cautious approach that would set the level of proof at a higher standard, as noted above – the results would be a tipping point of 545 invalid ballots for an electoral deadlock and 549 invalid ballots for an altered election result. Again, in this instance, **the number of invalid ballots (817) and uncontested invalid ballots (794) in King County exceeds both the tipping point for an electoral deadlock (545) and for a tipping point resulting in an altered election result (549).**

Again, I would consider this tipping point analysis to be the best analysis since we were able to get to the lowest level of aggregation – looking at only the precincts where there were uncontested invalid ballots cast.

