November 2006 General Election
Paper Voting Trail Exit Poll Study

Executive Summary

On November 7, 2006, the Survey Research Center at the University of Georgia, in conjunction with the Office of the Secretary of State of Georgia, conducted an exit poll at three selected Georgia election precinct to assess voter satisfaction and confidence in a paper trail electronic voting system. Exit pollsters counted a total of 1,935 voters exiting the polls throughout the day of November 8th and successfully interviewed 459 voters. The response interview rate was thus 23.7, well below expectations. However, the distribution of voters interviewed matched demographic characteristics of each precinct extremely well, boosting confidence that a representative sample of voters was obtained. Assuming the 459 voters interviewed represent a random sample of all voters in the three precincts the maximum estimated theoretical sampling margin of error would +/- 4.6% at the 95 percent confidence interval.

- 99.3% of voters interviewed reported noticing that the electronic voting machine used on November 8th printed a paper trail showing their voter choice.

- 95.6% of voters reported that the paper trail voting system was easy to use.

- 89.3% of voters reported having previously voted on Georgia's electronic touch screen voting units.

- 35.7% of voters found the paper trail voting system to be easier than the electronic-only voting system, while 56.7% reported there was no difference between the two. Only 7.6% of voters reported that the paper trail was not easier than the electronic-only voting system.

- A majority (51.3%) of voters reported that the paper trail voting system took no longer to vote than the electronic only system, while 19.4% reported no difference, and 29.3% reported it took longer to vote with the paper trail voting system.

- Only 3.5% of voters reported having problems printing the paper trail, with half of those reporting the problem was the length of time it took to print the ballot. Only 2.6% of voters reported having any problems reading the paper trail, with half of these voters reporting that the print was too small.

- 43.7% of voters reported that poll workers were able to assist them if they experienced any technical problems while voting, and 54.4% of voters reported experiencing no technical problems while voting. Only 1.8% of voters reported poll workers were not able to assist them with technical problems experienced while voting. Non-white voters were significantly more likely than white voters (49.2% versus 37.2%) to report that poll workers were not able to assist them with technical problems experienced while voting.

- 87.7% of voters described their overall experience voting on election day as good, while 10.9% reported fair, and only 1.3% poor.

- 86.9% of voters reported being either very confident or somewhat confident in the accuracy and security of the touch screen voting units, and 89.4% reported being very confident or somewhat confident in the paper trail voting system used on election day. Non-white voters were significantly more likely to report not being confident in the accuracy and security of the touch

screen voting units (12.9% non-white versus 5.9% white), and significantly more likely to report not being confident in the paper trail voting system used on election day (6.8% non-white versus 2.2% white). Female voters were significantly more likely than male voters to report confidence in the accuracy and security of the touch screen units.

- 82.4% of voters favored adding a reviewable paper trail like the one used on election day to Georgia's voting system, while only 5.9% opposed a paper trail system, and 7.3% were not sure. 4.4% reported having no opinion on the matter.

- 79.1% of voters reported reviewing their paper trail, and 95.9% reported the paper trail was easy to read. Non-white voters were significantly more likely to report reviewing their paper trail than were white voters (84.6% non-white versus 70.8% white).

- 99.8% of voters reported that the paper trail reviewed correctly reflected the ballot choices the voter selected.

Methods and Procedures

On November 7, 2006, the Survey Research Center at the University of Georgia, in conjunction with the Office of the Secretary of State of Georgia, conducted an exit poll at three selected Georgia election precinct to assess voter satisfaction and confidence in a paper trail electronic voting system. The three precincts where the exit polls took place were Woodbine 3 (Camden County), Macland 01 (Cobb County), and Godfrey 5 (Bibb County). Exit pollsters* included University of Georgia political science graduate and undergraduate students, as well as Survey Research Center staff. All exit pollsters participated in a 1hour training session prior to election day.

The design of the exit poll called for exit pollsters to attempt to interview as many voters exiting the polling place as possible in order to insure a sample that was representative of the total voter population at the three selected precincts. It was expected that exit pollsters would be able to interview 75% of all voters leaving the polling. However, due to heavy rain throughout the day at all three selected precincts these expectations were not met. Exit pollsters counted a total of 1,935 voters exiting the polls throughout the day of November 8th and successfully interviewed 459 voters. The response interview rate was thus 23.7, well below expectations.

However, the distribution of voters interviewed matched demographic characteristics of each precinct extremely well, boosting confidence that a representative sample of voters was obtained (See Table 1). Only for the Camden County precinct were was there a wide discrepancy between the percentage of white registered voters and actual white voters voting on election day, and at this precinct only 33 voters were able to be interviewed due to heavy rain. For both the Cobb County and the Bibb County precincts the proportion of white voters voting mirrors the proportion of white voters in that precinct.

Assuming the procedures utilized produced a random sample of the population of interest, the estimated theoretical standard error associated with the sample estimates obtained (n=459), when the population proportion (P) is 50 percent (i.e., a "worse case scenario"), is .0233. In addition, the theoretical standard error decreases as the proportion (P) approaches 0 or 100. Thus, if 85% of the sample provides a given response, the standard error is .0166.

The standard errors are derived from the mathematical formula:

Square Root of:

$$\frac{P * Q}{n}$$

where:

P = the proportion of the population exhibiting a characteristic (i.e., find paper trail system easy to use);

Q = (1-P), the proportion not exhibiting the characteristic;

n = size of the sample.

Once obtained the standard errors can be used to estimate the sampling margin of error of the estimates (i.e., the probable difference in results between interviewing all voters exiting the polls at the three selected precincts versus taking a scientific sample of that population) that extend 1.96 standard error units (i.e. the 95% confidence level) around that value according to the following formula:

P +/- 1.96 * (standard error)

Thus, with a random sample size of 459 and a population proportion of 50 percent, the 95% confidence interval for the estimate would be:

.50 +/- 1.96 * .0233 = .50 +/- 0.46

= 50% +/- 4.0%

Assuming the 459 voters interviewed represent a random sample of all voters in the three precincts the maximum estimated theoretical sampling margin of error would +/- 4.6% at the 95 percent confidence interval.

Table 1

Demographic Characteristics of Voters Interviewed

	% White Sample	% White Precinct
Camden	81.8	63.1
Cobb	57.1	55.7
Bibb	28.0	27.5

Table 2 presents univariate frequency distributions of each item in the survey, while tables 3 – 5 present item responses by county, ethnicity, and gender.

Table 2

Univariate Frequency Distributions

	n	%

Did you notice that the voting terminal you used today printed a paper trail showing your vote choice?

Yes	456	99.3
No	3	0.7
Not Sure	459	100.0
TOTAL		

Did you find the paper trail voting system easy to use?

Yes	438	95.6
No	5	1.1
Not Sure	15	3.3
TOTAL	458	100.0

Have you previously voted on Georgia's electronic touch screen voting units?

Yes	407	89.3
No	49	10.7
TOTAL	456	100.0

Did you find the paper trail voting system easier to use than the electronic-only voting system?

Yes	150	35.7
No	32	7.6
There was no difference	238	56.7
TOTAL	420	100.0

Did it take longer to vote with the paper trail voting system than with the electronic-only voting system?

Yes	124	29.3
No	217	51.3
There was no difference	82	19.4
TOTAL	423	100.0

Did you have any problems printing your paper trail?

Yes	16	3.5
No	438	96.1
Not Sure	2	0.4
TOTAL	456	100.0

Table 2

Univariate Frequency Distributions

	n	%
What was the problem with your paper trail?		
Failure to Print	0	0.0
Paper Trail Was Unreadable	0	0.0
Paper Jammed	2	16.7
Paper Was Torn/Otherwise Damaged	0	0.0
Length of Time to Print Ballot	6	50.0
Other	4	33.3
Had no Problem	0	0.0
TOTAL	12	100.0
Did you have any problems reading your paper trail?		
Yes	12	2.6
No	442	97.4
TOTAL	454	100.0
Why were you unable to read your paper trail?		
Print Was Too Small	6	50.0
Ink Was Smeared	0	0.0
Other Reason	6	50.0
TOTAL	12	100.0
Were poll workers able to assist you if you experienced any technical problems while voting?		
Yes	192	43.7
No	8	1.8
Experienced No Problems	239	54.4
TOTAL	439	99.9
How would you describe your overall experience voting today?		
Good	401	87.7
Fair	50	10.9
Poor	6	1.3
TOTAL	457	99.9
How confident have you been in the accuracy and security of the touch screen units?		
Very Confident	255	56.5
Somewhat Confident	137	30.4
Not Very Confident	26	5.8
Not Confident at All	19	4.2
Don't Know/Not Sure	14	3.1
TOTAL	451	100.0

Table 2

Univariate Frequency Distributions

	n	%

How confident are you in the paper trail voting system that you just used?

	n	%
Very Confident	284	62.4
Somewhat Confident	132	29.0
Not Very Confident	18	4.0
Not Confident at All	5	1.1
Don't Know/Not Sure	16	3.5
TOTAL	455	100.0

Do you believe Georgia's voting system should add to all of its voting terminals a reviewable paper trail like the one you just used?

	n	%
Yes	375	82.4
No	27	5.9
Maybe/Not Sure	33	7.3
No Opinion	20	4.4
TOTAL	455	100.0

Once your paper trail was printed, did you review your paper trail?

	n	%
Yes	359	79.1
No	95	20.9
TOTAL	412	100.0

Was your paper trail easy to read?

	n	%
Yes	395	95.9
No	17	4.1
TOTAL	412	100.0

Did your paper trail correctly reflect the ballot choices you selected?

	n	%
Yes	401	99.8
No	1	0.2
TOTAL	402	100.0

Table 2

Univariate Frequency Distributions

	n	%
Gender:		
Male	207	46.3
Female	240	53.7
TOTAL	447	100.0
Ethnicity:		
White	192	43.0
Black	250	55.9
Asian/Pacific Islander	3	0.7
Latino	1	0.2
Other/Not Sure	1	0.2
TOTAL	447	100.0
County:		
Cobb	174	37.9
Camden	33	7.2
Bibb	252	54.9
TOTAL	459	100.0

Table 3

**Item Responses,
By County**

	Cobb	Camden	Bibb
Did you notice that the voting terminal you used today printed a paper trail showing your vote choice?			
Yes	100.0	100.0	98.8
No	0.0	0.0	1.2
Did you find the paper trail voting system easy to use?			
Yes	100.0	97.0	98.3
No	0.0	3.0	1.7
Have you previously voted on Georgia's electronic touch screen voting units?			
Yes	89.1	97.0	88.4
No	10.9	3.0	11.6
Did you find the paper trail voting system easier to use than the electronic-only voting system?			
Yes	28.2	40.6	40.4
No	8.0	9.4	7.1
There was no difference	63.8	50.0	52.4
Did it take longer to vote with the paper trail voting system than with the electronic-only voting system?			
Yes	27.3	21.9	31.9
No	50.3	68.8	49.6
There was no difference	22.4	9.4	18.6
Did you have any problems printing your paper trail?			
Yes	1.7	6.1	4.5
No	98.3	93.9	95.5

* $p \leq .05$

	Cobb	Camden	Bibb
What was the problem with your paper trail?			
Failure to Print	0.0	0.0	0.0
Paper Trail Was Unreadable	0.0	0.0	0.0
Paper Jammed	0.0	0.0	22.2
Paper Was Torn/Otherwise Damaged	0.0	0.0	0.0
Length of Time to Print Ballot	100.0	0.0	55.6
Other	0.0	100.0	22.2
Had no Problem	0.0	0.0	0.0
Did you have any problems reading your paper trail?			
Yes	1.1	3.0	3.6
No	98.9	97.0	96.4
Why were you unable to read your paper trail?			
Print Was Too Small	0.0	0.0	66.7
Ink Was Smeared	0.0	0.0	0.0
Other Reason	100.0	100.0	33.3
Were poll workers able to assist you if you experienced any technical problems while voting?			
Yes	29.3	100.0	46.6
No	2.3	0.0	1.7
Experienced No Problems	68.4	0.0	51.7
How would you describe your overall experience voting today?			
Good	86.2	90.9	88.4
Fair	11.5	9.1	10.8
Poor	2.3	0.0	0.8
How confident have you been in the accuracy and security of the touch screen units?			
Confident	92.8	83.9	88.3
Not Confident	7.2	16.1	11.7

* $p \leq .05$

	Cobb	Camden	Bibb
How confident are you in the paper trail voting system that you just used?			
Confident	97.6	90.3	93.4
Not Confident	2.4	9.7	6.6
Do you believe Georgia's voting system should add to all of its voting terminals a reviewable paper trail like the one you just used?			
Yes	86.8	80.6	86.5
No	6.0	16.1	5.1
Maybe/Not Sure	7.2	3.2	8.4
Once your paper trail was printed, did you review your paper trail?			
Yes	78.7	71.9	80.2
No	21.3	28.1	19.8
Was your paper trail easy to read?			
Yes	97.5	91.7	95.2
No	2.5	8.3	4.8
Did your paper trail correctly reflect the ballot choices you selected?			
Yes	100.0	100.0	99.6
No	0.0	0.0	0.4

* $p \leq .05$

Table 4

Item Responses,
By Ethnicity

	White	Non-White
Did you notice that the voting terminal you used today printed a paper trail showing your vote choice?		
Yes	100.0	99.6
No	0.0	0.4
Did you find the paper trail voting system easy to use?		
Yes	100.0	98.4
No	0.0	1.6
Have you previously voted on Georgia's electronic touch screen voting units?		
Yes	90.1	88.2
No	9.9	11.8
Did you find the paper trail voting system easier to use than the electronic-only voting system?		
Yes	31.6	38.6
No	5.1	8.6
There was no difference	63.3	52.8
Did it take longer to vote with the paper trail voting system than with the electronic-only voting system?		
Yes	33.3	26.6
No	52.2	50.6
There was no difference	14.4	22.7
Did you have any problems printing your paper trail?		
Yes	3.6	3.6
No	96.4	96.4

* $p \leq .05$

	White	Non-White
What was the problem with your paper trail?		
Failure to Print	0.0	0.0
Paper Trail Was Unreadable	0.0	0.0
Paper Jammed	25.0	12.5
Paper Was Torn/Otherwise Damaged	0.0	0.0
Length of Time to Print Ballot	75.0	37.5
Other	0.0	50.0
Had no Problem	0.0	0.0
Did you have any problems reading your paper trail?		
Yes	1.6	3.2
No	98.4	96.8
Why were you unable to read your paper trail?		
Print Was Too Small	66.7	37.5
Ink Was Smeared	0.0	0.0
Other Reason	33.3	62.5
Were poll workers able to assist you if you experienced any technical problems while voting?*		
Yes	37.2	49.2
No	1.6	2.1
Experienced No Problems	61.2	48.8
How would you describe your overall experience voting today?		
Good	89.1	86.7
Fair	9.4	12.2
Poor	1.6	1.2
How confident have you been in the accuracy and security of the touch screen units?*		
Confident	94.1	87.1
Not Confident	5.9	12.9

* $p \le .05$

	White	Non-White
How confident are you in the paper trail voting system that you just used?*		
Confident	97.8	93.2
Not Confident	2.2	6.8
Do you believe Georgia's voting system should add to all of its voting terminals a reviewable paper trail like the one you just used?*		
Yes	83.4	88.7
No	9.4	3.6
Maybe/Not Sure	7.2	7.7
Once your paper trail was printed, did you review your paper trail?*		
Yes	70.8	84.6
No	29.2	15.4
Was your paper trail easy to read?		
Yes	95.2	97.0
No	4.8	3.0
Did your paper trail correctly reflect the ballot choices you selected?		
Yes	100.0	99.6
No	0.0	0.4

* $p \leq .05$

Table 5

**Item Responses,
By Gender**

	Male	Female

Did you notice that the voting terminal you used today printed a paper trail showing your vote choice?

	Male	Female
Yes	100.0	99.6
No	0.0	0.4

Did you find the paper trail voting system easy to use?

	Male	Female
Yes	99.0	99.2
No	1.0	0.8

Have you previously voted on Georgia's electronic touch screen voting units?

	Male	Female
Yes	88.9	89.1
No	11.1	10.9

Did you find the paper trail voting system easier to use than the electronic-only voting system?

	Male	Female
Yes	35.6	35.6
No	6.4	7.7
There was no difference	58.0	56.8

Did it take longer to vote with the paper trail voting system than with the electronic-only voting system?

	Male	Female
Yes	31.9	27.5
No	49.7	52.7
There was no difference	18.3	19.8

Did you have any problems printing your paper trail?

	Male	Female
Yes	2.0	5.0
No	98.0	95.0

* $p \leq .05$

	Male	Female

What was the problem with your paper trail?

	Male	Female
Failure to Print	0.0	0.0
Paper Trail Was Unreadable	0.0	0.0
Paper Jammed	0.0	25.0
Paper Was Torn/Otherwise Damaged	0.0	0.0
Length of Time to Print Ballot	25.0	62.5
Other	75.0	12.5
Had no Problem	0.0	0.0

Did you have any problems reading your paper trail?

	Male	Female
Yes	2.0	2.9
No	98.0	97.1

Why were you unable to read your paper trail?

	Male	Female
Print Was Too Small	50.0	40.0
Ink Was Smeared	0.0	0.0
Other Reason	50.0	60.0

Were poll workers able to assist you if you experienced any technical problems while voting?

	Male	Female
Yes	43.4	44.4
No	2.0	1.7
Experienced No Problems	54.6	53.8

How would you describe your overall experience voting today?

	Male	Female
Good	87.9	87.5
Fair	11.1	10.8
Poor	1.0	1.7

How confident have you been in the accuracy and security of the touch screen units?*

	Male	Female
Confident	86.7	93.1
Not Confident	13.3	6.9

* $p \leq .05$

	Male	Female

How confident are you in the paper trail voting system that you just used?

	Male	Female
Confident	95.5	94.8
Not Confident	4.5	5.2

Do you believe Georgia's voting system should add to all of its voting terminals a reviewable paper trail like the one you just used?

	Male	Female
Yes	86.7	86.3
No	5.6	6.4
Maybe/Not Sure	7.7	7.3

Once your paper trail was printed, did you review your paper trail?

	Male	Female
Yes	74.8	82.0
No	25.2	18.0

Was your paper trail easy to read?

	Male	Female
Yes	95.7	96.8
No	4.3	3.2

Did your paper trail correctly reflect the ballot choices you selected?

	Male	Female
Yes	99.4	100.0
No	0.6	0.0

* $p \leq .05$