

Special PAR Symposium on Election Administration

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This is an electronic version of an Article published in Moynihan, Donald P. and Carol Silva. 2008. "The Administrators of Democracy: A Research Note on Local Election Officials." *Public Administration Review*. 68(5): 816-827.

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The Administrators of Democracy: A Research Note on Local Election Officials

Local election officials are the administrators of democracy, but we know little about their views. This paper draws from two national surveys of local election officials. The authors find that local election officials generally support the goals of the federal Help America Vote Act but are less enthusiastic about the actual impact of the legislation. Implementation theory helps explain their evaluation of federal reforms. Goal congruence with reform mandates, resource availability, and a willingness to accept federal involvement predicts support for these reforms. Federal policy changes have promoted electronic systems, and some of the authors' findings are relevant to research on e-government. Users of electronic voting machines tend to have high confidence in them despite the significant criticism the machines have faced. Local election officials who support e-government generally are more likely to more positively evaluate federal reforms.

It's not the voting that's democracy, it's the counting.

—Tom Stoppard, *Jumpers*, Act I

While elections in the United States have historically been managed at the state and local levels, the federal government has gradually become more involved through such legislation as the Voting Rights Act of 1965 and the National Voter Registration Act of 1993. The problems associated with the 2000 presidential election led to a dramatic increase in the federal role. In October 2002, Congress passed the Help America Vote Act (HAVA). This act set up new requirements for both voting and voter registration systems, sought to improve election administration, and aimed to increase access for the disabled. HAVA also encouraged the adoption of new voting technologies, in particular the adoption of direct-recording electronic (DRE) systems, sometimes known as e-voting machines.

Using a national data set of the perceptions and opinions of local election officials (LEOs), this paper investigates the relationship between federal requirements

for election administration and the role of local officials as implementers of those requirements. The data come from two surveys undertaken in the aftermath of the 2004 and 2006 elections. The surveys were sponsored by the Congressional Research Service and form the basis of two reports to Congress. This paper is distinct from those reports in that it tests how implementation theory can explain LEO attitudes toward HAVA. The Government Accountability Office (GAO 2001, 2006; formerly the General Accounting Office) and the U.S. Election Assistance Commission (EAC 2007a) have also surveyed LEOs. These surveys include questions about the practice of election administration but do not probe attitudes toward HAVA and largely do not focus on the implementation issues that have arisen since the passage of HAVA, specifically the criticisms of DREs.

The survey evidence presented also has the advantage of coinciding with two separate waves of election reforms, uniquely tracking the views of LEOs in the midst of dramatic policy change. The first wave was characterized by the passage of HAVA and pressures to replace older voting technologies with newer ones, including e-voting machines. The second wave of reform was a reaction to the adoption of DREs, as most state governments began to pay attention to the concerns of computer scientists about the potentially catastrophic security weaknesses of DREs (GAO 2005; Moynihan 2004) and implemented another level of reform mandates by requiring the use of voter-verifiable paper audit trails.

The first section of this paper provides some background detail on LEOs and explains how data were collected on this population. We then examine the goals of HAVA and provide evidence on LEO agreement with these goals while also pointing to concerns about the perceived difficulty of implementing HAVA. Next, we draw on implementation theory to develop and test a series of hypotheses to explain the attitudes of LEOs toward HAVA. The final section of the paper focuses on the most controversial of new

voting technologies, e-voting machines, and finds that these machines retain strong support among their users.

Understanding the Views of Local Election Officials

The disputed presidential election in Florida in 2000 transformed the role of LEOs. The public and policy makers came to realize the importance of a previously obscure group of public officials responsible for election administration. LEOs now found themselves key actors in a major policy issue. In 2005, the Commission on

Federal Election Reform, known as the Carter-Baker Commission, identified the importance of competent election administration to popular confidence in democracy. The commission cited public opinion polls that showed the majority of Americans were not very confident that their votes would be accurately counted. Other polls showed that 86 percent of Americans agreed that “we clearly have a major problem in the way that votes are cast and counted and this needs to be fixed” (Moynihan and Silva 2005, 32).

The Carter-Baker Commission bemoaned the absence of useful research on election administration: “Despite the wealth of expertise and literature on U.S. elections and voting behavior, little research focuses on the administration or conduct of elections . . . To effectively address the challenges facing our election systems, we need to understand better how elections are administered” (2005, 57). A wave of recent research has begun to remedy this problem (e.g., Alvarez and Hall 2006; Hall, Monson, and Patterson 2007; Kimball and Kropf 2006; Kimball, Kropf and Battles 2006; Stewart 2006), but our knowledge on the views of LEOs remains impoverished. LEOs are the administrators of democracy. Their actions can disenfranchise voters, subvert the political process, and damage public confidence in democracy. For instance, Ansola-behere and Stewart (2005, 367) proposed that their finding that dummy variables for “county” accounted for a very substantial percentage of the variance among residual votes (unmarked, spoiled or uncounted ballots) was the result of variation in local administration. Such evidence underlines the need to understand LEO attitudes toward election administration and reform, as this knowledge can help explain election outcomes and the success of mandates for change.

Data Collection and Demographic Information

Data on LEO attitudes were collected in the aftermath of the 2004 and 2006 federal elections, with data collection continuing until the spring of 2005 and 2007, respectively. The initial survey was pre-

tested with a group of LEOs and subsequently revised. The later survey was additionally revised to reflect lessons from the initial survey and new policy questions. For both surveys, the sample pool was based on a national database of all LEOs maintained by the Election Reform Information Project. Because there is great variation in the number of election officials per state that is not completely related to population, a

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random sample would cause states with more decentralized election administration systems to have a disproportionate influence on the data. To reduce the dominance of states with large populations of election officials,

we split the states into categories of large states (more than 150 LEOs) and small states (fewer than 150 LEOs), surveying all LEOs in small states and surveying 150 randomly sampled LEOs from large states. Because our analysis was not weighted according to the size of the election official population, this sampling strategy had the effect of increasing the influence of smaller states relative to their actual number of LEOs while ensuring that a relatively high number of individuals were sampled from the states with large numbers of election officials.

The primary means of data collection was an electronic survey, but follow-up paper surveys were sent to respondents who did not complete the initial e-mail invitation to respond. The 2005 survey generated 1,518 usable responses, 40.2 percent of the total population, while the 2007 survey included responses from 1,506 respondents, 39.7 percent of its total sample population. The GAO estimated that the number of LEOs is approximately 10,000 (GAO 2001), while the Election Assistance Commission (2007a) found that LEOs from 7,220 local jurisdictions (of 15,449 total local jurisdictions) were able to respond to a survey that it submitted. While a definitive tally of LEOs is not clear, our sample represents a significant portion of this population, including representatives from cities, counties, townships, and villages.

Who are the respondents who completed our surveys? They are mostly experienced, full-time elected officials who spend a substantial amount of time on election duties. Almost 71 percent reported having full-time positions as election officials, but their positions often include duties beyond election administration, such as clerk or recorder. Sixty-one percent of our respondents are elected officials, the remainder a mix of political appointees and civil service employees. In the 2007 survey, LEOs were asked to rate the contentiousness of their political environment. The mean response on a 10-point scale (0 = not contentious at all, 10 = extremely contentious) was 4.36, suggesting that LEOs view their environment as being moderately

contentious. LEOs believe that they are somewhat independent of partisan politics, generating a mean of 5.95 on a 0–10 scale, where 0 = not independent at all and 10 = very independent.

Our respondents have an average of 11 years experience in their current positions. We asked the LEOs to tell us about their political ideology, and we see that the distribution is slightly conservative. Sixteen percent placed themselves somewhere in the “liberal” category (strongly liberal, liberal, or slightly liberal), approximately 34 percent called themselves “middle of the road,” and 49 percent of our respondents called themselves “conservative” (strongly conservative, 3.8 percent; conservative, 25.2 percent; or slightly conservative, 19.7 percent). The average age of respondents is 53 years. Seventy-six percent of respondents are female,¹ and the average salary for respondents ranges between \$40,000 and \$50,000.

The First Wave of Election Reform: The Help America Vote Act

HAVA represents the first of two major waves of election reform in recent times. Reacting to the confusion and failures of the 2000 election, the act reflected the recommendations of the National Commission on Federal Election Reform (2001), chaired by former presidents Carter and Ford. To oversimplify somewhat, HAVA was a compromise between those who sought to improve access to the polls (primarily Democrats) and those who sought to also make illegal voting more difficult (a priority for Republicans), while also reflecting a consensus that outdated voting technologies needed to be replaced.² (More detailed analysis of the goals and passage of HAVA can be found in Montjoy 2005; Palazzolo and McCarthy 2005.)

The act authorized the spending of almost \$4 billion to improve the elections process (Commission on Federal Election Reform 2005, 2), including payments of more than \$3 billion to state governments. By 2006, the EAC (2007b) reported that states had spent \$1.78 billion of HAVA resources. The bulk of the funding defrayed the cost of new election technologies, replacing punch-card ballots and lever machines with DRE machines and optical scan technologies.³ HAVA required that voting technologies

satisfy minimum standards that allow for access for the disabled or language minorities, notification of overvotes, and auditing procedures. The act also included provisions to facilitate the participation of military and overseas voters. Each state was required to develop a single, centralized register of voters rather than rely exclusively on local registers. Voters were conferred the opportunity to vote on a provisional ballot if it was unclear whether they were properly registered. Individuals who registered by mail had to show identification when voting for the first time. HAVA also created the EAC, which replaced the Office of Election Administration of the Federal Election Commission.

By passing HAVA, the federal government increased its responsibility for overseeing election administration. At the same time, HAVA still provides a great deal of discretion to state and local officials in the purchase of election technologies and other aspects of election administration. The 2004 and 2006 elections were the first ones in which many of the HAVA provisions were implemented and represented the audition of a federal intervention for what had been traditionally a local function.⁴

Therefore, HAVA raises a classic implementation issue: whether federal goals designed in Washington will be reflected in practice by local officials who retain a high measure of discretion. This article offers insights into this issue by providing information on the goals of LEOs and how they coincide with HAVA. Much depends on answering some basic implementation questions: How do LEOs evaluate the design of HAVA? What explains LEO attitudes toward change?

We start by asking whether HAVA has been difficult to implement and whether the implementation burden eased over time. Table 1 shows the mean responses to the question, “How difficult are the following HAVA requirements to implement?” where 0 = “not difficult at all to implement” and 10 = “extremely difficult to implement.” In order to gauge how perceptions have changed over time, we report 2005 and 2007 mean scores as well as aggregate scores, and we report whether there are statistical differences between years. The scores are arranged in

Table 1 Perceived Difficulty of HAVA Requirements to Implement

HAVA Requirement	2005 Mean	2007 Mean	Combined Samples
Requirements for disabled access to voting systems**	5.96	5.03	5.47
Requirements for provisional voting**	5.51	4.58	5.05
Requirements for centralized voter registration**	5.14	4.75	4.94
Process for certification of voting systems**	4.78	4.70	4.73
Facilitating participation for military or overseas voters	4.44	4.31	4.37
Requirements for voter error corrections**	4.58	3.86	4.22
Identification requirements for certain first-time voters**	4.52	3.81	4.16
Provision of information for voters**	3.92	3.73	3.83

** = T-test difference between two samples is significant at .001.

order of perceived difficulty, that is, the aspects of HAVA that are most difficult to implement are at the top of the table and the easiest to implement are at the bottom of the table.

Respondents tended to cluster their answers at the midpoint or lower end of the scale, suggesting that HAVA is not perceived as very difficult to implement. When we compare the responses between 2005 and 2007, the 2007 respondents were statistically more likely to perceive the requirements of HAVA as easier to implement, although the size difference between means is relatively modest and never greater than 1 point on a 10-point scale. In large part, this may be because of timing—in 2005, the requirements of HAVA were relatively new and daunting. Two years later, 87 percent of respondents reported that almost all jurisdictions in their state had implemented the HAVA provisions. We also see the rank order of perceived difficulties changing little. The most difficult task is the requirement to provide access to disabled voters, which essentially requires LEOs to purchase at least one DRE for each polling place. Thus, LEOs see the provision of information to voters as the easiest to implement. The GAO also undertook a survey of LEOs in the aftermath of the 2004 election (GAO 2006), and some of their findings mirror the results here. They found that jurisdictions had difficulty registering voters and varied in how well they were able to deal with the challenge of provisional voting. The GAO also found problems in recruiting and training poll workers.

Do LEOs generally support the goals of HAVA? We asked respondents to assess whether the HAVA requirements were advantages or disadvantages, where 1 = disadvantage and 7 = advantage. Table 2 shows the mean responses for each of the attributes of HAVA.

By and large, LEOs support the goals of HAVA, with the mean of all responses above the midpoint of the scale, and most responses between 5 and 6 on a

7-point scale. LEOs ranked the provision of federal funds as the greatest advantage of HAVA. They also ranked facilitating participation for military or overseas voters, the provision of information for voters, the requirement to provide voters with the ability to correct errors, and the process for the certification of voting systems as clear advantages of HAVA. LEOs ranked the requirement for provisional voting and the creation of the EAC closer to the midpoint of the scale. The EAC took a considerable period to be established and has struggled to win the confidence of LEOs. In 2007, we asked LEOs how helpful the EAC had been to them. The mean response was 4 on a 10-point scale, where 0 = not helpful at all and 10 = extremely helpful.

No HAVA provisions were ranked as disadvantages, but they received consistently less support in 2007 than in 2005. So, although LEOs generally support the goals of HAVA, this support has weakened, even as they perceive that implementing HAVA has become easier.

Explaining Attitudes toward Change

The previous section identified that LEOs are generally supportive of the specific goals of HAVA. However, when we asked LEOs to rate the impact of HAVA, they gave it only middling marks. This section seeks to better understand the reasons for LEOs' attitudes toward change. We use implementation theory as our guide, seeking variables that will be associated with more or less local resistance to externally imposed change. Winter (2003) noted there is disagreement about how to study implementation—top-down as a control problem, or bottom-up, from the perspective of the actors closest to the policy problems. We focus on the bottom-up or backward-mapping perspective (Elmore 1979), taking into account the views of LEOs on the feasibility, difficulty, and impact of federal policies, as we judge that these attitudes both reflect the relevance of HAVA and will have an important influence on its impact.

Table 2 Support for HAVA Goals

What do you regard as the advantages and disadvantages of HAVA? (1 = disadvantage and 7 = advantage)	2005 Mean	2007 Mean	Total
Provision of federal funds to states**	6.14	5.91	6.03
Facilitating participation for military or overseas voters**	5.79	5.50	5.64
Provision of information for voters**	5.63	5.32	5.47
Requirements for voter error corrections**	5.62	5.33	5.48
Process for certification of voting systems**	5.60	5.26	5.43
Requirements for disabled access to voting systems**	5.47	5.16	5.31
Codification of voting system standards in law**	5.42	5.20	5.31
State matching requirement for federal funds**	5.37	4.91	5.14
Requirements for centralized voter registration	5.31	5.38	5.35
Identification requirements for certain first-time voters	5.20	5.14	5.17
Creation of the Election Assistance Commission**	4.95	4.62	4.78
Requirement for provisional voting**	4.20	4.49	4.36

** = T-test difference between two samples is significant at .001.

To test our model, we use two dependent variables. First, a broad indicator of the perceived impact of HAVA: For both surveys, we asked whether HAVA had resulted in improvements in the election process in the respondent's jurisdiction (0 = no improvement, 10 = improvement) (Appendix 1 lists the specific survey items, descriptive statistics, and Cronbach's alphas for the variables used in the regression that follows). The mean response was 4.99 in 2005 and 4.53 in 2007, and the pooled mean was 4.75. The second dependent variable is more specific: In 2007, we asked LEOs whether HAVA had made elections more accessible, more fair, more complex, and more reliable. The responses are detailed in table 3. As with the general question of whether HAVA promoted improvements, the responses are generally close to the midpoint of the scale. In fact, the only item for which responses are not within a standard deviation of the scale midpoint is the strong agreement that HAVA have made elections more complex. We created a scale of the specific impacts of HAVA on voters by adding responses to the questions on the accessibility, fairness, and reliability impacts of HAVA.

In the area of election administration, much change has occurred in recent years, but not all of it has been the result of HAVA. Many states initiated their own changes, some preempting HAVA and some responding to perceived weaknesses of HAVA. This creates the potential for varying levels of LEO knowledge about actual HAVA policies. Implementation studies have consistently made the case that more clearly understood objectives have greater potential to be implemented (Edwards 1980; Mazmanian and Sabatier 1989). Of course, it is possible that greater familiarity with a policy leads to conflict, but given that LEOs are generally sympathetic to the specific policy aspects of HAVA (see table 2), we propose that greater familiarity with HAVA policy goals will be associated with a more positive perception of its impact.

H₁: LEOs who are more familiar with HAVA are more likely to view HAVA as improving election administration.

Table 3 Perceptions of HAVA Impact on Election Administration

To what extent do you agree with the following statements (1 = strongly disagree, 4 = indifferent, 7 = strongly agree)	Mean
HAVA has made elections more accessible for voters.	4.50
HAVA has made elections more fair.	3.72
HAVA has made elections more complex to administer.	5.92
HAVA has made elections more reliable.	3.66

Resources are usually a requirement for implementing any significant change (Elmore 1979; Montjoy and O'Toole 1979). Resources do not guarantee success, but their absence generally leads to failure (Mazmanian and Sabatier 1989). Resistance increases when local officials perceive that they are being forced to implement unfunded or partially funded mandates (O'Toole 1999) or when they have sunk costs in existing technologies (Montjoy and O'Toole 1979). LEOs see the primary advantage of HAVA as the provision of greater federal funding (see table 1), but they also view changes in election administration as increasing costs. Many LEOs feel that they lack sufficient funding to implement new mandates, and even more worry about a lack of resources in the future because HAVA does not provide for ongoing funding. In 2007, we asked whether HAVA had increased or decreased the cost of elections and whether respondents were concerned about future funding to implement HAVA requirements. We hypothesize that when LEOs see increased costs and inadequate funding, they will place the blame on HAVA, perceiving it as a partially funded policy mandate, and as a result will evaluate the impact of HAVA more negatively.

H₂: LEOs who are concerned about funding shortfalls are less likely to view HAVA as improving election administration.

Many states initiated their own changes, some preempting HAVA and some responding to perceived weaknesses of HAVA.

Principal-agent theory suggests that goal disagreement between principals and agents will lead agents to disregard the initiatives of the principal (Brehm and Gates 1997). Alvarez and Hall (2006) have already used

principal-agent theory to examine the relationships between LEOs and poll workers, while here we examine the relationship between federal reformers and LEOs. Brehm and Gates's (1997) modification of principal-agent theory notes that workers may implement a policy because they find utility in it rather than because of externally imposed incentives. This would lead us to expect, consistent with some implementation theory (Murphy 1976; Montjoy and O'Toole 1979, 474), that goal congruency between principals and agents should make agents more sympathetic to top-down changes and reduce local resistance.

H₃: LEOs who are supportive of specific HAVA goals are more likely to view HAVA as improving election administration.

Implementation studies have identified the importance of personnel characteristics and beliefs in explaining how they respond to policy mandates (Edwards 1980; Hambleton 1983). In this study, we examine how LEOs' experience, attitudes toward

federal involvement, demographic characteristics, and views of technology affect how HAVA is perceived.

As local officials feel that they understand their function better than other parties, they will be less positively disposed toward intervention from higher levels of government, increasing local resistance (Lipsky 1980). Experienced LEOs may perceive federal rules as failing to appreciate their needs and constraints. We expect LEOs to be resistant to HAVA to the extent that they feel they are better placed to manage elections through their discretion than through externally imposed mandates. One variable that should reflect local resistance is time on the job. LEOs with limited experience should be more likely to trust the wisdom of federal policies and less resistant to changing a status quo that they did not create. More experienced LEOs should be more likely to prefer their own judgment and past practices to new external mandates. We measure time on the job in both the long term (number of years on the job) and the immediate term (number of hours per week the LEO spends on election administration).

H₄: LEOs with greater experience are less likely to view HAVA as improving election administration.

Another way of measuring LEO resistance is to assess the local perspective on the source of the mandates. LEOs who strongly believe that federal actors are not well placed to be involved in elections will be more resistant to specific federal mandates, such as HAVA. We include a variable that measures the extent to which respondents feel that federal involvement has too great an influence in the election process. In order to distinguish between resistance to federal intervention in election policy and more general ideological suspicion of federal involvement, we control for political ideology.

H₅: LEOs who believe that federal actors should not be involved in election administration are less likely to view HAVA as improving election administration.

How LEOs respond to change depends partly on their individual perspective on change generally. Implementation theory generally has not studied the relevance of attitudes toward technology, which are likely to be important for policy change that is tied to new technologies. A common theme of the first wave of election reform was a preference for more technologically sophisticated solutions, including a reliance on DREs and optical scan technology, and centralized databases of voters. We test Moynihan's (2004) hypothesis that LEOs who are generally disposed toward technological advances and e-government will welcome HAVA-inspired changes in election administration.

H₆: LEOs who display a faith in technology are more likely to view HAVA as improving election administration.

Because of the technological imperatives of HAVA, it is plausible to believe that younger and better-educated LEOs will be less resistant to change. It is also useful to control for the age of the respondent in order to distinguish the effects of the experience variable discussed earlier.

H₇: Younger and better-educated LEOs are more likely to view HAVA as improving election administration.

Finally, we control for whether the response came in the first or second wave of the survey. This control allows us to test the effect of time on the implementation of HAVA. Time is generally judged to facilitate implementation, especially if early success fosters momentum (Mazmanian and Sabatier 1989), because time allows learning and adjustment. However, time may also lead to growing disenchantment with a policy and increased conflict among policy actors (Pressman and Wildavsky 1973). The latter outcome is more likely for our sample given the growing criticism of HAVA since its passage, and this is reflected in the statistically significant decline from 2005 to 2007 in support for HAVA goals (table 2) and the overall assessment of HAVA that forms the dependent variable of our pooled model.

H₈: Between 2005 and 2007 LEOs are less likely to view HAVA as improving election administration.

The results of our analysis are presented in table 4. We use a state-level fixed effects model with robust standard errors to control for differences between states. Both models enjoy general support, with several of the hypothesized relationships consistently proving significant.⁵ Model 1 examines the general perception that HAVA has resulted in improvement and pools responses from 2005 and 2007. Model 2 tests the specific benefits of HAVA in terms of accessibility, fairness, and reliability, using only 2007 responses. This reduces the *N* size of the model but allows the inclusion of additional funding variables not included in the 2005 survey.

Familiarity with HAVA is positively associated with perceptions that HAVA has resulted in improvements in model 1, but it is not positively related to the dependent variable in model 2. Goal congruency is strongly and positively associated with perceptions that HAVA is improving election administration in both models. This offers relatively good news for the authors of recent change in election administration, as LEOs have relatively high agreement with the

Table 4 State-Level Fixed Effects Regression of Perceptions That HAVA Has Improved Election Administration

	Model 1	Model 2
<i>Variables</i>	<i>Coefficient (robust standard errors)</i>	
Familiarity with HAVA mandate	.068 (.029)**	-.076 (.081)
<i>Perception toward mandates</i>		
Goal congruence	.100 (.004)***	.140 (.017)***
HAVA funding sufficient	—	.201 (.063)**
HAVA has increased costs	—	-.243 (.103)**
<i>Experience</i>		
Years as LEO	-.007 (.005)	-.038 (.021)*
Number of hours worked on elections per week	-.005 (.003)**	-.004 (.010)
<i>Resistance to federal control</i>		
Conservative ideology	.049 (.044)	-.102 (.125)
Federal government has too much control of elections	-.239 (.043)***	-.181 (.102)*
Faith in technology	.223 (.055)***	.408 (.124)**
<i>Demographic controls</i>		
Age	-.016 (.010)*	-.026 (.016)
Education	.109 (.063)*	.030 (.144)
Survey wave (1 = 2007)	-1.152 (.159)***	

Model 1: "HAVA is resulting in improvements in the election process," pooled 2005–2007 data, $N = 1,398$, $R^2 = .325$.

Model 2: "HAVA has made elections more accessible/fair/reliable," 2007 data only, $N = 758$, $R^2 = .329$.

State-level effects included but not reported in each model.

***significant at .001; **significant at .05; *significant at .01, two-tailed tests.

purpose of recent changes (see table 2). Winning such agreement is significant—it is easy to think of other implementation situations in which frontline employees might disagree fundamentally with the policy goals of reforms and seek to evade requirements, for example, if new reforms reduce benefits to clients that frontline officials are anxious to provide (Lipsky 1980).

Therefore, federal policy makers in election administration have an advantage relative to many other forms of implementation—local bureaucrats agree with their goals and, for that reason, are more likely to characterize reforms in positive terms. But the potential benefits of such goal alignment are being lost elsewhere. First, funding is a major concern. Model 2 shows that when funding is viewed as inadequate, LEOs are less likely to see the benefits of HAVA. A complementary finding is that, to the extent that LEOs perceive that HAVA has increased election costs for their jurisdiction, they are again less likely to see the benefits of HAVA. Second, we see evidence of local resistance based on the experience of LEOs, although this relationship is not as strong as the funding and elections costs results. In model 1, the amount of time that LEOs focus on election duties is significantly and negatively related to the dependent variable. In model 2, the number of years as LEO is significantly and negatively associated with the dependent variable. In both models, we also see local resistance resulting from the LEO views that the federal government has become too greatly involved in the election process, even controlling for political ideology.

We also find support for the hypothesis that an individual's predisposition toward technology matters in

their evaluation of reform efforts. LEOs who express faith in technology are more likely to view the greater reliance on new election technologies created by HAVA as positive. Younger and better-educated respondents are less resistant toward HAVA in model 1, perhaps because these factors are also broadly associated with a willingness to embrace change. The finding on survey waves in model 1 illustrates that LEOs have increasingly negative attitudes toward HAVA, even when controlling for other variables. This seems to be a case in which the implementation of the project over time has not eased tensions but led to greater disillusionment among LEOs.

The Second Wave of Election Reform: Reacting to E-Voting Concerns

If HAVA represented the first major wave of the recent election reform, then the backlash against the HAVA-mandated diffusion of e-voting machines can be seen as the second wave. HAVA provided funding to replace older voting technologies with DREs and optical scan machines. The requirements for disabled access, in particular, amounted to a mandate that all jurisdictions adopted at least one DRE machine. There has been a dramatic increase in the use of e-voting machines since the passage of HAVA, even as criticism of this technology has increased. In 2005, almost 17 percent of our sample used DREs as their primary voting technology, increasing to 33 percent of respondents by 2007. If anything, these numbers underestimate the diffusion of DREs, as many jurisdictions do not use DREs as their primary voting technology but may have a small number on hand to satisfy HAVA requirements. The EAC survey (2007a) found that 54 percent of jurisdictions reported using DREs for the 2006 election, while 43 percent used optical scans.

While the first wave of reform was a top-down federal response, the second wave was driven in a much more bottom-up fashion, initially by groups of online activists and computer scientists who argued that DREs not only have security weaknesses but that these weaknesses create the potential for catastrophic failure of a kind not associated with any other kind of technology (Moynihan 2004). Gradually, mainstream media outlets started to air these criticisms, and the majority of state governments (though not yet the federal government) have reacted by passing new mandates that aim to protect the election process from the dangers associated with e-voting technologies. By 2008, 15 states (or some of the jurisdictions within these states) that allowed the use of DREs required that they be accompanied by some type of voter-verifiable paper audit trail (VVPAT). Three states used DREs with VVPATs but without a requirement to do so. Seventeen states required paper-based voting systems to the exclusion of e-voting. Only 14 states used DREs without some sort of VVPAT (Electionline.org 2008, 17).

In this section, we examine LEO attitudes toward the second wave of reform. Specifically, we examine how LEOs perceive DREs, their views of criticisms of DREs, and their perceptions of the most common policy solution in response to these criticisms: the addition of VVPATs. In general, we find a strong preference for the status quo among respondents. Those who own a particular type of voting system tend to believe that this system is reliable and offer it higher marks than the average LEO. It might be argued that attachment to a particular system might reflect a careful investigation into that approach, but users of quite different systems tend to have higher confidence in their own systems and less confidence in others, suggesting that all respondents cannot be right that their system is superior. A good example comes

from DREs. Relative to non-DRE users, LEOs who used DREs were significantly more likely to claim that they understood how DREs operated and that the negative public perception associated with DREs was the result of an overly critical media and a mistrustful public rather than serious security vulnerabilities with DREs themselves. Of course, the status quo preference is not absolute, as demonstrated by the fact that many LEOs were amenable to changing their voting system when provided incentives to do so by HAVA. But having made a decision to purchase a DRE or other system, and knowing that reversing such a decision would be costly, LEOs may become more committed to their decision even in the face of countervailing evidence.

It seems plausible that the barrage of criticism toward DREs might have made users more cautious about the benefits of e-voting technology, but this does not appear to be the case. There are, in fact, few significant differences

between the perceptions of DRE users in 2005 and 2007 on the factors listed in table 5. However, DRE users in 2007 acknowledged a significantly weaker understanding of how their election systems operate. In addition, DRE users in 2007 reported a significantly lower level of overall satisfaction with their DRE system (dropping from a mean of 8.89 to 8.28 on a 10 point scale). It should be noted that in the same period, optical scan users also reported a significant decline in satisfaction, dropping from 9.10 to 8.64.

Another area in which DRE users have changed their perceptions somewhat is in relation to VVPATs. VVPATs offered a possible solution to the problem of DREs by producing a paper receipt that voters could use to ensure that their intent was accurately recorded by the DRE and a backup system that could be used in a recount. Table 5 illustrates that although DRE

By 2008, 15 states (or some of the jurisdictions within these states) that allowed the use of DREs required that they be accompanied by some type of voter-verifiable paper audit trail.

Table 5 Local Election Officials' Views of E-Voting

To what extent do you agree with the following statements (1 = strongly disagree, 7 = strongly agree)	Mean Response		
	Non-DRE Users 2005	DRE Users 2005	DRE Users 2007
The media reports too many criticisms of DREs	4.26	5.32	5.35
The public should have greater trust in DREs	4.12	6.01	5.90
DRE software should be available for public inspection (an open source approach)	4.19	3.36	3.35
I understand how DREs operate	4.02	6.17	5.70
DREs are more vulnerable to tampering than other types of voting systems	4.13	1.99	1.99
Any security concerns about DREs can be adequately addressed by good security procedures	4.61	6.02	5.89
DRE software is vulnerable to being hacked	4.35	2.30	2.18
DREs should print voter-verifiable paper ballots	5.17	2.44	3.29

Note: All differences between non-DRE Users and DRE Users (2005 or 2007) are significant at the .001 level.

users remain significantly more opposed to the use of VVPATs than nonusers, they were significantly less opposed in 2007 than in 2005. This may reflect the fact that state governments have begun to take the issue away from LEOs by requiring the use of VVPATs.

Of DRE users, 30 percent had voter-verifiable paper ballots in 2007. Of those that did not, less than 5 percent were planning to add one. The main problems that DRE users associated with VVPATs were cost, the possibility of printer failure, the complexity of adding a printer, and the potential that VVPATs might reduce voter privacy. The relevance of cost is illustrated by the fact that 39 percent of DRE users without VVPATs said they would add one if the federal government would cover the cost. Providing further evidence of a preference for the status quo, the data suggest that once LEOs adopt VVPATs, they are generally satisfied. On a scale of 0 (not satisfied at all) to 10 (extremely satisfied), users of VVPATs in 2007 reported a mean score of 7.2. These LEOs also reported that the public supported having VVPATs in place. On a scale of -5 (very displeased) to +5 scale (very pleased), LEOs rated public reaction to VVPATs at 2.55.

Conclusion

This article has examined how LEOs view the two waves of election reform that they have experienced in the aftermath of the 2000 election. The first wave of reform implemented a series of federal mandates, while the second wave of reform resulted in state mandates. With each wave of reform, new requirements have been added and discretion has been removed from LEOs. The world of LEOs has become more complex, more constrained, and more scrutinized than before.

LEOs largely agreed with the relatively specific goals of the first wave of reform and welcomed additional resources that HAVA and state matching provided. This smoothed the process of implementation, reducing concerns about loss of authority and resentment about federal involvement in a traditionally local function. However, when LEOs believed that funding failed to keep pace with the changes required, their support for change weakened. LEOs were also more likely to positively evaluate federal mandates if they were willing to accept federal involvement and familiar with the policy mandate. The general consistency of such findings with previous research in other policy areas demonstrates the utility of implementation theory for understanding election administration. One addition that the article makes to the implementation research is to focus on the importance of the implementer's general attitude toward technology for technology-intensive policies.

The second wave of reform, though a direct reaction to the first, did not, in fact, reverse the first wave. In

only a few states where DREs were adopted were they subsequently outlawed. Rather, the second wave of reform largely accommodated the first by requiring VVPATs. Jurisdictions could retain their expensive new DREs if they modified them to print paper ballots. This reflects the path dependency of administrative change, especially in policy areas such as election administration where technologies are costly but rarely used, making frequent change prohibitively expensive. This article identified a preference for the status quo among LEOs. The second wave of reform, unlike the first, was not accompanied with large infusions of resources to facilitate change, which helped to reinforce LEO opposition to mandates. Were more resources made available, it is likely that much of the opposition to VVPATs would disappear.

Notes

1. The relatively high percentage of females raises concerns that female respondents may have been more likely to complete the survey than males, indicating a possible bias in response. We addressed this concern by examining the first names of LEOs for our entire 2005 sample and assigning them a gender. After discarding names that could not be clearly attributed to either gender, the results revealed that almost 77 percent of those in the sample were female. This implies that the high percentage of females in our response reflects the fact that LEOs are significantly more likely to be female rather than any bias in survey response.
2. Interestingly, LEOs do not perceive voting fraud to be especially prevalent. On a 1-7 scale where 1 = strong disagreement that fraud was prevalent in their jurisdiction and 7 = strong agreement, the mean score for 2007 was only 1.4. A more detailed discussion of the tension between access and integrity can be found in the Century Foundation Working Group on State Implementation of Election Reform (2005).
3. It is helpful to remind ourselves of the different characteristics of common election technologies. With punch-card ballots, voters mark their preferences by punching holes into numbered boxes on ballot cards. A computerized tabulation machine reads the cards by identifying the holes and then tallies the votes. With lever machines, voters mark their preferences by pulling a lever located next to a chosen candidate's name. The voting machine records and tallies the votes. With central-count optical scan, voters mark their preferences on a computer-readable paper ballot. A computerized tabulation machine tallies the votes at a central location. With precinct-count optical scan, voters mark their preferences on a computer-readable paper ballot. A computerized tabulation machine tallies the votes at the precinct location. For DREs, voters mark their preferences by finding their candidate on a computer screen and directly

touching the screen or a specified button. The computer tabulates the votes.

4. This is not to say that state-level interventions and variations do not have a significant impact on the implementation of elections; however, the focus of this study is the relationship between federal interventions (HAVA provisions) and local bureaucrats (LEOs). The reader can find more on state interventions in Alvarez and Hall (2005).
5. At the suggestion of a reviewer, we also tested the impact of jurisdiction size on the dependent variables. For model 2, we had two measures of size: the number of voters in a jurisdiction and the number of polling stations open on election day. Neither proved to be significantly related to the dependent variable.

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Appendix A: Survey Questions, Mean, Standard Deviations, and Cronbach's Alpha for Data Used in Regression Analysis

<p>Dependent variables:</p> <p>Model 1: Do you think HAVA is resulting in improvements in the election process in your jurisdiction? (no improvement = 0, major improvement = 10). Mean = 4.75, SD = 2.71.</p> <p>Model 2: To what extent do you agree with the following statement? (1 = strongly disagree, 7 = strongly agree): HAVA has made elections more accessible for voters/more fair/more reliable. Mean = 11.85, SD = 4.55, Cronbach's alpha .829.</p>
<p>Familiarity with HAVA mandate:</p> <p>How familiar are you with HAVA requirements? (Not familiar at all = 0, extremely familiar = 10). Mean = 7.96, SD = 2.12.</p>
<p>Goal congruency:</p> <p>What do you regard as the advantages and disadvantages of HAVA? Circle your most preferred response for each characteristic: (7 = advantage; 1 = disadvantage): Creation of Election Assistance Commission/Requirements for disabled access to voting systems/Requirements for voter-error correction/Provision of information for voters/Codification of voting system standards in law/Process for certification of voting systems/Requirements for centralized voter registration/Requirement for provisional voting/Facilitating participation for military or overseas voters/Identification requirements for certain first-time voters</p> <p>Mean = 52.32, SD = 11.32, Cronbach's alpha = .874.</p>
<p>Funding:</p> <p>How concerned are you that limited funding in the future will leave you unable to comply with HAVA requirements for election administration? (0 = not concerned at all, 1 = extremely concerned). Mean = 5.36, SD = 2.95.</p> <p>How has HAVA affected the cost of elections in your jurisdiction? (-5 costs have decreased, 0 = costs have stayed the same, +5 = costs have increased). Mean = 3.31, SD = 1.93.</p>
<p>Experience:</p> <p>How long have you served in your current capacity in election administration? (In years). Mean = 11.43, SD = 8.47.</p> <p>On average how many hours per week do you spend on election duties? (In hours). Mean = 22.25, SD = 17.78.</p>
<p>Resistance to federal control:</p> <p>On a scale of political ideology, individuals can be arranged from strongly liberal to strongly conservative. Which of the following categories best describes your views? Choose one: Strongly liberal (1); Liberal (2); Slightly liberal (3); Middle of the road (4); Slightly conservative (5); Conservative (6); Strongly conservative (7). Mean = 4.55, SD = 1.32.</p> <p>Do you agree or disagree with the following statements about the decision-making process used to select the type of voting system currently in place? The federal government has too great an influence on the process: (1 = strongly disagree; 7 = strongly agree). Mean = 4.84, SD = 1.76.</p>

Faith in technology:
Response to “to what extent do you agree or disagree with the following statements?” (7 = strongly disagree, 1 = strongly agree): The use of new information technologies can dramatically improve government services.
Mean = 5.20, SD = 1.42.

Survey wave:
2007 = 1, 2005 = 0. Mean = .50, SD = .50.

Age:
How old are you? (years). Mean = 52.83, SD = 9.42.

Education:
What is the highest level of education you have completed or the highest degree you have received?
(1 = Completed some high school; 2 = High school graduate or equivalent; 3 = Completed some college, but no degree; 4 = College graduate; 5 = Completed some graduate school, but no degree; 6 = Completed graduate school)

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