

# **Electronic Registration Information Center (ERIC) Stage 1 Evaluation**

**Report to the Pew Charitable Trusts**

**by RTI International**

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December 10, 2013





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## Executive Summary

This report evaluates outcomes related to the first year of operation – Stage 1 – of the Electronic Registration Information Center (ERIC). ERIC is a nonprofit organization established by seven member states that joined to form the Center in 2012. The states received technical and financial support to design and incorporate ERIC from The Pew Charitable Trusts. The goal of ERIC is to improve voter registration rolls by enhancing access to registration for unregistered voters and by improving the accuracy of the rolls through regular maintenance of registration lists. ERIC uses IBM technology to connect information in state voter files with data from state motor vehicle offices, death records, and change of address information to identify eligible but unregistered individuals and identify outdated entries and duplicate entries within and across states to help clean up voter rolls.

ERIC's main activity during Stage 1 was mailing informational postcards to people in the seven member states who had been identified by ERIC as likely eligible to vote but unregistered, using motor vehicle and voter files. Our analysis, based on high-quality, independent data sources, finds that ERIC states improved on every measure we considered relative to non-ERIC states. We also interviewed an election administrator from each ERIC state to gauge qualitatively their experience with the new system. Among our findings are the following:

- **Total voter registration:** ERIC states showed a net improvement in registration of 1.23 percentage points over non-ERIC states.
- **New voter registration:** ERIC states showed a net improvement in new registration of 0.87 percentage points over non-ERIC states.
- **Voter turnout:** ERIC states showed a net increase in voter turnout of 2.36 percentage points over non-ERIC states.
- **Provisional ballots:** ERIC states showed a smaller increase in the use of provisional ballots. ERIC states also showed less growth in the rejection of provisional ballots.
- **Not registering:** ERIC states showed improvements over non-ERIC states in numbers of residents who did not register to vote because they missed deadlines or did not know where or how to register.
- **Not voting:** ERIC states showed a net improvement in the percentage of people not voting due to registration problems.
- **Voter file errors:** State officials are finding that the data ERIC makes available enable them to make valuable corrections to birthdates and other fields in voter files.
- **Automation:** ERIC state officials are optimistic about automating uploads and reports to reduce the cost of voter outreach and list maintenance.
- **The future:** After initial delays, ERIC state officials are eager to begin Stage 2 list maintenance activities and to enlist more states in ERIC.



## Introduction

The Electronic Registration Information Center – ERIC – is a nonprofit organization designed to improve state voter registration rolls. ERIC was established in 2012 by the seven initial “ERIC states” of Colorado, Delaware, Maryland, Nevada, Utah, Virginia, and Washington, with technical and financial support from The Pew Charitable Trusts. ERIC aims to improve voter registration rolls by enhancing access to registration for unregistered voters and improving accuracy of registration rolls through regular list maintenance. Using sophisticated IBM technology, ERIC combines data from state voter files, motor vehicle records, change of address orders, and death records. Participating states are provided with reports that enable the states to contact eligible voters to register and begin to clean voter rolls as part of list maintenance activities, consistent with the National Voter Registration Act (NVRA).<sup>1</sup>

This report evaluates Stage 1 of ERIC, which used state motor vehicle records to identify and contact millions of people who were likely eligible but not registered to vote in the 2012 general election. The first part of the report focuses on outcomes evidence in data while the second part focuses on state officials’ experiences with ERIC.

Stage 2 of ERIC activities will focus on list maintenance. It will use voter records, motor vehicles files, death records, identification of duplicate entries, and change-of-address information to improve list maintenance. This activity is currently ongoing and will be the focus of a later report.

The design and measures in this report were chosen to provide for a comprehensive portrait of ERIC’s operation and how it affected the participating states. To produce the most confident conclusions possible, we rely on research designs that have been well established in the social sciences and policy analysis. In addition to relying on interviews with representatives from ERIC states and other sources of information, our report relies mainly on data from the Election Administration and Voting Survey (EAVS) and the Current Population Survey (CPS), two high-quality national data sources. While no analysis is without its limitations, the totality of evidence presented here increases our confidence in the conclusions we draw. The next section outlines the logic of the research design we employ.

## Research Design

The ERIC project is not a true experiment as most social scientists would define it. A true experiment would randomly select states to participate in ERIC. Instead, participation was voluntary and could have been influenced by factors that also influence the effectiveness of ERIC, leading to spurious results. Fortunately, there is a well-developed body of knowledge about how to address the concerns presented by these “almost” experiments.

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<sup>1</sup> For more detail see <http://www.pewstates.org/research/featured-collections/electronic-registration-information-center-eric-85899426022> and <http://www.ericstates.org/>

Specifically, we draw upon Campbell and Stanley’s classic framework for analyzing quasi-experiments.<sup>2</sup> Their framework identifies problems of non-experimental data and how to remedy them. We are especially attentive to problems of “selection bias.” This occurs when the “treatment” (participation in ERIC) is not randomly distributed across the states. This makes a simple comparison of ERIC and non-ERIC states in 2012 inappropriate because the differences could be due to preexisting factors that contributed to participation in ERIC in the first place. In addition, one cannot simply do a before-and-after comparison of the ERIC states because they might have responded to national forces that also affected non-ERIC states. These are known as “history” and “maturation” problems in the quasi-experimental framework.

Our solution to these various maladies is the “difference-in-differences” approach. This approach has become something of a gold standard in economic studies of policy evaluation.<sup>3</sup> Rather than merely comparing ERIC and non-ERIC states (plagued by selection bias) or before-and-after implementation in ERIC states (plagued by history and maturation), this approach combines both by simultaneously allowing analysis of the difference between ERIC and non-ERIC states *and* the difference before and after the implementation. This strategy thus addresses the issue of preexisting differences between the two types of states by holding them constant while also allowing the reflection of other factors influencing all states between elections.<sup>4</sup>

*Figure 1* presents four examples of what might be found. In this figure the green line represents ERIC states and the purple line represents non-ERIC states. The horizontal axis represents the “before” and “after” elections of 2008 and 2012. The vertical axis represents the value of an outcome such as the level of voter registration.

Panel A shows the case of two kinds of states that had preexisting differences and ERIC had no effect on the outcome. The parallel lines indicate that ERIC and non-ERIC states moved in identical fashion. Panel B shows the case of states that had preexisting differences and ERIC had a positive effect. This is indicated by the steeper slope of the green line, demonstrating improvement relative to the national trend. Panel C shows the situation in which there were no preexisting differences but the intervention created differences by having a negative effect on ERIC states. Again, the nonparallel lines are what show the effect in this difference-in-differences approach.

Finally, Panel D presents the case of states with some preexisting differences that grew as a result of ERIC’s positive effect. Whereas a simple before-and-after comparison in this case might have suggested a negative effect of ERIC because of the decline in the green line, the

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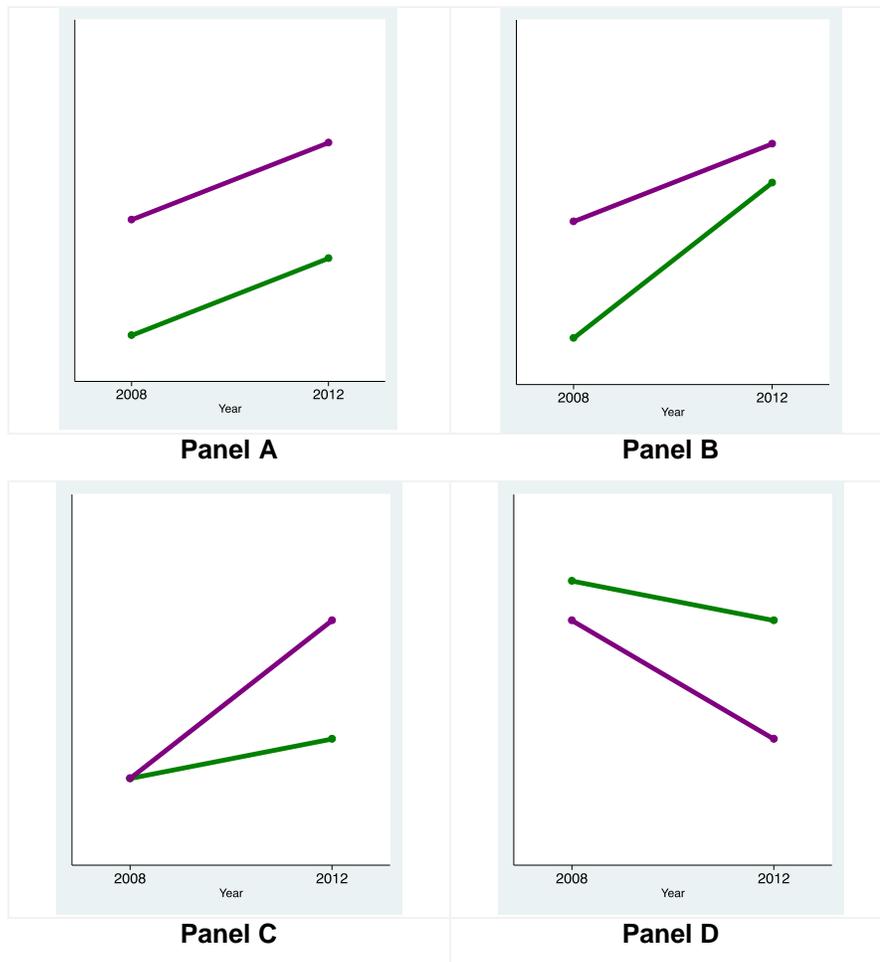
<sup>2</sup> Donald T. Campbell and Julian C. Stanley. 1963. *Experimental and Quasi-Experimental Designs for Research*. Chicago: Rand McNally and Company.

<sup>3</sup> For example, see Bruce D. Meyer. 1995. “Natural and Quasi-Experiments in Economics.” *Journal of Business and Economic Statistics* 13:151-61; Michael Lechner. 2011. “The Estimation of Causal Effects by Difference-in-Difference Methods.” *Foundations and Trends in Econometrics* 4:165-224. There are many sophisticated variants of the model that account for such things as interactive effects and correctly estimating statistical significance. It is also known as the “Nonequivalent Control Group Design” in the Campbell and Stanley framework.

<sup>4</sup> There is the possibility that “selection” will interact with “history” and “maturation.” For example, if states with especially low registration disproportionately joined ERIC, they might respond differentially to events taking place between elections. This seems unlikely given the diverse set of states involved and short period of time between elections.

comparison of the two kinds of states shows that the ERIC state decline was less steep than that in non-ERIC states. This example is particularly useful in the context of the 2012 election and in light of larger national trends. Compared to the 2008 presidential election, for example, voter interest was generally lower and overall turnout fell. The decline in turnout is reflected in the declining slopes of both lines in Panel D, but it is the relative decline – the degree to which turnout in one set of states has fallen compared to the other set – that is important to our analysis.

**Figure 1. Examples of Potential Patterns**



### Mitigating Factors

Although the scope of the ERIC mailings was large – 5.7 million people contacted – there are several reasons why the impact on registration, turnout, and other outcomes might have been muted.

First, the population being targeted is especially difficult to register. Individual socioeconomic status is one of the best predictors of registration (and turnout) because it reflects the skills, resources, and interest necessary to get involved in politics; typically the higher the

status, the more one gets involved. Unregistered individuals tend to be of lower socioeconomic status.<sup>5</sup> In many cases they have not registered because they are not part of communities or social networks that facilitate participation. In some cases they have actually declined the opportunity to register at a motor vehicles office or in an interaction with another government agency.

Second, the postcard that potential registrants received arrived amidst a sea of election-related material. Although most of that material would have come from parties, candidates, or groups rather than official government sources, some individuals would avoid all such contacts while others would not notice the differences between official mail from the state and campaign mail.<sup>6</sup>

Third, as noted above, even with the deluge of material, the 2012 election was a slightly less engaging election than that of 2008. Most indicators of voter involvement declined between the two elections. Voter turnout fell by an estimated 3.4 percentage points between the two elections, dropping in 47 states.<sup>7</sup> The registration rate, which partly reflects voter interest, also appears to have declined.<sup>8</sup> The best ERIC might be expected to do in many cases would be to dampen the decline in participating states.

Finally, there is the problem of selection bias described earlier. If the states that joined ERIC were unique in some important ways, those differences might overwhelm any small effects of the ERIC mailing. We use the difference-in-differences model precisely because it sets aside any preexisting differences. At the same time, it is prudent to consider what those differences were. Table A1 in the Appendix provides summary statistics on an array of indicators such as election laws, demographics, or electoral competitiveness that might have affected participation in ERIC, outcomes of interest, or both.

As the table demonstrates, the ERIC states generally represent a healthy cross-section of the country. Where sizable differences exist among non-ERIC states, they are sometimes contrary to what we observe in ERIC states. For example, although not a statistically significant difference by conventional standards, non-ERIC states were more likely than ERIC states to have Election Day registration in 2008, a practice widely believed not only to increase registration and

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<sup>5</sup> For example, the 2012 CPS shows that the registration is 60.4% among those with no more than a high school diploma, 77.7% among those with any college education, and 85.6% among those with graduate education. For additional evidence see Richard J. Timpono. 1998. "Structure, Behavior, and Voter Turnout in the United States." *American Political Science Review* 92: 145-158.

<sup>6</sup> Anecdotal reports from ERIC state officials suggest this happened based on phone calls they received from some individuals confused about the differences between campaign mail and the state's postcards. More systematic evidence comes from the 2004 Campaign Communications Study, a national academic survey conducted before the 2004 general election. The survey found that the median respondent had received about a dozen pieces of "political mail," which may well include government notices about registering and voting. When asked what they "normally do with political mail," only 20% reported that they "read it carefully" while 58% reported that they "throw most of it away."

<sup>7</sup> See Michael J. Hanmer. 2013. "Turnout in the 2012 Election: A Review and Call for Long-Term Solutions." *The Forum* 11:277-294; "Michael P. McDonald, "Turnout in the 2012 Presidential Election," February 11, 2013, [http://www.huffingtonpost.com/michael-p-mcdonald/turnout-in-the-2012-presi\\_b\\_2663122.html](http://www.huffingtonpost.com/michael-p-mcdonald/turnout-in-the-2012-presi_b_2663122.html)

<sup>8</sup> See "Youth Engagement Falls; Registration Also Declines." Pew Center for the People and the Press. September 28, 2012. <http://www.people-press.org/2012/09/28/youth-engagement-falls-registration-also-declines/>

turnout, but also to reflect state political cultures that result in higher levels of participation.<sup>9</sup> Non-ERIC states also had slightly (although not significantly) lower turnout in 2008 (and the 2010 midterm election). As the Appendix explains in greater detail, there is no consensus in the scholarly community about the use of statistical significance tests for a dataset that includes all of the possible observations, or the universe rather than a sample. The tests of significance are provided as a guide to which differences may be large enough to influence the results. The remainder of this report does not report significance levels.

The only notable factor that is statistically significant and might confound the analysis of ERIC is the availability of online voter registration. ERIC states were much more likely than non-ERIC states to adopt online registration before the 2012 election. Five of the seven ERIC states had online registration, compared to eight of the 43 non-ERIC states. To address the possibility that the availability of online registration was responsible for observed differences, rather than the ERIC mailings per se, we will control for this factor by rerunning all of the difference-in-differences models after limiting the sample to states with online registration. If the same pattern emerges among states where online registration was available, we can be more confident that ERIC was responsible.

## The Postcard Mailings

ERIC provided reports to participating states in the summer of 2012 on the number of potentially eligible but unregistered individuals in their states. As shown in **Table 1**, in September of 2012, the seven ERIC states used these reports to contact a total of 5,701,048 individuals by postcard, inviting them to register if they met all state registration requirements.<sup>10</sup> State data show that 309,649 of the contacted individuals registered to vote, a rate of 5.4%.<sup>11</sup> Of these individuals, 172,418 also voted in the election, a rate of 3.5%.<sup>12</sup>

One should not take these percentages as solely being affected by ERIC. Some portion of the people contacted would have registered (and voted) anyway, even if they had not received postcard mailings. The “take up” rates of 5.4% registration and 3.5% turnout thus represent the *maximum* effects that ERIC could have had. Plausible estimates of the effects must be below these values. These ceilings are valuable for judging the validity of ERIC effects that we estimate, as seen below, using other data sources.<sup>13</sup>

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<sup>9</sup> Michael J. Hanmer. 2009. *Discount Voting: Voter Registration Reforms and Their Effects*. New York, NY: Cambridge University Press.

<sup>10</sup> The actual number of postcards mailed is less than 5,701,048. In several states the ERIC reports were filtered to ensure that clearly ineligible individuals such as felons, minors, and those residing outside state borders were not included in the mailing. As a cost-saving measure, Colorado, Delaware, Nevada, and Washington individuals living in the same household were combined into a single mailing, thus reducing the total number of postcards to 4,903,870.

<sup>11</sup> More people could have registered after the registration closing dates in these states, which would further increase ERIC’s effect.

<sup>12</sup> This figure excludes Utah, which was unable to calculate the data in its voter registration database.

<sup>13</sup> Technically the net effects of the mailings could exceed these ceilings if the postcards influenced not only the intended recipients but also other members of the household, friends, colleagues, and family who became aware of them through conversations. These sorts of “spillover” effects surely exist but should be modest, and certainly

A unique experiment in Delaware provides a more concrete estimate. A forthcoming report indicates that those who received postcards registered at a rate approximately 2.3 percentage points higher than a control group that received no mailings.<sup>14</sup> This effect falls nicely below the 5.4% ceiling established above.

**Table 1. Eligible Individuals Contacted, Registered, and Voted in the 2012 Election**

	Contacted	Registered		Voted
Colorado	723,231	74,528	10.3%	32,430
Delaware	25,488	2,582	11.1%	487
Maryland	1,052,866	31,919	3.0%	26,712
Nevada	440,337	21,110	4.8%	18,021
Utah	839,255	29,729	3.5%	--
Virginia	867,852	79,238	9.1%	46,764
Washington	1,752,019	70,273	4.0%	48,004
Total	5,701,048	309,649	5.4%	172,418

*Table 1* shows that the registration rates of contacted individuals vary by state. It is impossible to know at this point why the take up rates differ, but there are several plausible explanations. First, it is possible that combining mailings within the same household, as four states did, altered the impact of the mailings. Second, the format and style of the postcards might have mattered. Evidence from at least two states suggests that the design of mailings affected the response rate.<sup>15</sup> Third, states differed in the timing of their activities. States were working with data for different vintages (uploaded over a two-month period), mailed postcards on different dates (ranging from September 10 to September 21), and imposed different registration closing dates (ranging from October 6 to October 29, depending the method). Fourth, five of the ERIC states offered online voter registration and directed individuals on the postcard mailings to make use of it. Nevada’s Secretary of State was also engaged in an educational campaign to promote online registration; that effort could have enhanced the take up rate there. Finally, some states were highly competitive “battleground” states that featured extensive political activity, much of it aimed at voter registration. These activities might have enhanced ERIC’s effect by giving potential voters interested by the campaigns an easier path to registration. Alternatively, the intense activities of campaigns and other groups might have been more consequential than the effects of postcards mailed by state officials. With only seven states participating in ERIC, we cannot adjudicate among these factors, but can show how overall patterns among ERIC states compared to the rest of the country.

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smaller than the main effects in which there are no real intermediaries between the mailing and the recipient aside from the U.S. Postal Service and whoever picks up the mail in each household.

<sup>14</sup> Christopher B. Mann and Lisa A. Bryant. “2012 ERIC Voter Registration in Delaware.” A forthcoming report to The Pew Charitable Trusts.

<sup>15</sup> In a forthcoming report Mann and Bryant find that of four designs, a “sticky note” image had the largest effect. More colorful images of U.S. or state flags had the smallest effects.

## Data

Data for the evaluation come from two sources: the Election Administration and Voting Survey (EAVS) and the Current Population Survey (CPS). EAVS and CPS contain high-quality data that provide an excellent basis for testing, across different metrics, the performance of ERIC. Only essential information about each source is provided below. Interested readers can turn to other publications for additional detail.<sup>16</sup>

A valuable feature of these data sources is that they come from outside the ERIC infrastructure. The data are collected independently by two federal agencies (the Election Assistance Commission and the Bureau of Labor Statistics) for different purposes and have been subjected to validation elsewhere. Their institutional distance from ERIC and Pew gives them unique credibility. To conduct difference-in-differences analyses, we combine the 2012 EAVS and CPS data with parallel data from the 2008 election.

### Election Administration and Voting Survey

The EAVS is a biennial survey of state and local election officials conducted by the U.S. Election Assistance Commission (EAC). Although early administrations of the survey saw substantial missing data and different standards across the states for defining the data, in recent years we have seen higher levels of completeness and data quality. The EAVS has become the single best source of data on state (and local) election administration.

Several items in the EAVS relate to ERIC mailings. The two most fundamental indicators are the number of people registered and the number of people who participated in the election. We combine these with the voting eligible population (VEP) data provided by Michael McDonald, a political scientist at George Mason University, on computer voter registration and voter turnout for each state.<sup>17</sup> States also report the number of “registration forms” processed over the two-year period leading up to the election and the share of those actions that were new registrations as opposed to merely updates of existing records. Presumably ERIC mailings would have increased *new* registrations in particular.<sup>18</sup>

A final set of EAVS items asks about provisional ballots. Although provisional ballots are issued for a variety of reasons across the states, they are designed to be a failsafe for voters

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<sup>16</sup> These sources were reviewed in two Pew publications, “Data for Democracy: Improving Elections through Metrics and Measurement” and “Election Administration by the Numbers: An Analysis of Available Datasets and How to Use Them.” Many are also scrutinized in-depth in the Burden and Stewart volume, *The Measure of American Elections* and the Alvarez, Atkeson, and Hall volume, *Evaluating Elections*.

<sup>17</sup> These data are the best measure of the eligible voter pools in each state and have been widely cited in the scholarly literature. For background see Michael P. McDonald and Samuel Popkin. 2001. “The Myth of the Vanishing Voter.” *American Political Science Review* 95:963-74 and documentation available at [elections.gmu.edu](http://elections.gmu.edu). The CPS also provides estimates of state turnout and registration. Analyses of these measures produce similar results to those based on the EAVS.

<sup>18</sup> It is possible that ERIC mailings also affected updated voter registrations. If people who received postcards were spurred to communicate with other members of the household, friends, family, or coworkers about them, that could have motivated those other individuals to take action updating existing registrations. See the discussion of net effects above.

whose registration and eligibility are questioned at the polls.<sup>19</sup> At least some provisional ballots are issued because voters believe they are registered and are then informed at the polls that they are not. The Help America Vote Act (HAVA) makes this clear in Section 302, which “creates the right for potential voters to cast provisional ballots in the event their names do not appear on the registration list or the voters’ eligibility is challenged by an election official.”<sup>20</sup> To the degree that ERIC mailings make one’s lack of registration known, this should reduce the number of provisional ballots and the number of provisional ballots that are rejected because a person was not registered.

Preliminary 2012 EAVS data were released on the EAC’s website in June 2012. Such preliminary data are often revised or augmented later as the biennial report to Congress is finalized. Anticipating the imperfect nature of these data, we contacted election officials in all of the states and DC in advance of the data release to request the EAVS data described above. In cases where the EAC’s release did not match or closely approximate what states reported to us, we followed up with pointed inquiries to those states and compared the data with statistics from earlier elections to identify the most accurate values. Although no single source can be said to be absolutely correct, this careful calibration of data from two sources should create a high level of confidence in the data.

## Current Population Survey

The CPS is a monthly national telephone survey conducted by the U.S. Census Bureau and Bureau of Labor Statistics. It is designed primarily to provide labor force statistics and is one of the highest quality national surveys in existence. In election years the “November Voting and Registration Supplement” to the CPS is focused on voting and registration. These surveys include extremely large samples of more than 50,000 respondents interviewed in mid-November.<sup>21</sup>

The CPS November Supplement asks respondents whether they were registered to vote in the election and whether they in fact voted. These two measures provide a second check on the registration and turnout patterns observed in the EAVS. Respondents who reported not being registered were then asked why they were not. Two response options are especially relevant for ERIC: “Did not meet registration deadlines” and “Did not know where or how to register.” Postcards sent to unregistered voters should have reduced the number of people who failed to register because they missed deadlines (often because they lacked knowledge of them) or were unsure “where or how” to register. The postcards provided exactly this information. Respondents who reported they were registered but did not vote were then asked why they failed to vote. One of the responses they could have chosen was “registration problems.” Presumably these problems have to do with confusion about whether the person was in fact registered or whether

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<sup>19</sup> States use provisional ballots for different purposes, which result in different levels of usage, but these practices should be relatively constant between consecutive elections.

<sup>20</sup> U.S. Election Assistance Commission. “Best Practices on Provisional Voting.” <http://www.eac.gov/assets/1/Page/Best%20Practices%20for%20Provisional%20Voting.pdf>

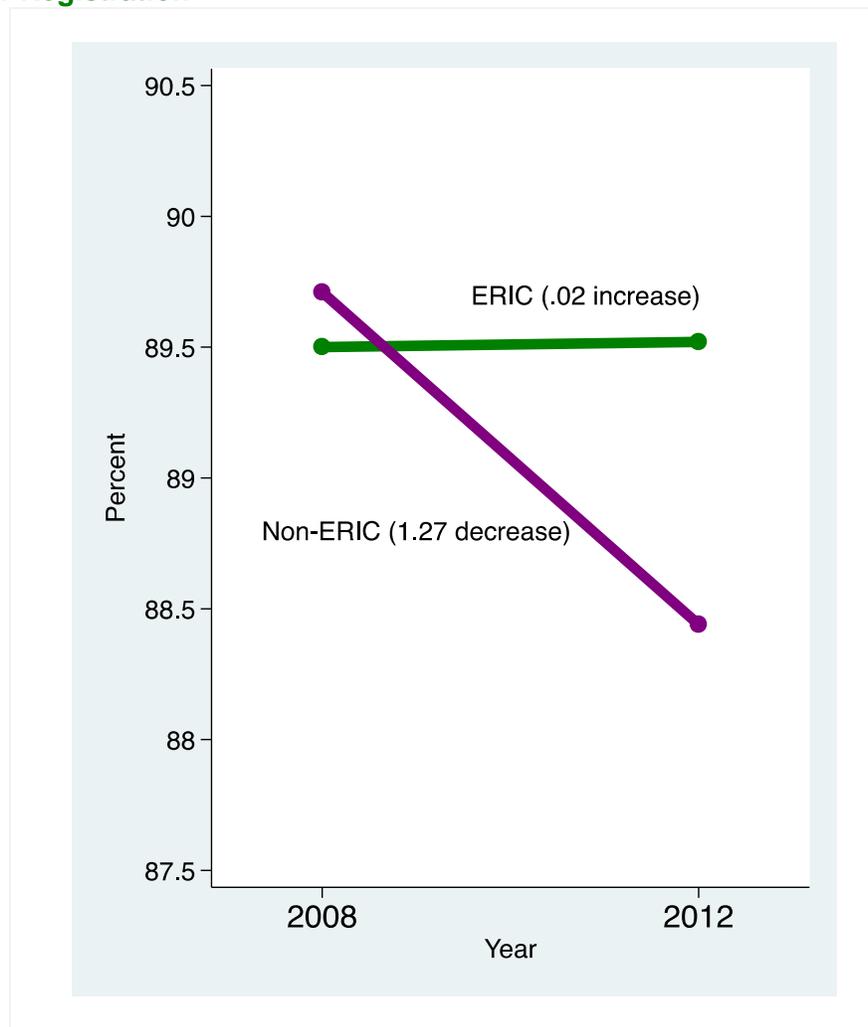
<sup>21</sup> For more methodological background, see CPS Technical Documentation (CPS-12). <http://www.census.gov/prod/techdoc/cps/cpsnov12.pdf>. Following CPS recommendations, household weights are applied to account for imperfections in the sample.

the registration reflected the proper name and address. To the degree that some nonregistrants believed they were registered, ERIC mailings should have also reduced these kinds of problems.

## ERIC's Effects on Registration, Turnout, Provisional Ballots

We begin by examining ERIC's effect on state voter registration levels. Voter registration is computed as the total number of registrants divided by the VEP.<sup>22</sup> **Figure 2** shows that between the 2008 and 2012 elections, the mean registration rate held steady in ERIC states, increasing only slightly from 89.50% to 89.52%. However, in non-ERIC states the mean fell by 1.27 percentage points from 89.71% to 88.44%. Combining these two differences produces a net estimated effect of 1.29 percentage points attributable to ERIC.

**Figure 2. Voter Registration**



Because of the centrality of the registration rate to the Stage 1 evaluation, we devote some attention to validating the robustness of this result before moving on to examine other

<sup>22</sup> North Dakota is excluded because it does not officially require voter registration.

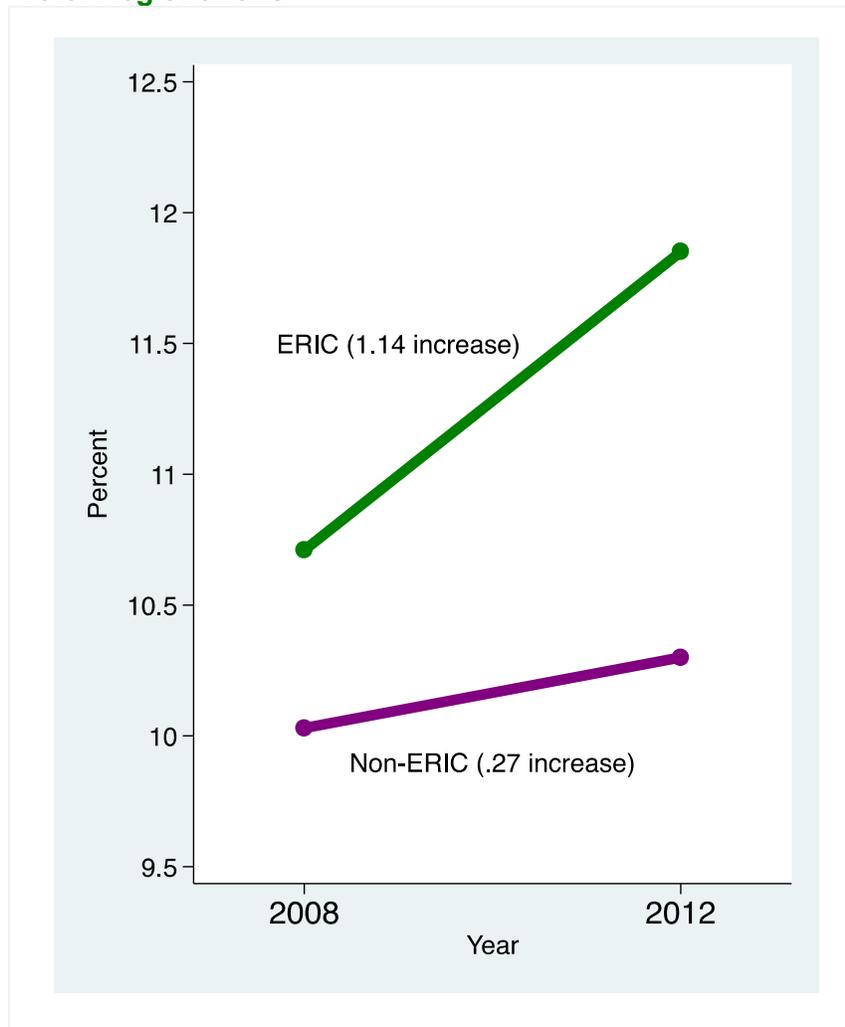
indicators. First, the 1.29 effect is well below the 5.4% ceiling established by the postcard mailing data in Table 1. An estimate above or even near that ceiling would not be plausible. Second, the estimated effect remains positive and is somewhat larger if we use the median state rather than the mean. This suggests that the results are not an artifact of a small number of states skewing the averages. Third, the effect remains positive and is somewhat larger if we weight states by the VEP to approximate the nationwide totals rather than the typical state's experience. This suggests that a few small population states are not responsible for the results. Fourth, the results are similar when three states with the most problematic registration figures are removed from the analysis.<sup>23</sup> Fifth, we considered repeating the analyses by focusing only on "active" registrants. Many states distinguish between "active" and "inactive" registrants, defined by the EAC as cases of "[a] voter whose registration status appears to no longer be current where he or she was registered and who has not attempted to reregister, has not voted, and has not presented him- or herself to vote using the address of record; or one whom election officials have been unable to contact or for whom election officials have been unable to verify registration status." In theory the ERIC effects should be observed in both the overall registration rate and in a rate computed only among active registrants. However, we find the data based only on active registrants less trustworthy. States and counties follow different list maintenance practices concerning when and how they move individuals from active to inactive registration. As a result, an analysis of only active or inactive registrations will be contaminated by these decisions. In addition, some states are not able to distinguish active and inactive registrants completely. Because they are intermingled in at least some states, we are less confident about estimates based on different levels of thoroughness across the states. We now turn to other outcomes of interest.

A more nuanced way to examine ERIC's effect on registration is to limit the focus to only *new* registrations. It is here that ERIC should have the most direct influence. Rather than display total registration, **Figure 3** conducts the same difference-in-differences presentation for new voter registrations. This is calculated as the number of new registrations as a share of the VEP for the 2010–2012 electoral cycle. The figure shows that new registrations increased in both kinds of states but that the increase was larger in ERIC states. ERIC states improved by 1.14 percentage points while other states rose .27 points, producing a net effect of .87 points. While the .87-point effect might seem modest, it should be considered in light of the relatively low level of new voter registrations, which was 10.5% in 2012. We find similar patterns using the CPS to analyze self-reported turnout. This increases our confidence in the results based on official state data.

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<sup>23</sup> These states are the District of Columbia, Mississippi, and New York and are identified in Burden's chapter (in the forthcoming Burden and Stewart volume) as lacking validity.

**Figure 3. New Voter Registrations**



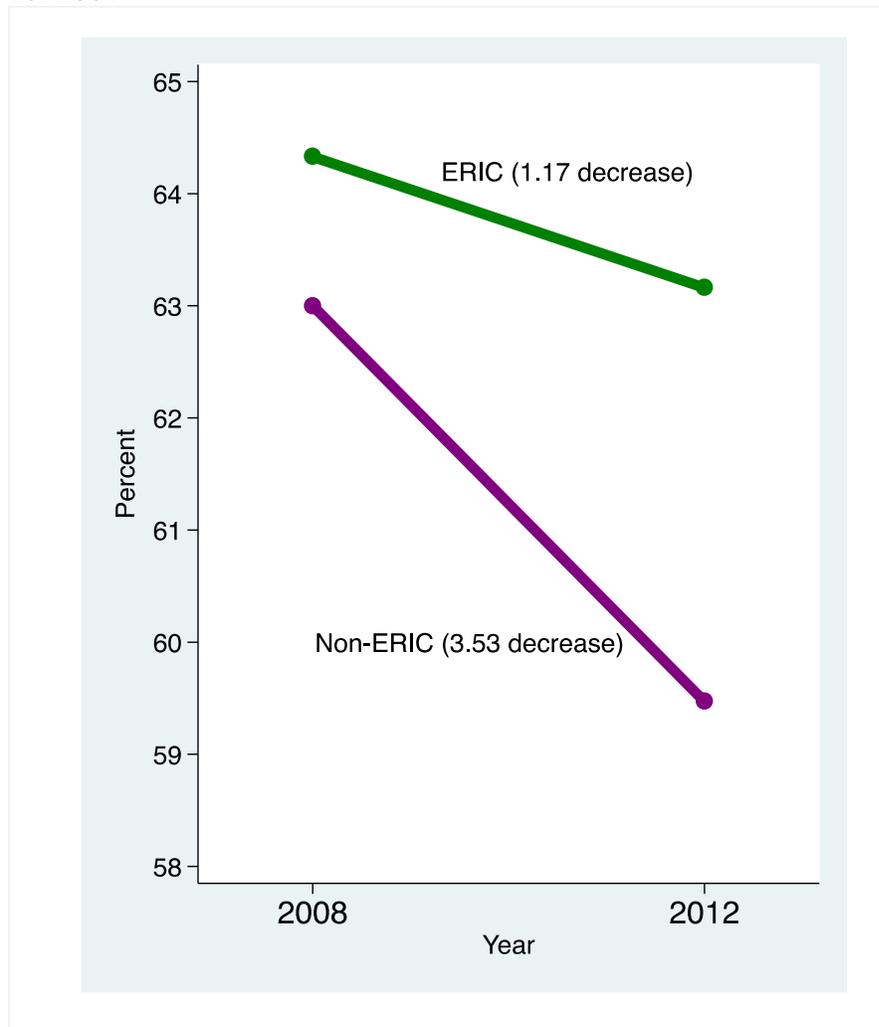
Higher levels of voter registration should also translate, albeit roughly, into greater voter turnout. Although many factors influence whether a registrant in fact votes,<sup>24</sup> many of which are outside the control of election administrators, registration is in fact highly predictive of turnout.<sup>25</sup> **Figure 4** displays the voter turnout for ERIC and non-ERIC states, where turnout is defined as the number of participating voters as a share of the VEP. Although turnout fell in both sets of states between the two elections, the decline was less than half as steep in ERIC states. ERIC states had higher turnout before its implementation, but the gap grew by 2.36 percentage points. This plausible estimate is comfortably below the “ceiling” of 3.5 points identified by the raw data in Table 1.<sup>26</sup>

<sup>24</sup> See Burden chapter in Burden and Stewart (forthcoming).

<sup>25</sup> Robert S. Erikson. 1981. “Why Do People Vote? Because They Are Registered.” *American Politics Quarterly* 3:259-76.

<sup>26</sup> Recall that some postcards were mistakenly mailed to people who were already registered. In these cases, the notices might have increased turnout by reminding them about the upcoming election and the value of being registered. This would contribute to the relative increase in turnout in ERIC states.

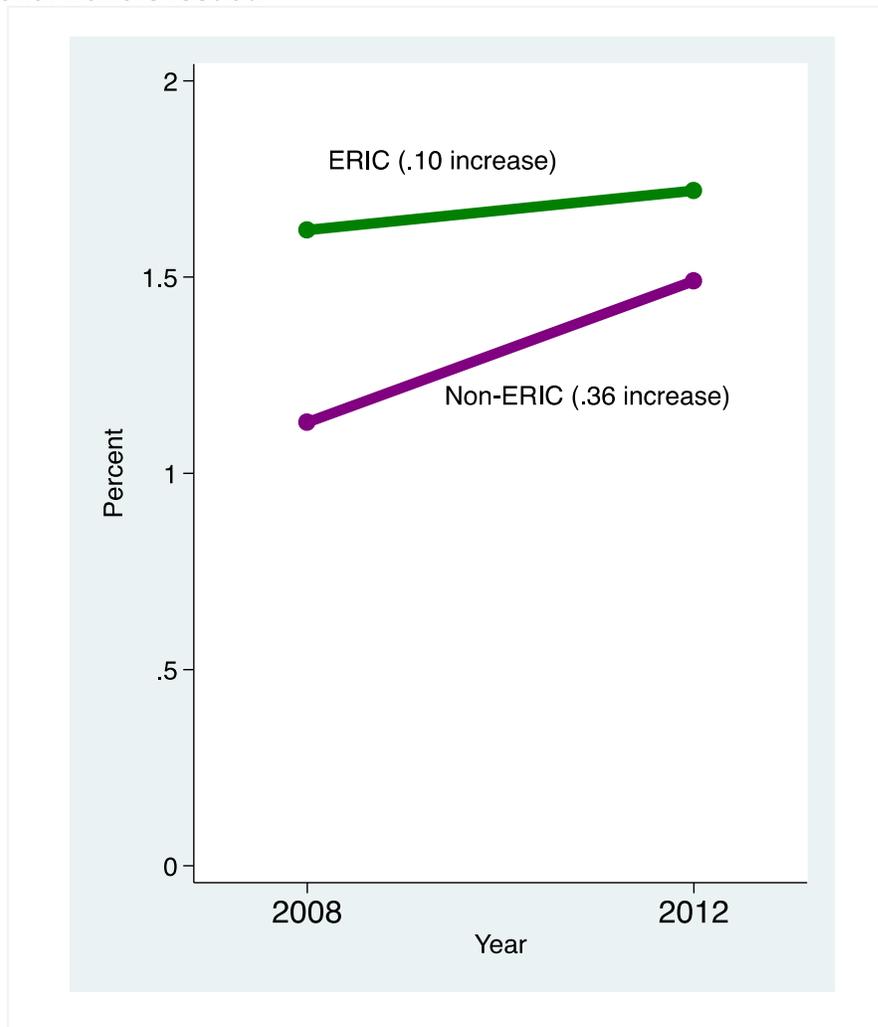
**Figure 4. Voter Turnout**



While the most obvious effects of ERIC state mailings should be on registration and turnout, there is also reason to believe that the mailings would improve intermediate outcomes related to provisional ballots. Although provisional ballots are issued across the states for many different reasons and with different frequencies, at least a portion of provisional ballots are issued to voters who show up at the polls believing they are registered but are told by poll workers that they are not. Some of these provisional ballots will then be rejected if the individuals do not later demonstrate their registration status. The postcards mailed in ERIC states should reduce this problem. They should make people who erroneously believed they were already registered aware of their misunderstanding. This would result in fewer disagreements about registration status at the polls and could lead to less rejection of provisional ballots.

*Figure 5* displays the degree to which provisional ballots were issued in ERIC and non-ERIC states. The overall levels are quite low, averaging between 1 and 2% of total voters participating. While ERIC states had higher provisional issuance in both elections, the gap from non-ERIC states decreased by .26 percentage points in 2012.

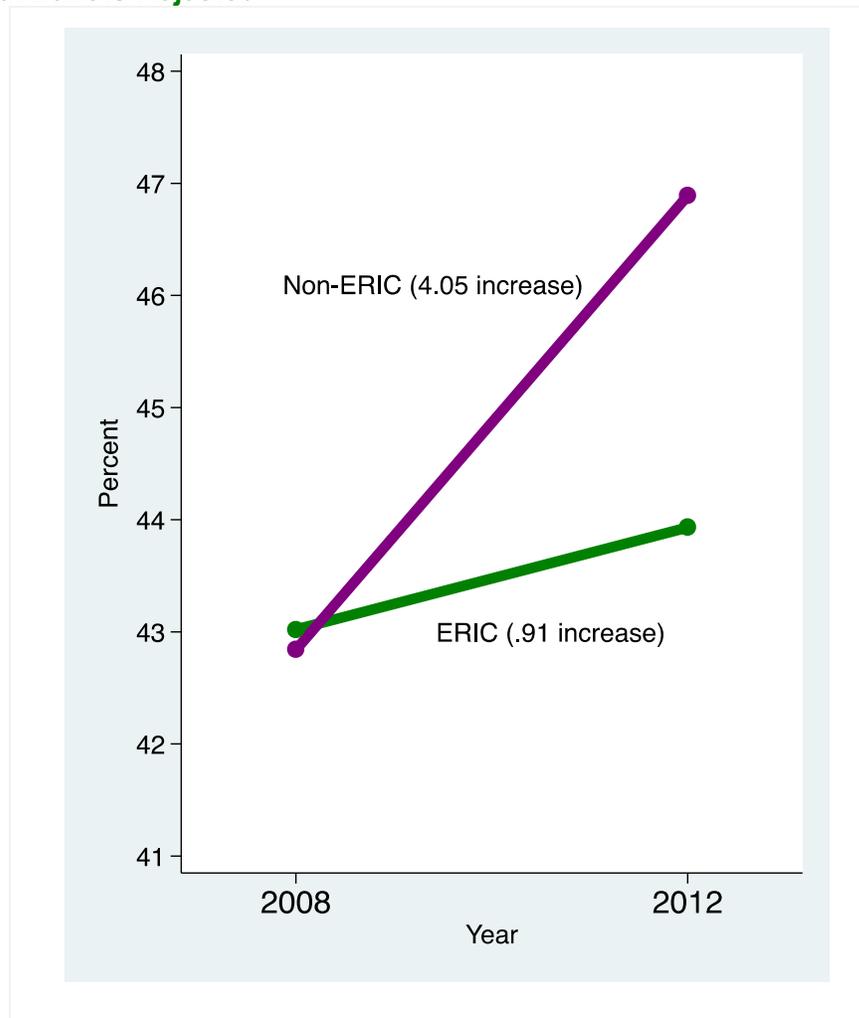
**Figure 5. Provisional Ballots Issued**



The EAVS data also allow us to determine whether rejections of provisional ballots decreased disproportionately in ERIC states. **Figure 6** shows the shares of provisional ballots that went uncounted in the two sets of states. Even though the share of provisionals that were rejected increased nationwide, the figure shows that the increase was less severe in ERIC states. In 2008 the two kinds of states had similar rejection levels of approximately 43%, but the ERIC states were 3.7 percentage points lower in 2012, a marked improvement.<sup>27</sup>

<sup>27</sup> Note that this figure weighs all states equally. Because states that issued more provisional ballots also had lower levels of rejection, the percentages in Figure 5 do not reflect the overall national level at which provisional ballots were rejected, which is below 30% in both 2008 and 2012. If the data are weighted by the number of provisional ballots issued, ERIC states improve by even more relative to non-ERIC states.

**Figure 6. Provisional Ballots Rejected**



The aggregated data in the EAVS strongly suggest that participation in ERIC yielded a series of positive results that include higher levels of voter registration, higher levels of turnout, lower use of provisional ballots, and less frequent rejection of those ballots. Now we shift to the individual level data collected as part of the CPS studies done in November of each election year. These data provide insight into the experiences of voters (and nonvoters) between the ERIC and non-ERIC states.

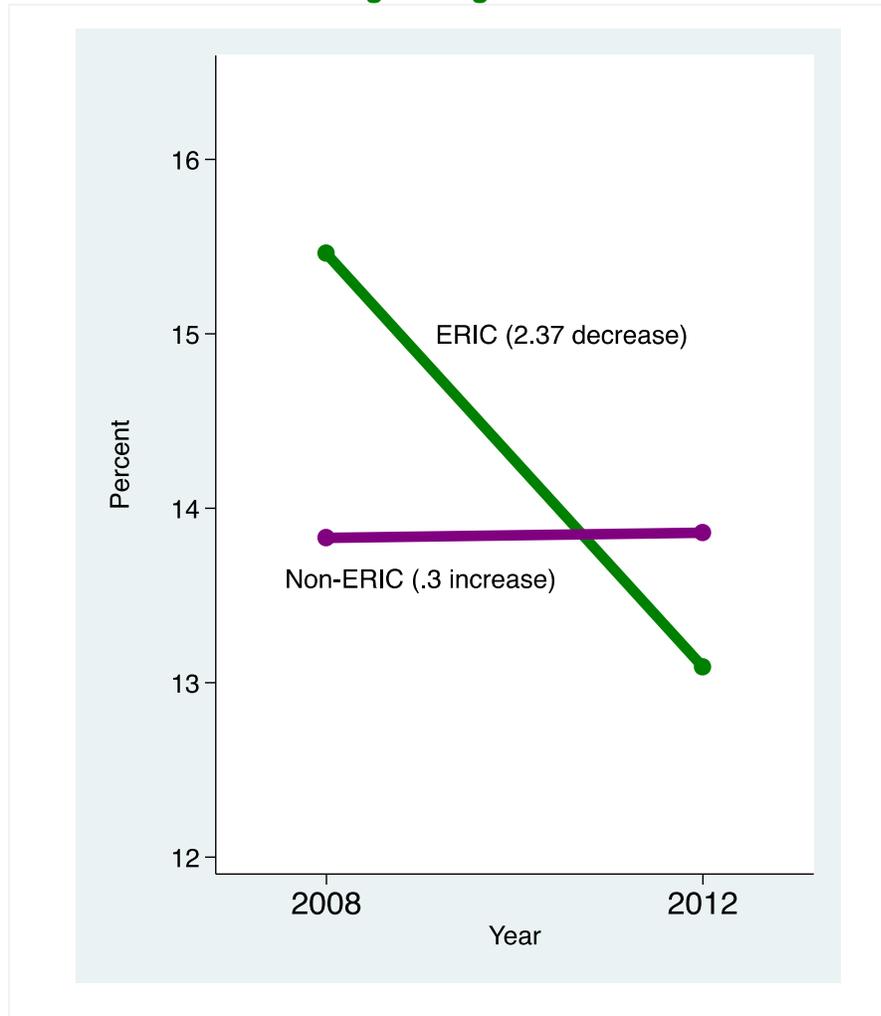
The CPS asks people if they were registered to vote in the November election. For those who report they were not, the survey asks why they did not register. It is likely that people misreport why they did not register. They might not know exactly why, the real reason might be embarrassing, or there might be multiple reasons that do not map easily on to the response options offered in the survey. The attraction of the difference-in-differences approach is that it holds these biases constant by controlling for pre-existing differences between states and general changes nationwide between the two elections.

One of the reasons a survey respondent can choose as why he or she did not register is that he or she missed the registration deadline. About one in seven nonregistrants selects this

reason. Missing a deadline could occur for a variety of reasons, but a key factor would be lack of awareness of the exact deadline. The ERIC postcards should reduce this problem directly by informing eligible but unregistered individuals about registration deadlines.

*Figure 7* provides evidence of this effect by comparing the percentages of people who failed to register because of deadlines in ERIC and non-ERIC states. The figure shows that in 2008 deadlines were a more common impediment in ERIC states. But by 2012 such problems were more common in non-ERIC states. ERIC states reduced this problem by a net of 2.34 percentage points between the two elections.

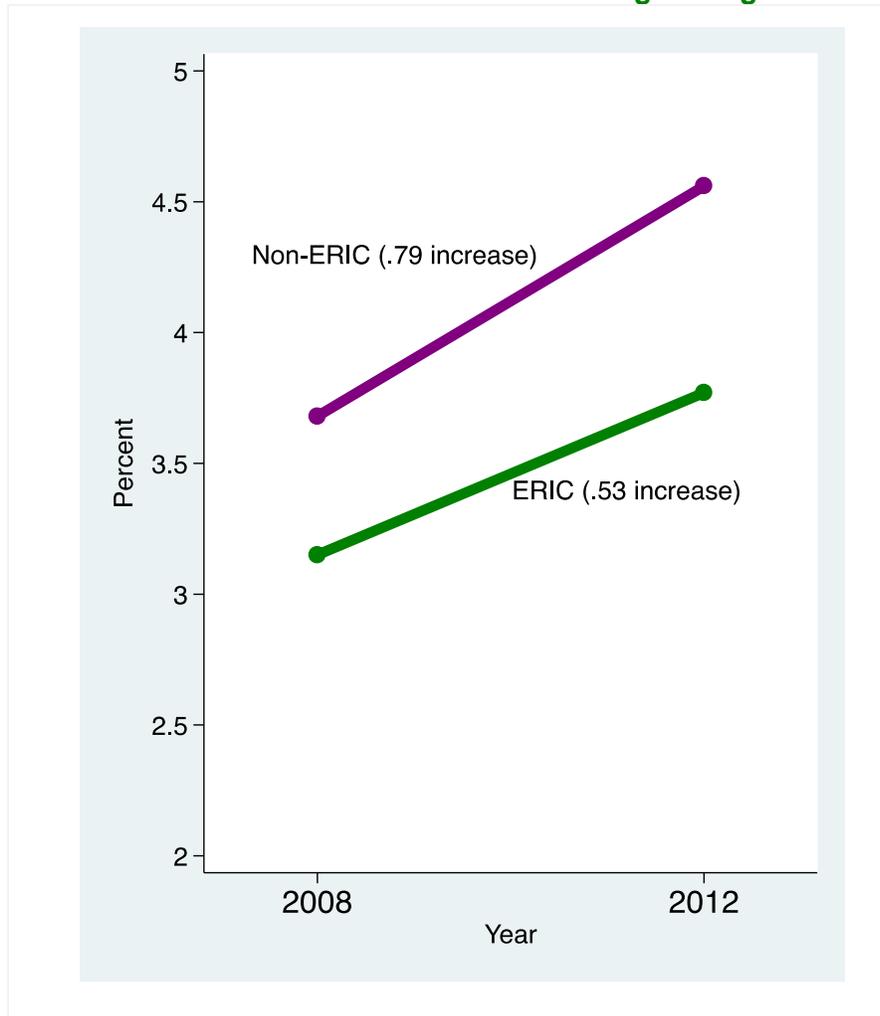
**Figure 7. Deadlines as Reason for Not Registering**



Another reason unregistered respondents could choose for not being registered is that they “did not know where or how to register.” The overall percentage of unregistered individuals choosing this option is low, indicating that most people are able to find the necessary information to register. However, as *Figure 8* shows, the percentages did increase slightly between the two elections, although a bit more slowly in ERIC states. The gap between the two sets of states increased by .26 percentage points, or 5.8% of the total number of people citing this reason. While this estimate is consistent with all of the other differences we report, it should be

interpreted with caution as the small magnitude would fall short of statistical significance by most conventions.

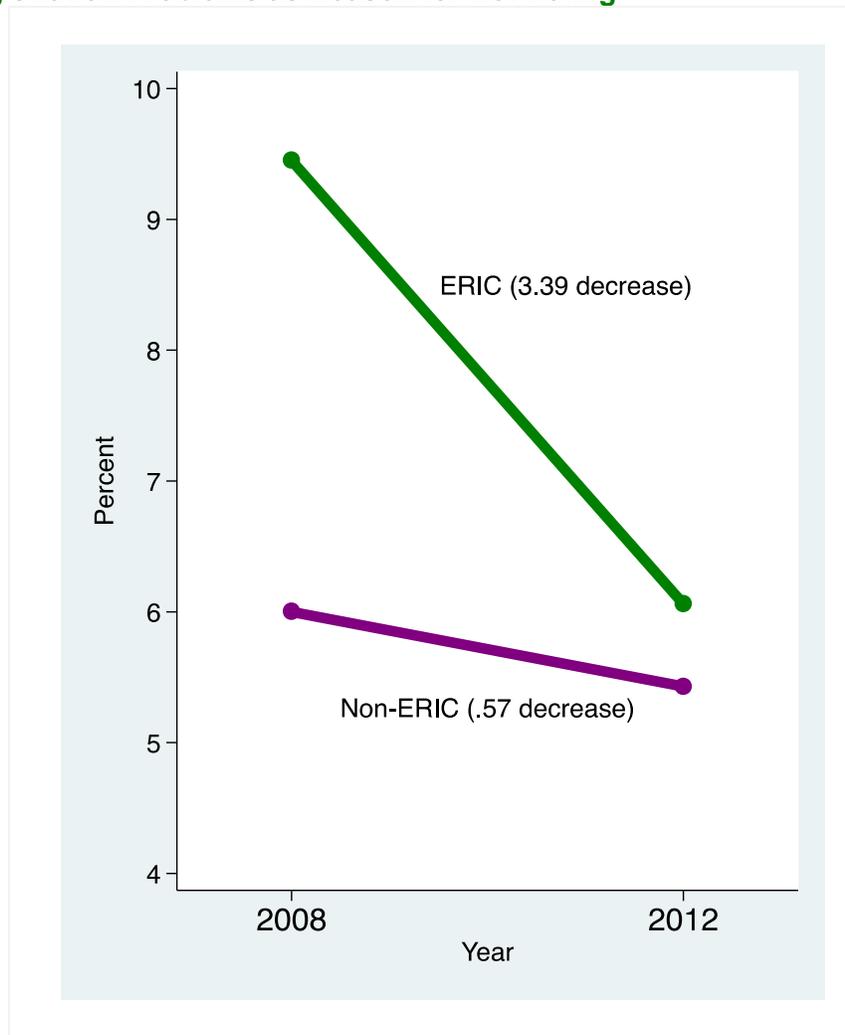
**Figure 8. Did Not Know Where or How as Reason for Not Registering**



Finally, the CPS also asks nonvoters why they did not vote. Among the responses offered is “registration problems.”<sup>28</sup> The ERIC mailing might have helped prevent problems at the polls by informing unregistered individuals how to become registered and when to do it. **Figure 9** shows that ERIC states saw more improvement on this measure than did non-ERIC states. The gap between them shrunk by 2.82 percentage points.

<sup>28</sup> The response option is complicated in that the CPS codebook lists it as “Registration problems (i.e., didn’t receive absentee ballot, not registered in current election).” The examples in parentheses are not necessarily the most typical reasons for registration problems, and could occur for reasons unrelated to registration (i.e., U.S. Postal Service mistakenly failed to deliver an absentee ballot). CPS interviews are conducted either in person or by telephone, so it is unclear whether respondents are provided with the language in parentheses. Even if some respondents chose this option inappropriately, such bias should be constant across elections and states, allowing the difference-in-differences estimate to remain accurate.

**Figure 9. Registration Problems as Reason for Not Voting**



In summary, our review of election data strongly indicates that postcard mailings to eligible but unregistered individuals, made possible by ERIC’s sophisticated data matching system, had a number of positive benefits. Using data independent of ERIC, drawn from both official state reports to the EAC and national surveys of individuals conducted by the Census Bureau, we find that ERIC states saw improvement relative to non-ERIC states on several dimensions. Voter registration, turnout, provisional ballot issuance, provisional ballot rejection, nonregistration due to missing deadlines, nonregistration due to lack of knowledge, and nonvoting problems due to registration all improved more (or became worse more slowly) among the states participating in ERIC. Although an analyst can never be certain of the effects of a real-world policy intervention conducted in a nonexperimental manner, the consistent pattern of differences between the two types of states coupled with the lack of preexisting differences between the two types of states should instill a high level of confidence that the first stage of ERIC actions produced positive consequences in the 2012 election.

There are two additional methodological considerations that further increase confidence in the results. First, even when ERIC and non-ERIC states differ in pre-existing ways, the

difference-in-differences approach used here will effectively set those biases aside by comparing the rates of change in the two sets of states. For some other factor to be responsible for the effects estimated in this report, ERIC states would have to exhibit change between 2008 and 2012 in a fashion that is parallel to changes in the outcomes of interest.

In *Table A1* of the Appendix, the only statistically significant difference between the states was whether they offered online registration in 2012. To ward against a spurious finding, we recalculated all of the analyses in this report after limiting the data to only those states with online registration in 2012. For nearly every outcome of interest, the general pattern of results continued to hold even on this restricted dataset. As an example, we offer Figure A1 in the Appendix. It replicates Figure 9, showing how many people identified “registration problems” as their reason for not voting. Even among the 13 states with online registration, this measure improves more in ERIC states (2.13 point decrease) than in non-ERIC states (.67 point increase). Indeed, in many cases we discovered that the apparent effect of ERIC was actually larger when the analysis was limited to online registration states.

*Figure A1* also includes data from the 2010 election. The analyses in this report have focused on 2008 and 2012 because these consecutive presidential elections have the most comparable electoral environments. As with all midterm elections, 2010 saw significant statewide competitive elections in some states but little electoral competition in others, creating much more inequality in the election experience than happens between “battleground” and “nonbattleground” states in a presidential election. Nonetheless, similar patterns emerge when the analyses are replicated to focus on changes between 2010 and 2012. For example, Figure A1 shows that the frequency of registration problems improved more in ERIC states regardless of which pair of elections is used to make the comparison.

### State Experiences with Mailings to Unregistered Voters

Having examined a series of quantitative outcomes related to ERIC, this section of the report details the qualitative experiences of states during the first year of ERIC’s existence, primarily around the mailing of postcards to potentially eligible individuals not yet registered to vote. Overall experiences have been positive. While delays and administrative hiccups have at times been frustrating, state officials are generally pleased with what ERIC has done thus far and are enthusiastic about its promise.

Recall that the states mailed postcards in September 2012 to more than 5.7 million individuals identified by ERIC, using motor vehicle records, as eligible to vote but not registered. These mailings revealed some qualities of the reports provided to states. One we briefly consider is the quality of the mailing addresses. If the matching of voter files and motor vehicle records produced a high-quality list of eligible but unregistered voters, then only a small share of the mail sent to those individuals should have been returned by the U.S. Postal Service (USPS) as undeliverable. A lot of returned mail would suggest that one or both state databases contain significant address errors. To provide information on deliverability, we asked ERIC state representatives for data on returned postcards.

Utah mail could not be returned because the mailings were sent to households (of the “dear occupant” or “current resident” type). Virginia’s mailings were “CASS certified”<sup>29</sup> by the USPS before being sent, which should have ensured delivery. In addition, the state used a low postal rate that did not qualify for returned mail. Maryland was uncertain about its mail return rate.

In Delaware 3.8% of mailings were rejected by the USPS while another 7.0% were returned as undeliverable, for a total nondelivery level of 10.8%.<sup>30</sup> Nevada officials estimate that “probably around 15,000” postcards were returned, for a nondelivery rate of about 3.8%. The nondelivery level was 2.1% in Colorado and just .2% in Washington. It is unclear what causes this variability. It is likely that some states pre-process addresses using the USPS’s CASS system or National Change of Address (NCOA) database. Different mail rates used by the states could also affect the degree to which undeliverable mail is returned.

The reason for returned mail may be more informative about the kinds of errors in addresses. **Table 2** reports a tabulation of the most common reasons why the USPS returned postcards in three ERIC states.<sup>31</sup> One of the most common reasons in all three states is “undeliverable as addressed,” suggesting that some addresses did not represent valid locations for receiving mail. The other most common reason was “attempted – not known,” a description with ambiguous meaning. Third most common was that a location was “vacant.” In these cases it may be that a resident moved away after her or his last contact with a motor vehicles office and did not provide a forwarding address. These are problematic cases because even the NCOA database will not catch them.<sup>32</sup>

A less common reason for returned mail is that the forwarding instruction expired. Residential forwarding of first-class mail lasts for 12 months, so this indicates that no updates with motor vehicles or election offices took place for at least a year. Other infrequent reasons for returns have to do with inappropriate addresses (“no such number,” “no such street,” and “no mail receptacle”). These problems suggest that motor vehicles offices do accept invalid mailing addresses on occasion. Stage 2 of ERIC, which focuses on list maintenance, should reduce the frequency of returned mail.

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<sup>29</sup> The U.S. Postal Service offers its Coding Accuracy Support System, or CASS, to help ensure the accuracy of mailing addresses.

<sup>30</sup> Mann and Bryant (2012).

<sup>31</sup> The U.S. Postal Service lists 24 reasons why mail is undelivered. See <http://pe.usps.com/text/dmm300/507.htm#1218184>

<sup>32</sup> The next phase of ERIC may be helpful in these cases when an individual moves across state lines (to another ERIC state) and provides a new address to motor vehicles or election office.

**Table 2. Most Common Reasons for Undelivered Mail to Eligible but Unregistered**

<b>Colorado (census of 12,073 postcards)</b>	<b>Nevada (sample of 1,046 postcards)</b>	<b>Washington (census of 1,765 postcards)</b>
Undeliverable as Addressed (51%)	Attempted – Not Known (32%)	Undeliverable as Addressed (38%)
Attempted – Not Known (26%)	Undeliverable as Addressed (27%)	Attempted – Not Known (32%)
Vacant (6%)	Vacant (18%)	No Such Number (15%)
Insufficient Address (5%)	Unclaimed (8%)	Vacant (5%)
Unclaimed (3%)	Insufficient Address (4%)	No Mail Receptacle (4%)
No Mail Receptacle (3%)	Forward Expired (2%)	Forward Expired (3%)
No Such Number (1%)	Box Closed (1%)	No Address on Card (2%)
Moved Left No Address (1%)	No Such Number (1%)	Deceased (1%)
Unable to Forward (1%)	No Such Street (1%)	
Forward Expired (1%)	Moved Left No Address (1%)	
	Deceased (1%)	

*Note:* Categories that make up less than 1% of returned mail are not reported.

## **Lessons and Improvements: Insights from Elections Administrators**

The final piece of our evaluation draws on telephone interviews with top election administrators in the seven ERIC states. These semi-structured interviews lasted about an hour on average and sometimes were conference calls with two or three state officials taking part. The interviews asked about general experiences with ERIC, specific details around the postcard mailing, and views about upcoming ERIC activities related to list maintenance.

### **ERIC’s Matching Accuracy**

In terms of the IBM technology, every state official we interviewed was confident that the ERIC matching process was superior to any efforts their states had undertaken or might do in the near future. Officials from Colorado and Virginia explained that while their participation in the Kansas-led “interstate compact” also had value, it was more time consuming, generated many false matches that required further processing, and could not provide as much functionality as ERIC. Each interviewee was convinced that ERIC’s contextual matching system used to connect multiple files is more accurate than any process they could have implemented independently. This is mainly because of the sophisticated fashion in which it allows for small or predictable variations in names, birthdates, and addresses. For example, in Washington the Department of Licensing (DOL) requires full legal names, while voter registration forms permit people to use nicknames. An internal matching process would probably make mistakes in linking people who provide different name variants to different agencies, while the ERIC technology is better able to account for such disparities. State officials lack the time and resources to connect

such records by hand, so they appreciate that ERIC’s contextual matching processes will identify matches even when names are not identical across files.

## Challenges in ERIC’s Operation

The most significant complaint about ERIC was the slow pace at which the organizational apparatus developed. Incorporation of ERIC, approval of by-laws, and reaching agreement on upload and download dates was sometimes slow. One official explained that this was “because the states were so involved and conscientious.” Some of these delays were related to slow progress in working with state motor vehicle offices rather than ERIC per se. Election officials in most ERIC states were eager to upload data in 2011 or 2012 and found the delays frustrating. Reports were provided to the states in closer proximity to election day and the various voter registration closing dates than was desired. In a couple of states officials had to rush the data to printers so that postcards could be mailed in a timely fashion. This prevented careful review of the data coming from ERIC. Officials from several states were also displeased that the list maintenance side of ERIC’s operation did not reach full development before the election. Some states are participating in ERIC precisely because election administrators, state legislators, or state executives want to clean voter rolls. Evidence of the effectiveness of list maintenance activity is necessary to maintain financial and administrative support in some states. Despite the hiccups caused by getting the organization off the ground, ERIC state officials are pleased that they made the initial efforts necessary to take part. They believe that future interactions will have less friction, particularly since ERIC recently hired its first paid employee to help manage processes.

## Costs

While costs were a salient concern in some states, they were not a pressing issue in most states. The financial costs of belonging to ERIC are distributed across the states based in part on the sizes of state electorates. The seven participating states agreed to the cost structure when ERIC was created. Yet every official we interviewed hoped that more states would join ERIC, both to spread the costs more thinly and to introduce more contextual data, particularly on cross-state duplicates. As one state official put it, “ERIC only works if states join.” Another official is confident that by “working out the kinks now” and demonstrating ERIC’s effectiveness, other states will be persuaded to take part. An official from one of the more populous states complained that the by-laws shifted the costs too much to larger states such as his. This person believed that states providing more data ought to be “rewarded” rather than “punished” for adding more contextual information and thus improving ERIC’s performance. This individual was also frustrated that it was not possible to budget for the postcard mailing in advance because the number of eligible but unregistered individuals was not known until the final ERIC report was delivered. Aside from some extended interactions with state motor vehicles agencies, none of the interviewees reported that ERIC was a significant or problematic draw on their staff time or other nonfinancial resources.

## ERIC-Induced Improvements

Interviews with election administrators in the seven ERIC states revealed that merely preparing the postcard mailing resulted in a number of improvements. By thinking through the

characteristics of state voter files, planning for matching with motor vehicle databases, and anticipating public responses to the mailings, state officials gained useful insights about their registration systems. Some of these insights were simply learning about “features” of their systems while other insights identified “bugs” that needed remedy. In the course of addressing bugs, voter files in most states became more accurate as errors were corrected.

The most visible problem was mistakenly mailing postcards to registered voters. These often occurred because the birthdates listed in the voter rolls were incorrect. Although all states experienced them, these errors represented an extremely small percentage of the electorate. The mistakes resulted in many phone calls to state officials from registrants concerned that they might be removed from the rolls. Most states received a small number of calls; Washington was probably the recipient of the largest number, and officials there had to hire additional staff to field the more than 1,500 calls they received.

While these situations resulted in some embarrassing publicity, the discovery of such cases revealed that ERIC was in fact operating properly, flagging files where incorrect birthdates prevented effective matching. Indeed, these calls were especially helpful in identifying and correcting birthdate errors in the voter files. In Delaware it was apparent that when a person’s birthdate in the voter file and DMV disagreed, the error was usually in the voter file. In Delaware, the date of birth is usually entered only once when a voter registers to vote and is not checked at that time or later for its validity. In contrast, motor vehicle records are renewed on a cyclical basis, giving the individual an opportunity to review and correct mistakes. Moreover, drivers have the date of birth “looking at them” on their licenses, so errors are more likely to be detected by the individual. Knowing the DMV birth date field was more accurate in most cases, when a person called to complain about an inaccuracy, state officials could correct it on the voter registration file. This was also true in Maryland where birth dates once entered on a voter registration form years ago (and potentially mis-entered when manually entered into a computerized system) often lingered for years without correction. Many “birthdate cleanups” became possible as a result of the data match with the state’s Motor Vehicle Administration (MVA). In Washington the DOL was also believed to have more accurate birthdates because individuals applying for licenses were required to validate those with birth certificates or similar documents. In nearly every state it appears that birthdates in particular were improved as a result of the process of matching with motor vehicle records, making the postcards a kind of diagnostic for the quality of voter rolls and allowing for the improved ability to match voter data with other sources. This resulted in some extra labor for states after the first postcard mailing, but also in permanent improvements to their voter files.

## **Lessons Learned and ERIC Benefits**

Individual states also learned other lessons. Officials in Utah became focused on Social Security numbers. The last four digits were used as part of the matching process. State administrators quickly discovered that county officials had sometimes been sloppy in entering those digits, but had never been forced to clean them and make them consistent. It became apparent that an empty (blank) field was superior to a “place holder” entry such as “1234” or “9999.” An empty field merely made a match more difficult whereas an invalid place holder typically made a match impossible. In Maryland, the process “exposed discrepancies” in some practices. The state’s MVA had been sharing motor voter data with the State Board of Elections

that included inactive drivers' licenses. Because of the collaboration encouraged by participating in ERIC, the Board was able to advise the MVA that the data should share only data on licenses currently in use and not out of date.

Several states saw automation as a key benefit of ERIC. Once the sequence of uploads to ERIC and subsequent reports to the states becomes routinized, they asserted, voter outreach and list maintenance will require much less effort and cost. Outreach and maintenance will also happen on a regular basis throughout the year rather than escalating to high levels just before election day. Colorado officials look forward to the stage of development at which ERIC reports will automatically result in postcards being sent to individuals who are deemed to have moved out of state so that they may cancel their registrations online. Similarly, Utah officials are eager to establish ERIC-related routines to automatically process the mailings to individuals who later register to vote in other states, so that their registrations might be cancelled. This would streamline list maintenance for the counties, freeing them to focus on other pressing activities. Nevada officials believe that their new arrangement with the DMV, facilitated by ERIC, will now allow "seamless" updating every 60 days.

The requirement that states filter data before uploading was an important consideration for most states, and participation in ERIC enabled states to identify quirks in their system that might otherwise have gone undetected. Fortunately states identified the appropriate filters before mailings went to potential voters. For example, in Colorado, 16- and 17-year-olds may register to vote. Minors were removed in the other states but were retained in the Colorado reports. States such as Colorado and Virginia learned that their motor vehicle files included nonresidents. This is because individuals cited with moving violations while visiting the state are frequently added to such files. In Colorado election officials discovered that "a couple hundred thousand" DMV entries did not include the photo and signature necessary for online voter registration. Without careful consultation between technical staff in both the Secretary of State and DMV offices, they would have overlooked the fact that the system would not allow these individuals to register. In Virginia other issues became salient. For example, the DMV files include commercial drivers' licenses, which frequently belong to nonresidents. The Virginia DMV also allows individuals to report street addresses that may not be valid for delivery of mail (for example, in a small community where mail is delivered to centrally-located boxes but individuals prefer to report their street addresses). Nevada officials learned that they needed to filter data from ERIC to avoid mailings to employment centers, correctional facilities, and other locations that appeared to be inappropriate. As a "safeguard," Washington election officials removed roughly 15,000 felons after receiving the ERIC list of potential postcard recipients. These experiences demonstrate the flexibility of ERIC to address individual state needs and further show that interacting with ERIC does require some effort on the part of state officials to customize the process to meet all their needs. However, most of this process can be built into automatic processes prior to uploading, enabling states to efficiently process the ERIC data once they are delivered.

In multiple states participation in ERIC spurred conversations between election and motor vehicle offices about how to handle citizenship. MVA requires documents proving citizenship whereas the Board of Elections uses an affidavit sworn under penalty of perjury on the voter registration form. In Delaware the mailing excluded individuals who had recently declined invitations to register to vote at the state DMV. Nevada officials preferred not to send

mailings to noncitizens but discovered that the state’s DMV had not recorded citizenship for those entering the system before 2005.

Finally, states learned what kinds of mailings to unregistered individuals were most likely to produce a response. For example, staff in Colorado experimented with seven postcard formats. They discovered that a nondescript government mailing worked best. It seemed more sophisticated documents that included political images were sometimes perceived as yet more “political mail” and were discarded. In contrast, the unadorned postcards seemed to work better because they were perceived as official government business and thus taken more seriously by recipients. In response to being part of ERIC, Utah altered a statute that had required the state to mail packets to households providing information and instructions on how to become registered. The postcard mailing went to every household, and thus went further than ERIC by-laws required, but it was actually a scaled-down version of the more-thorough packets that had been distributed in previous election cycles. Postcards in Maryland featured images of voters that were perceived as insufficiently diverse. Unsurprisingly for a state where 30% of the population is African American, the Board of Elections received complaints about the absence of African American individuals among the people shown on the front of the card. It seems that the imagery on the front of each mailing conveys important symbolic information that may either enhance or detract from the substantive message on the back side.

In some ways, the effects of ERIC will not be fully realized for several years. Registering new voters and cleaning voter rolls are iterative processes that involve repeated data matching, learning, and actions by state officials. In addition, ERIC’s ability to add “context” improves as more data are incorporated. In particular, as additional states become part of ERIC cross-state moves and duplicates are easier to identify, and the confidence of matches generally increases. As a result, neither this Stage 1 report nor the forthcoming Stage 2 report should be seen as the last word on ERIC’s effectiveness.

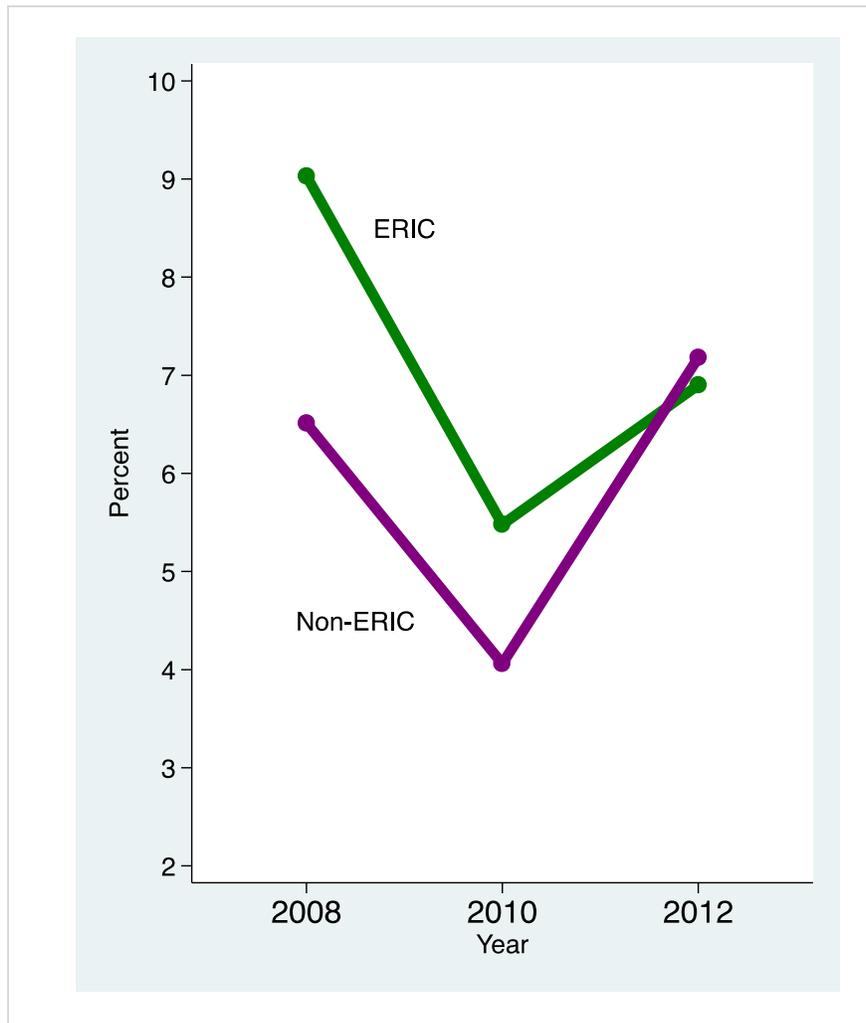
## Appendix A

Table A1 presents two-tailed *t*-tests of statistical significance of differences between ERIC and non-ERIC states on several dimensions. Using standard conventions of significance, any dimension showing a statistical significance of less than .05 in column 3 signifies that ERIC states are significantly distinct from non-ERIC states by a factor greater than chance. Although pre-existing differences between the two sets of states are handled by the difference-in-differences approach, these statistics confirm that the ERIC states are generally representative of the nation in terms of factors that might lead to spurious relationships between participation in ERIC and outcomes of interest. As addressed earlier in this report, only the availability of online voter registration in 2012 is clearly correlated with ERIC membership (see *Table A1* and *Figure A1*). The evidence is weaker that ERIC states were less electorally competitive in 2008 (statistical significance at .07) and were less likely to offer election-day registration (statistical significance at .12).

**Table A1. Preexisting Differences between ERIC and Non-ERIC States**

	ERIC State (7)	Non-ERIC State (44)	Statistical Significance
Registration 2008 (EAVS)	81.8%	82.7%	.86
Registration 2008 (CPS)	83.1%	83.5%	.82
Registration 2010 (EAVS)	78.3%	82.1%	.35
Registration 2010 (CPS)	79.5%	79.1%	.84
Turnout 2008 (McDonald)	64.9%	63.6%	.59
Turnout 2010 (McDonald)	45.2%	43.5%	.50
Offered Party Registration 2008	71.4%	56.8%	.48
Offered Election Day Registration 2008	0.0%	27.3%	.12
Registration Closing 2008	23.4 days	23.5 days	.99
Offered No-Excuse Absentee/Early Voting 2008	42.9%	65.9%	.25
Offered Online Registration 2012	71.4%	18.6%	.002
Median Income 2008	\$53,453	\$49,084	.18
High School Graduates 2008	80.2%	81.3%	.40
State Voting Eligible Population 2008	3,064,282	4,413,856	.44
Closeness of Presidential Election 2008	26.8 points	16.5 points	.07

**Figure A1. Not Voting Due to Registration Problems  
(Only States with Online Registration in 2012)**



### Statistical Significance

The CPS raises an important technical issue that was not as salient in the EAVS analysis. The EAVS was based on the full universe of data from the states; analysts have mixed opinions about whether tests of statistical significance are necessary when all of the data are present.<sup>33</sup> In contrast, because the CPS data are a sample drawn from a population, analysts need to conduct tests of statistical significance to ensure that differences are beyond those caused by the random fluctuations of particular samples. Although significance testing is a common practice in empirical social scientific analysis, the nature of the comparisons we make between ERIC and non-ERIC states do not allow such calculations to be straightforward. The CPS provides weights

<sup>33</sup> For a discussion, see Richard A. Berk and David A. Freedman. 2003. “Statistical Assumptions and Empirical Commitments.” In *Law, Punishment, and Social Control: Essays in Honor of Sheldon Messinger*, 2nd ed., ed. Thomas G. Blomberg and Stanley Cohen. Boston, MA: De Gruyter.

to account for some demographic disparities between the sample and the population. The dataset and documentation also provide information to calculate standard errors, confidence intervals, and statistical significance in a way that reflects the complex multistage sampling strategy used to collect the data.<sup>34</sup> Unfortunately, the November Voting and Registration Supplement does not provide such information in a form that allows comparison between ERIC and non-ERIC states. A third party, the Center for Economic and Policy Research, makes these variables available,<sup>35</sup> but they do not permit standard t-tests for differences of means and percentages between ERIC and non-ERIC states because of the way strata and primary sampling units are nested relative to the ERIC states.

Using CPS parameters provided for other comparisons, we have computed approximate standard errors. Due to the large sample sizes, standard errors are well below 1% in most cases and often as low as .5%. This means that most but not all of the differences we compute will be statistically significant at conventional levels. Lacking exact standard errors, we base our overall evaluation on the totality of evidence presented across a series of analyses. The more consistent these analyses are in pointing in a particular direction, the more confident we are that the differences are meaningful rather than a result of random variation. We note that the Census Bureau's own reports on the election and voting items in the CPS vary between reporting statistical significance (or associated statistics such as margins of error and confidence intervals) and simply resorting to point estimates.<sup>36</sup>

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<sup>34</sup> See the Technical Documentation CPS-12.

<sup>35</sup> See CPS ORG FAQ at <http://ceprdata.org/cps-uniform-data-extracts/cps-outgoing-rotation-group/cps-org-faq/>

<sup>36</sup> For the most recent example, see “The Diversifying Electorate—Voting Rates by Race and Hispanic Origins in 2012 (and Other Recent Elections).” <http://www.census.gov/prod/2013pubs/p20-568.pdf>



## Acknowledgements

This report was made possible with the assistance of:

- Election Initiatives staff at the Pew Charitable Trusts, including David Becker, Samuel Derheimer, Sean Greene, and John Lindback, who provided funding, liaisons with representatives in ERIC states, and access to data;
- Election administrators in both ERIC and non-ERIC states, who shared data and aided in the cleaning of various data sources;
- Representatives from ERIC states, who were interviewed about their experiences, fielded questions, and shared additional data;
- Jacob Neiheisel, a doctoral student – and now a new Ph.D. – at the University of Wisconsin-Madison, who provided research assistance; and
- RTI International staff for their administrative support.