

Automating the Process of Voter Registration:

Review of Research and Analysis of Oregon 2016

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Peer Viewed¹



¹ See page ii for the structure of our nonanonymous peer review process.

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2 Dr. Bryan E. Burke is the Executive Director of the Center for Voter Research. The Group focuses on understanding the reasons why inexperienced voters do not vote and works in tandem with its political arm, Eastern Washington Voters, to formulate and pursue solutions. Most of this work has been on the campaign side. However, in 2013 Eastern Washington Voters convened an enforcement action that successfully persuaded the State of Washington to more fully comply with the NVRA of 1993 to offer registration at public service agencies. Even though registration rates then increased, the number of voters stayed the same. This prompted the Group to critically rethink its own work and to better understand why some people do not vote.

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Thanks to Reviewers and Others

We want to mention a special thanks to our peer reviewers, political scientists Elizabeth Rigby, Ph.D., and Christian Grose, Ph.D. The structure of our nonanonymous peer review process is described below.

We also want to thank Dr. Tom Rotolo for his advice on statistical methods. We also appreciate Dr. Barry Burden's thoughtful and critical comments. For their editorial assistance, we offer thanks to Dr. Valerie Tarico, Bill Miller, Shaline Lewis, and Jacob Childers.

Their assistance made the paper much stronger. However, any errors or omissions are solely the responsibility of the authors.

Peer Review Process

We structured the peer review as follows.

- An independent fiscal sponsor of the review offered reviewers a \$100 honorarium.
- Reviewers were not anonymous, but they were invited to make anonymous comments to the fiscal sponsor of the review if they felt a need.
- Comments were submitted to both authors and the fiscal sponsor of the review.
- If reviewers did not feel that their suggestions were adequately addressed, they were offered the right to not have their name included on this page or to include a short statement on their objections.

Reviewers were asked to organize their comments as answers to each of the four questions.

First, does the evidence support the conclusions?

Second, do you recommend circulating this current draft to a lay audience of policy makers and activists?

Third, if you do not recommend that, what issues must first be addressed?

Fourth, do you have any additional comments that are positive or critical? If so, what are they?

Executive Summary: Automating Voter Registration: Review of Research and Analysis of Oregon 2016

Bryan E. Burke, Ph.D. and Chad Murphy, Ph.D.

September 20th, 2017

Automatic Voter Registration (AVR) is a leading idea to increase voter turnout that has promise. We review research on (semi-automatic) opt-in Motor Voter Registration and recent reports on AVR and conducted a 50 state statistical analyses of opt-out AVR. There is no clear overall evidence that automating voter registration has increased turnout in the average federal election. We offer theory for this counterintuitive finding and suggestions where AVR might work best.

We suggest registration is more than a legal hurdle to voting. It can be a “commitment device” motivating people to vote, a rite of passage, and an event to learn about voting when it is done through traditional means. Traditional means involves registering on one’s own and with family, friends, and neighborhood activists. Automatic registration is less intentional, social, and personal and, thus, less likely to empower and foster mentoring relationship between new and experienced voters. When automated replaces traditional registration, it displaces hundreds of thousands of these GOTV-like experiences for new registrants in the average state that decreases its effect on turnout. Also, research on opt-in vs opt-out suggests that opt-out can decrease participation.

We analyze data from presidential elections in 50 states with linear regression and panel corrected standard errors and *measured a small turnout increase associated with AVR Oregon in 2016 that was not statistically significant*. Much of Oregon’s increase in voter turnout in 2016 relative to other states and years was associated with a decrease in poverty and all vote-by-mail elections. A visual inspection of the data shows that ten states had a boost in turnout comparable to Oregon.

This is consistent with scholarly research on Motor Voter Registration (MVR) that has replaced almost one half of traditional means of registration. Three studies suggest that MVR had no effect on turnout in the average election studied. One study estimated a 2 percentage points (pp.) increase associated with MVR. One estimated a 6 to 7 pp. decrease.

Our conclusions diverge from earlier claims based on misattributed effects and severe missing data problems. We disagree that Oregon in 2016 had the highest increase in turnout and are unconvinced that AVR lead to a half million more registrations and a 7 pp. increase in youth turnout.

While our study is on a single instance of AVR and thus inconclusive, it shows the need for careful analysis of additional election years before further implementation. In our opinion, AVR is not ready to scale up nationwide. Of course, AVR might prove to increase turnout, but there is also a (moderate or small) possibility it will decrease turnout or equity among voters. If AVR is implemented nationwide and has no effect, millions of dollars and volunteer time will be poorly spent. If it lowers turnout, it may contribute to the progressive movement’s next electoral disaster.

Research on MVR suggests that AVR might work well in niche applications. Where there was high levels of inequality on the registration rolls, MVR reduced the inequality of voter turnout. AVR might also. If AVR of new voters is ineffective, automatic updates of existing voters might be better.

Proponents of early voting scaled up early voting programs before these were ready. This was a costly political mistake that likely decreased turnout and the income and racial equity of those who voted. We all now understand how to better design early voting programs, but a more cautious, research driven approach may have avoided those problems from the start.

Automating the Process of Voter Registration: Review of the Research and Analysis of Oregon 2016

Bryan E. Burke, Ph.D. and Chad Murphy, Ph.D.

Automatic Voter Registration (AVR) is a promising idea on the forefront of efforts to increase voter turnout and equity through the removal of legal barriers to registration. Some reforms such as Election Day registration have increased turnout, but others such as some forms of early voting have very likely decreased it (e.g., Leighley and Nagler 2013 and also Burden et al. 2014). AVR was used in Oregon during the 2016 presidential election year, and proponents seek to replicate it in other places. This study looks at both semi-automatic Motor Voter Registration (MVR) and Oregon style AVR and asks the question: Has automated registration been successful at increasing voter turnout (and the equity of those who vote)? The stakes are high for democracy and the balance of power.

This study advances our understanding of AVR by placing it within the larger scientific understanding of election reform. Since both opt-out AVR and opt-in MVR automate the registration process, research on MVR offers insight into AVR. MVR has replaced almost one half of the traditional means of registering to vote and clearly has increased registration rates.

However, the bulk of the evidence suggests that MVR has had little or no effect on the overall turnout in the average federal election. We focused our review of semi-automatic MVR on five studies. For example, Brown and Wedeking (2006) measured a 6 to 8 percentage point (pp.) decrease in turnout associated with MVR. Rigby and Springer (2010) found no effect on the average federal election but positive effects on the equity of who votes in some situations. Only Hanmer (2009) measured a small *increase* in turnout associated with MVR above the standard 95% confidence level in the average election that he studied, but he did not look at midterms where MVR seems to be less effective. Although this research is not perfect, it suggests caution about assuming the effectiveness of AVR.

Because there was only one year and state that used AVR, we knew it was unlikely that we would find a statistically significant effect from AVR on turnout in our own analysis even if such an effect was real. Using data from the U.S. Elections Project (McDonald 2017), we used multiple regression and panel-corrected errors to measure the effect that Oregon's AVR had on overall turnout in 2016. We analyzed 204 data points from all 50 states and the District of Columbia in 2004, 2008, 2012, and 2016. The effect was positive but statistically indistinguishable from zero. Of course, there could have been a small positive or negative effect from AVR on turnout that we were not able to detect.

This may seem counterintuitive. Readers might believe that more registrations should mean more voters. However, we offer a theory to explain the underperformance of MVR and AVR. Burden et al. suggested that creating new voters is a two-step process of first getting registered and second being activated to vote (2014). We theorize that, thus, when people register through traditional means with paper or on-line forms it not only address the first step, but it facilitates the second step of empowering and teaching people to vote. Automated voter registration only addresses the first step.

Registration is more than removing a legal hurdle to voting. It can also be a "commitment device" that motivates people to vote, a rite of passage, and an event to learn about voting. When people register through traditional means either on one's own or with family, friends, or neighborhood activists, it is more intentional, social, and personal than automated registration. Traditional registration through one's social networks is more likely to foster mentoring relationships between new and experienced voters to teach about voting. Also, research on opt-in vs opt-out suggests that opt-in is more effective at facilitating voluntary participation for tasks that require time and effort, presumably because

intentionality generates a vested interest. As new registrants gain confidence and learn about civics and politics, their costs of voting are lowered. These intentional, personal, and social, components of traditional registration are similar to Get Out The Vote (GOTV) contacts, and just as GOTV activates voters so does traditional means of voter registration.

Every policy has both direct and indirect effects (Burden et al. 2014). When MVR and AVR register people to vote in large numbers, this is their *direct effect*. However, we theorize that MVR and AVR also have an *indirect effect*. *When MVR and AVR replace traditional means of voter registration, this displaces hundreds of thousands of GOTV-like experiences with new registrants in the average size state.* We theorize that this is one of the reasons that MVR and AVR often underperform at increasing turnout and the equity of those who vote and might even decrease these in some situations.

Our empirical findings diverge from some of the early claims about AVR in Oregon that appear to be based on misattributed effects and severe missing data problems. For example, we disagree that Oregon had the highest increase in overall turnout in 2016. Also, we are unconvinced that AVR lead to nearly one half million more registrations, a 7 pp. increase in youth turnout, and that a large number of “unlikely voters” only cast ballots because of AVR.

In advance of the careful study of multiple states and years of implementation, the effects of election reforms are not always intuitive and predictable. If we implement AVR before we understand its strengths and weaknesses, we risk harming our election systems. This is not farfetched.

Although political scientists have documented reforms that have increased turnout and equity (e.g., Burden et al. 2014; Leighley and Nagler 2013), overall they have had a mixed history of success (e.g., Traugott 2004; Gronke et al., 2007; Berinsky 2005; Brown and Wedeking 2006). For example, Burden et al. (2014; 2017) showed that many formulations of early voting reduced voter turnout and equity. This was an unintended consequence involving complicated interactions with other parts of society that were not intuitive. We must always take seriously the risks that new reforms can have.

. . . not all laws making it easier to register and vote actually increase turnout. . . . Even widely accepted conventional wisdom about the effects of election laws can be wrong, or at least not fully consistent with a more complex reality” -- Dr. Barry Burden et al. (2017, 564, 569).

We recommend that proponents of AVR pursue a cautious, data-driven strategy. They should fully study the data from at least two election cycles in states that now have AVR before further implementation. If they do implement elsewhere, they should only do so in states where AVR has the greatest likelihood of successfully increasing turnout and the equity of those who vote, such as in states with extremely high levels of pre-existing inequality on the registration rolls.

Automating the Registration Process

Both MVR and Oregon-style AVR are automated ways to register people to vote. To one degree or another, both take most of the initiative away from people and automate the decision and paperwork to register. Both make registration very easy and thus remove it as a legal hurdle to voting. The major difference is that MVR is an opt-in system where people must give their express permission to be registered and AVR is opt-out where the state can register them even without their permission.

Op-in Semi-Automatic Motor Voter Registration

The National Voting Rights Act (NVRA) of 1993 mandates that states must offer registration to people when they apply for a driver’s license, learner permit, etc., which is why this was coined Motor Voter Registration. Through MVR, people are only registered if they explicitly say “yes” to the question of

whether they want to register. Therefore, this is an opt-in, semi-automatic system of registration. This mandate extends to other federally funded service-based programs such as food stamps and housing assistance. When we refer to MVR, we are actually referring to all agencies required to offer voter registration to their users. However, considerably more registrations have been collected through motor vehicle licensing offices nationwide (32.4 pp. in 2012) than through service-based programs (6.3 pp. in 2012) (U.S. Elections Assistance Commission 2013).

MVR is now the most common way to register. In 2012, approximately 38.7% of all registrations in the United States were collected through motor vehicle, public assistance, disability assistance, or armed services recruitment, or other state or federal offices. However, this varies substantially by state, with 85.6% in Michigan and 8.8% in Connecticut (U. S. Election Assistance Commission 2013).

Opt-out Automatic Voter Registration and the Oregon System

AVR is an opt-out system, and the state does not need permission to register people. However, the state does notify potential registrants that they are being registered and gives them one or more chances to say “no, I do not want to register.” Currently, there are nine states that have enacted some version of automatic voter registration. These are Oregon and also, California, Alaska, Indiana, Colorado, Georgia, West Virginia, Vermont, Connecticut, and the District of Columbia. Only Oregon has had AVR in effect long enough to impact a general election. The exact opt-out process used or proposed by states does vary. It sometimes involves state employees verbally telling people that they are being registered unless they explicitly say “no” and/or sending them a letter notifying them that they are being registered unless they return a post card stating that they do not want to be registered.

Oregon was the first state to implement AVR. According to the Oregon Office of the Secretary of State, (2017a), since January 1st, 2016, citizens of voting age who are residents of Oregon who are not denied the right to vote because of a felony conviction are automatically registered to vote after applying for driver’s licenses, learner’s permits, and identification cards through the Department of Motor Vehicles. The needed information is transferred from the Department of Motor Vehicles to the Elections Division of the Secretary of State Office who handles the registration process.

This is clearly an opt-out process. Once the Elections Division receives information about a person who is eligible to vote but is not already active on the voting rolls, it sends a postcard informing him or her that they:

- are being registered to vote.
- can decline to be registered by signing and mailing back the postcard.
- can return the postcard to select a political party allowing them to participate in the state’s closed partisan primary elections.

Then individuals have 21 days to return the postcard. If they do not return it, they are automatically registered and added to the voter registration list as nonaffiliated voters. The Department of Motor Vehicles also forwards information to the Elections Division to update the addresses under which people are registered.

The above is phase I AVR. There was also a phase II in 2016 in Oregon. In this second phase, qualifying individuals who went through the Department of Motor Vehicles in 2014 and 2015 but opted out of the traditional MVR at that time also had their information sent in mid-2016 to the Election Division to go through the same opt-out process as those in phase I.

Past Research on AVR and Re-Analysis

A number of reports and studies have attempted to answer variations of two basic questions: How much did AVR increase the number of registered people in Oregon in 2016? And how did AVR affect voter turnout?

The answers, in most of these reports, differ from the findings of our own analysis. We disagree that Oregon had the highest increase in overall turnout in 2016. Also, we are unconvinced that AVR led to nearly one half million more registrations, a 7 percentage point (pp.) increase in youth turnout, and that a large number of “unlikely voters” only cast ballots because of AVR. We believe it is important to discuss with readers how we reached different conclusion than these other studies.

Did Overall Registration Rates Increase in Oregon in 2016?

It seems pretty clear that AVR increased registration rates in Oregon in 2016. However, we disagree with some of the earlier studies on how many new registrants were created because of AVR. The Alliance for Youth Action reported 490,347 new and updated voter registrations from both phase I and phase II of AVR (Kraemer 2017). In contrast, our best estimate is that the implementation of AVR created only about 144,000 additional new and updated registrations for the 2016 general election in Oregon with a lower end estimate of 44,000 and an upper end estimate of 233,000. Moreover, we believe that the increase will be substantially lower in subsequent years.

While the number of 490,347 new and updated voter registrations could be argued to be technically correct, that number greatly overstates the impact of AVR in 2016 and future years. The number 490,347 is how many people were directly registered through AVR, but a large majority of them would have registered through traditional MVR or some other way even without AVR.

To estimate how many registered voters there would have been in Oregon for the 2016 general election in the absence of AVR, we constructed a model using historical registration rates. Specifically, our model used historical registration rates and population sizes (from Table 1 below) in Presidential elections between 2004 and 2012 to project what registration rates would have been in 2016 without AVR. *While this model has limitations, it is the best that is possible with the available data (see Appendix A for a discussion of this and our calculations).*

Table 1. Actual registrations in Oregon for 2004, 2008, and 2012 Presidential Elections prior to AVR and estimated registrations in 2016 under the assumption that AVR had not been implemented.

	2004	2008	2012	2016
Total Registrations in Oregon without AVR***	2,146,998	2,159,985	2,219,357	2,434,109*
Voting Eligible Population****	2,550,887	2,700,327	2,836,101	3,012,502
Registration rates	84.2%	80.0%	78.2%	80.7%**

*Projected.

**Three year average registration rate (2004, 2008, 2012) prior to AVR.

***Oregon Secretary of State Office (2017b).

****McDonald (2017)

If AVR had not been implemented, our best estimate is that 2,434,205 people would have been registered to vote in Oregon in 2016 through traditional means and been eligible to vote in that year’s general election. According to the Oregon Secretary of State (2017a), the actual number of registered voters in 2016 was 2,577,717 individuals for a rate of 85.6%.

Thus, there were about 144,000 additional people (rounded to the nearest one thousand) who were registered because of the implementation of AVR and, thus, eligible to vote in the 2016 general election. That is a 5.9 pp. increase in 2016 compared to that of 2012. We calculated a lower end estimate of 44,000 additional registrations and an upper end estimate of 233,000 using the 2004 and the 2012 registration rates, respectively.

However, the number of additional registrants in future years from Oregon's implementation of AVR is likely to be significantly less than 144,000. As discussed above, AVR in future years will only include phase I and not phase II. Phase II accounted for about one-half the total DMV eligible transactions sent to the Secretary of State Office to be put through the AVR process.⁴

Did AVR Increase Overall Turnout in Oregon 2016?

All the major sources of data show that turnout increased in Oregon in 2016 (see Table 2 below and Appendix B). According to data from the U.S. Elections Project (McDonald 2017), the overall turnout in Oregon was 3.3 pp. higher in 2016 than in 2012 measured as the percentage of votes for the highest office (i.e., U.S. President) among the voting eligible population (VEP).

However, we disagree that Oregon had the highest increase in turnout in 2016, and we are uncertain about the amount of that increase that came from AVR. In their "preliminary" first look at the data from the 2016 Oregon general election, the Center for American Progress (Griffin et al. 2017) stated that Oregon had the largest boost in turnout of any state in 2016 based on data from the U.S. Elections Project (McDonald 2017). This was also claimed by Pillsbury and Johannesen (2017) and made its way into several media outlets including *The Nation* (McElwee et al 2017a).

However, when using data from the same source as the Center for American Progress, we found that Oregon only had the fourth highest boost, and ten states had a comparable increase in voter turnout that ranged from 2.5 pp. to 4.1 pp. This is shown in Table 2 using data from U.S. Elections Project (2017). It appears that the Center for American Progress obtained different results because they chose to measure turnout in terms of total ballots cast instead of total votes for the highest office (i.e., U.S. President). Both total ballots cast and votes for the highest office among the voting eligible population are conceptually valid ways to define turnout, and each has its own merit.

However, the problem with using data based on total ballots cast is that twelve states did not report the number of total ballots cast for the U.S. Elections Project to include them in their data set. As shown in Table 2, three of these states that the Center for American Progress omitted from their analysis had a higher boost in turnout than Oregon as measured by total ballots cast. These states were Pennsylvania, West Virginia, and New York. A total of ten states had comparable increases.

Did AVR Increase the Turnout of "low probability" Voters in Oregon?

Also, in their "preliminary" first look at the data from the 2016 Oregon general election, the Center for American Progress stated that 116,000 people registered through AVR in 2016 that had a "low probability of registering themselves" had it not been for the AVR. They also stated that 40,000 out of those 116,000 cast a ballot in the 2016 Oregon general election and that this was evidence that AVR increased turnout (Griffin et al. 2017). However, we provide evidence that the large majority of those 40,000 would have registered through traditional MVR and other means in absence of AVR.

4. As we mentioned above, phase II AVR was to automatically register people who had eligible DMV transactions in 2014 and 2015 but did not opt-in for MVR. It is tempting to estimate that in future years, the number of new additional registrations, because of the implementation of AVR, will be one-half of 144,000, but it may not be that simple. People involved in phase I DMV transactions may have been more or less likely to have registered through other means than those in phase II.

Table 2. Changes in turnout between 2012 and 2016 for all 50 States and Washington D.C. as measured by both total ballots cast and by votes for highest office (i.e., U.S. President).

State	Change in Total Ballots Cast among Voting Eligible Population in '16 from '12	Change in Number of Votes for Highest Office among Voting Eligible Population in '16 from '12
Pennsylvania		4.1 pp.
West Virginia		3.8 pp.
New York	3.8 pp.	3.7 pp.
Oregon	4.1 pp.	3.3 pp.
Oklahoma	3.8 pp.	3.2 pp.
Kentucky	3.5 pp.	3.0 pp.
Illinois	4.1 pp.	3.0 pp.
Vermont	3.6 pp.	3.0 pp.
Connecticut	4.0 pp.	2.9 pp.
New Jersey	3.3 pp.	2.6 pp.
Alaska	2.9 pp.	2.6 pp.
Arizona	3.2 pp.	2.4 pp.
Maine	3.5 pp.	2.3 pp.
Nebraska	2.7 pp.	2.2 pp.
Delaware		2.1 pp.
Arkansas	2.0 pp.	2.1 pp.
Texas		2.0 pp.
Florida	2.4 pp.	1.8 pp.
California	2.7 pp.	1.6 pp.
Massachusetts	2.1 pp.	1.3 pp.
United States	1.6 pp.	1.3 pp.
New Hampshire	1.6 pp.	1.2 pp.
Utah	1.6 pp.	1.2 pp.
Indiana	1.9 pp.	1.2 pp.
North Dakota	1.5 pp.	1.1 pp.
Wyoming	1.4 pp.	1.1 pp.
Rhode Island		1.0 pp.
Nevada	0.8 pp.	0.9 pp.
Kansas	1.5 pp.	0.8 pp.
South Carolina	0.5 pp.	0.4 pp.
Alabama		0.4 pp.
New Mexico	0.4 pp.	0.2 pp.
Colorado	1.5 pp.	0.2 pp.
Georgia	0.6 pp.	0.2 pp.
Missouri		0.1 pp.
Virginia		0.0 pp.
Maryland	-0.1 pp.	0.0 pp.
North Carolina	-0.2 pp.	0.0 pp.
Washington	-0.1 pp.	0.0 pp.
Michigan	0.3 pp.	0.0 pp.
Louisiana	-0.2 pp.	-0.2 pp.
District of Columbia	-0.5 pp.	-0.6 pp.
Idaho	-0.1 pp.	-0.7 pp.
Montana		-0.7 pp.
Tennessee	-0.3 pp.	-0.7 pp.
South Dakota	-0.2 pp.	-0.8 pp.
Ohio	-0.9 pp.	-1.6 pp.
Minnesota	-1.6 pp.	-1.8 pp.
Iowa	-1.6 pp.	-1.9 pp.
Hawaii	-1.5 pp.	-2.0 pp.
Wisconsin		-3.5 pp.
Mississippi		-3.7 pp.

Source: McDonald (2017)

The Center’s argument is based on their identification of 116,000 people who 1) “were not registered for the 2008, 2010, 2012, or 2014 elections,” 2) but “were old enough that they could have been registered and voted since 2008”, and 3) “did not return their registration postcard” after a DMV transaction and were automatically registered in 2016 (Griffin et al. 2017). Essentially, these were people who were 26 years and older who had not registered before AVR in 2016. Thus, the Center argued that they probably would not have registered on their own (Column C in Table 3). They also stated that since AVR registered them and 40,000 voted, then AVR must have been the reason why.

We question the premise of their argument. That premise is if people do not vote early in life they probably will not vote later in life. At face value, that does not seem plausible. We factually know that large portions of the voting eligible population start to become active voters in their late 20s and their 30s and 40s. Data from the Office of the Oregon Secretary of State shows a large increase in turnout after the age of 29. In 2016, those 30 years and older voted at a rate that was 23.5 pp. lower than youth in their teens and twenties (see Appendix B). Of course, these age brackets don’t fit perfectly with the brackets presented by the Center for American Progress. However, statistics in figure 4 from Thom File (2017) of the U.S. Census Bureau suggest that voter turnout increases throughout the lifecycle of each age cohort. In the 2016 general election, 30 to 44 year olds voted at a rate 12.5 pp. higher than 18 to 29 year olds; 45 to 64 year olds voted at a rate 7.9 pp. than 30 to 44 year olds, and those 65 and older voted at a rate 4.3 pp. higher than 45 to 64 year olds. The relationship between younger and older cohorts has held basically the same since 2000.

To estimate how many of this “low probability of registering” AVR group would have registered if AVR had not been implemented, we constructed a non-AVR control group to compare with this AVR group. This control group was made up of 313,872 individuals (column A) who were 26 years or older from Spokane County, WA. The Oregon AVR group was 956,875 individuals (column A) who were also 26 years or older and had an eligible DMV transaction. We used column A as the primary reference for calculating rates because this provides a standardized set of numbers for comparison (see Table 3 below and also Appendix C for methods and more calculations).

Table 3. Comparison of an AVR group with a non-AVR control group to understand 2016 voter turnout of “low probability of registering” registrants in Oregon as defined by the Center for American Progress

	Column A	Column B	Column B / Column A	Column C	Column C / Column A
	Pop. Old enough to register in 2008	# Not registered in '08 - '14 but old enough for 2008 and who were (in fact) registered for '16	% of pop. reg. for '16	# Voted	% of pop. who voted
AVR group	956,875*	116,000***	12.1%	40,000***	4.2%
Non-AVR control group	313,872**	18,123****	5.8%	13,313****	4.2%

*This is an estimate of the number of 26+ in Oregon who had eligible DMV transactions in 2014, 2015, and 2016. To obtain the estimate, we multiplied 1,400,000 (the total number of eligible DMV transactions in Oregon in 2016 for phase I and II AVR) times 68.3% (the estimated percentage of 26 years and older in Oregon in 2016 using data from the Population Research Center 2017).

**The size of the populations of 26 years and older was estimated by multiplying the total population in Spokane County (U.S. Census Bureau 2017) by the percentage of people who were 26 and older. For the percentage of 26+ year olds in Spokane County we interpolated data from the 2015 American Community Survey (U.S. Census Bureau 2017).

***Griffin et al. (2017)

****Spokane County voters file from the Spokane County Elections (2016)

As shown in Table 3 above, turnout for both the Oregon AVR and the Spokane non-AVR control groups were essentially identical. Both voted at rates that rounded to 4.2% (Column C / Column A), but we should be careful about the conclusions we draw. *The numbers in Table 3 are not accurate enough to determine whether the AVR group or non-AVR control group had a higher percentage of new voters (see Appendix C for a discussion).*

The most we can conclude is that it was likely incorrect for the Center for American Progress to state that there was a low probability that this sub-population (old enough to register in 2008 but not registered in 2008, 2010, 2012, or 2014) would not have registered and voted if not for AVR. Also, we cannot rule out the possibility that most or all of the 40,000 voters from this Oregon AVR group would have registered through some other means in the absence of AVR. An analysis of MVR/AVR program level data from Oregon for the 2012 and 2016 general election would help to clarify this matter.

Demos (McElwee et al. 2017b) also made a claim that AVR increased turnout that was based on similar, problematic arguments. They suggested that since there were 89,000 individuals registered by AVR who voted for the first time, AVR increased turnout by 3% (89,000 divided by a voting eligible population of 3,012,502). However, as we argued above, the only way you can reliably estimate the impact of an election reform on turnout is with a set of statistical controls.

Did AVR Increase Youth Turnout in Oregon in 2016?

We have concerns about the claim by the Alliance for Youth Action that AVR generated a 7 pp. increase in the turnout of 18 to 29 year olds among total ballots cast in the Oregon 2016 general election compared that of 2012 (Kraemer 2017). Their “Fact Sheet” implies that most or all of that increase in turnout was from AVR. They did so when they compared that 7 pp. increase with the increases measured for other election reforms in a controlled statistical analysis by McDonald et al. (2015). The Alliance for Youth Action wrote that:

A seven percent point increase in turnout is an unusually high boost following the implementation of a single voting reform – in the November 2012 presidential election all other major voting convenience reforms *combined* were correlated with a 7 percentage point increase in voter turnout of eligible adults (quote from Kraemer 2017 referencing McDonald et al 2015).

Perhaps most of that 7 pp. increase was from AVR. However, based on the limited evidence that was presented, it is almost as likely that it was not. We cannot merely assume that an increase or decrease in turnout from one year to the next was caused by the implementation of a new election reform such as AVR. The only valid way to measure how much a particular election reform affects turnout is to statistically control for other variables that also have affected turnout.

Moreover, from one presidential year to the next, a 7 pp. increase in turnout is not usually high for low-propensity voters such as youth. In fact, McDonald (2017) shows that year-to-year change in the nation-wide youth vote has varied among consecutive presidential elections by 2.5 pp. to 10.5 pp. The 7 pp. increase in the 2016 youth vote in Oregon is within normal background fluctuation.

Also, that McDonald (2017) shows a great deal more fluctuation for youth turnout between consecutive presidential elections than for other demographic groups. McDonald used the Current Population Survey of the U.S. Census Bureau for trend data, which he corrected for non-response and over response error. We would expect larger swings in turnout for youth than for the general population. As Arceneaux and Nickerson (2009) discussed, the turnout of low propensity voters is more sensitive to the general level of excitement and salience of politics in major election years.

Second, the comparison made by the Alliance for Youth Action is misleading. It is not valid to compare, on one hand, the increase in Oregon turnout from one presidential year to the next, and on

the other hand, the sum of marginal increases in turnout measured with a multivariate analysis controlling for spurious variables such as reported by McDonald et al. (2015). It is like comparing the 10 million dollar one-year gross revenue from company A to the 1 million dollar one-year net profit of company B and arguing that company A performed better. After looking into the details, you stand a fair chance of finding the opposite to be true.

Theory

Proponents of both MVR and AVR assume that registration is a legal barrier to voting, and if we merely remove that legal barrier or the costs of overcoming it more people will vote. While we are confident that this theory holds true in many situations, the relationship between registering and voting is much more complicated than this. We will show evidence from research on MVR later in the paper that increasing registration does not always increase turnout. It is not just how many people are registered to vote that determines voter turnout. It also matters *if they are registered in a way that moves them psychologically closer to voting such as through intentional choosing become a voter and/or being registered by family, friends, and activists.*

This is a “process matters” perspective. It acknowledges that there are both *direct effects* due to election reforms (removing registration as a legal barrier to voting) and *indirect effects* (changes to how voters are activated and mobilized as a result of how they are registered). We borrow this distinction between direct and indirect effects from Barry Burden et al (2014) who makes a similar argument on the overall negative effects of certain policy configurations of early voting.

In a nutshell, we theorize that because automated voter registration is an impersonal, administrative process that has the *direct effect* of generating many new registrants. However, it will be less effective at actually creating new voters. It has supplanted more intentional, personal, social and traditional ways of registering to vote that are generally more effective at teaching and empowering people to become voters. In the terminology of political campaigns, these traditional ways of registering people to vote are better at “activating” registrants to actually becoming voters and casting ballots. Thus, *when automated registration displaces traditional means of registration, it has the indirect effort of eliminating hundreds of thousands of GOTV-like events in the average sized state.* Below we theorize that automated registration will still increase turnout among the voting eligible population where direct effects are the strongest, but in others situations it will decrease turnout when indirect effects are dominant.

The Hurdles and Costs of Voting for the Politically Inexperienced

Scholars of voting behavior and practitioners typically build on the seminal work of Anthony Downs (1957). He asserted that the decision to vote is influenced by how people rationalize the costs and rewards of voting. If a person anticipates enough reward from voting relative to the costs of voting, they will endure those costs and cast a ballot. Where we seem to disagree with AVR proponents is where those costs are and how to best overcome them.

Proponents of AVR and MVR assert that the legal requirement of registering to vote is a large hurdle to voting. The best way to remove that hurdle is to make registration as easy as possible by simply doing it automatically for people (Kraemer 2017). Thus, MVR and AVR reduced the costs of voting by making the registration hurdle really easy to overcome.

However, once people are registered, they face other hurdles such as election laws and regulations that structure the process of obtaining, filling out, and casting a ballot that AVR and MVR do not directly affect. These hurdles also include figuring out how to get and cast a ballot, their own positions on candidates and issues, and for whom and what to vote for and against. Registrants must also be

experienced and skilled enough to overcome those hurdles and be motivated enough to incur the costs of doing so.

While these hurdles are nominally the same for every voter, some voters face higher costs to overcoming these hurdles. For first-time voters with no experience at voting, the costs of getting, filling out, and casting a ballot will often be higher. They are less likely to have a well-defined political identity with positions on social issues, political parties, and candidates. Thus, it may take dozens of hours of study and contemplation before they feel confident enough to vote. In contrast, for those who have decades of experience, it can be nearly effortless to fill out and cast ballots. Likewise, those who live in poverty and also minorities and youth may have lower levels of education, fewer financial resources, or been victims of prejudice and discrimination may face higher costs to overcoming these hurdles to voting.

Nevertheless, a majority of people and sizable numbers of youth and disadvantaged groups still learn to be a voter. They learn about the mechanics of voting. They also learn how to obtain information about electoral races, and they develop their own positions on social issues, candidates, and parties. As they do so, the costs of overcoming the hurdles of voting decrease substantially.

Toward a Formal Theory of Voting as a Process of Social Learning

Social learning theory tells us that new behavior is learned (Bandura 1986; Bransford et al. 1999; Leonard 2002). When we learn to drive a car, step into a new job, or overcome apprehension while we learn a complicated new skill, it is easier when we have the mentoring or role modeling of people who already have experience. Social learning is facilitated by being well networked and a sense of community and inclusion. Similarly, Murphy (2015) found that peers can help reduce the anxiety about learning new complex tasks. We should expect voting to be very similar. We already know there is also a highly social component to voting (e.g. Bhatti and Hansen 2012; Bhatti et al. 2015; Burden et al. 2014)). Therefore, we should also expect that there is a strong social learning component to becoming a voter.

We theorize that people will not vote for the first time until they are far enough along in their own social learning process of becoming a voter. In other words, they must have learned enough about politics to overcoming the hurdles to voting to make the rewards worthwhile. They need to first form their own political identity and feel like they know enough about political issues, candidates, and political parties. Also, before people vote, they need to learn the basics of how to get a ballot, fill it out, and cast it. Voting is an intellectual activity that involves taking positions on some fairly abstract social and political concepts, which are difficult for many first-time voters. In this social learning process of becoming a voter, young adults can take years or decades before they feel they are ready to vote. In a survey of non-voters, youth often stated that they do not feel ready to become a voter and that they needed more time to “figure things out” (Burke 2015a).

Much of our learning about social issues, candidates, and political parties involves learning from other people or through mass media. Scholars have long noted the importance of “opinion leaders” (Berelson et al 1954) both in educating voters and encouraging them to vote. Party organizations, interest groups, union leaders, neighbors, family and friends teach new registrants how to get and cast a ballot and a basic political education. This helps them lower the costs of voting, overcome the hurdles of voting, and become voters. This basic political education includes information about social issues, candidates, and political parties. Implicit in all of this is a relationship between the inexperienced voters and the more experienced voters to teach, mentor, and help them develop the knowledge, skills, and confidence they need in order to vote.

Getting registered is more than a legal hurdle to overcome. It can be a key event in people's lives where people politically come of age and identify with being a voter. We theorize that the act of registering plays a crucial role in the formation of an individual's political identity and can affect their likelihood of casting a ballot. Registering to vote is a public declaration of the intent to vote and functions as a "commitment device," an RSVP that a person intends to cast a ballot. Event organizers do not ask for RSVPs merely to estimate how many people will attend. They also want invitees to commit to attending, so that they are more likely to actually do so. It is well understood in psychology (e.g., Harmon-Jones and Harmon-Jones 2012) that people who commit to some activity are more likely to actually engage in that activity, because following through on their commitment avoids cognitive dissonance. The more intentional and conscious of a choice that people make to register to vote, the more likely they are to vote at election time.

We also theorize that registering to vote, especially when done with the help of family, friends, or neighborhood activists, is a social event where learning can occur and continue into the future. When family, friends, or neighborhood activists help someone register, these people have a vested interest in that person voting and they are more likely to be an active role model or mentor who provides encouragement and civic and political education at the time of registration. This also lowers the costs of voting. Likewise, these role models are more likely to follow up at election time with more help. We theorize that such registrants are more likely to vote, and these extra benefits are important to first time registrants and inexperienced voters.

However, things are not equal. It is intuitive that people of different family backgrounds, cultures, and socioeconomic demographic groups have different levels and kinds of access to political role models and media. Low-income individuals, minorities, and people from families with multi-generational non-voting are less likely to have access to these role models and media. Also, people have different levels and kinds of cultural resources for how they process what they read, hear, and see. These things likely shape how, when, and if a person becomes a voter (Burke 2015a; 2015b).

A Synthesis of Rational Choice and Social Learning Theory

We suggest that when AVR and MVR reduce the costs of registration they inadvertently increase the overall costs of voting for some registrants. This is because MVR and AVR are less likely to generate registrants who feel empowered to vote and teach them about civics and politics than traditional, more personal, social ways of registering to vote. This is important for inexperienced voters to overcome the hurdles to getting, filling out, and casting ballots for some registrants and their willingness to endure those costs. In other words, MVR and AVR are less likely to activate registrants into voters.

Obviously, creating new voters is a process. As have others (e.g., Burden et al. 2014; Brown and Wedeking 2006), we believe it is best viewed as occurring in two steps, which are voter registration and social learning to become a voter. These steps can synergistically happen at the same time or in the reverse order. In addition to the registration process, other things can of course socially activate politically inexperienced individuals into active voters. These include Get Out The Vote (GOTV) efforts, increased political activity of a presidential elections, and possibly other policy options. Of the known factors that can increase the interest in voting and decrease the costs of voting, presidential elections offer by far the largest boosts in voter turnout. In such elections, turnout is often twenty percentage points higher than in other elections. Nothing else comes even close to that.

Implications for MVR and AVR

We theorize that in the aggregate these traditional ways of registering include the rough equivalent of hundreds of thousands of GOTV-like experiences that activate new registrants in the average sized state. The traditional, more social, more intentional ways of registering not only lower the costs of

overcoming the legal barrier of registration but they also lower the costs of voting. These GOTV contacts and activation experiences do not exist in the same number or at all with MVR and AVR. Thus, when MVR and AVR substantially replace traditional, more social, more personal ways of registering with impersonal bureaucratic ways, the effectiveness of these reforms is less than expected and in some situations might even decrease turnout.

In the language of political campaigns, we theorize that MVR and AVR will not activate new registrants as well as traditional registration. However, we also theorize that MVR and AVR will still increase turnout under certain situations. These are when there are few traditional ways to register (e.g., states that make registration difficult) and there are many other opportunities to learn to be a voter and, thus, be activated (e.g., high saliency presidential elections). In midterm elections and in states where traditional means of registering are readily available, MVR and AVR will decrease turnout.

Hypotheses

We believe the relationship between registering and voting is complicated and involves sets of factors, including how and when people are registered and the electoral and social context. Based on the above theory, we offer four hypotheses on how various electoral and social factors influence the likelihood of those registered by MVR and AVR to actually cast a ballot.

Hypothesis one is on presidential elections. In the early part of every election cycle, there are people who are not interested in or ready to become a voter. In presidential election years, there is more campaign activity, greater saliency, and higher levels of civic and political involvement, and we theorize that this will create more opportunities for inexperienced voters to become interested and receive the encouragement and help that they need. This will reach an apex just before Election Day.

Some who did not want to register at an earlier time will suddenly want to vote as it gets close to election day in a presidential year, but access to registration will not be always be available for many of them. AVR solves that problem because it had already registered some of them at an early time. Although the automated registration process would not be empowering or educational, the extra political activity of a presidential election would make up for the impersonal nature of MVR and AVR.

Hypothesis one: MVR and AVR will be associated with a small increase in overall turnout in presidential elections.

Hypothesis two is on midterms. As discussed above, we theorize that the impersonal, administrative nature of MVR and AVR does not offer as much empowerment and mentoring opportunities as does traditional self-registration and getting help from friends, family, and neighborhood activists. Midterm elections lack the level of political activity to make up for the deficit of activation and mobilization experiences and the boost from removing the legal hurdle of registration is insufficient to overcome this, and, thus, we hypothesize that MVR and AVR will lower overall turnout in such elections.

Hypothesis two: MVR and AVR will be associated with a slightly larger *decrease* in turnout in midterm elections.

Hypothesis three is on the average federal election, which of course means both midterms and presidential. We hypothesized that MVR and AVR will be associated with a positive effect on overall turnout in presidential elections but an even larger negative effect in midterms. Thus, we theorize that the net effect from AVR on turnout will be negative in the average federal election.

Hypothesis three: MVR and AVR will be associated with an overall small *decrease* in turnout in the average federal election.

Hypothesis four is on the equity of who votes. We borrow from the theory discussed by Rigby and Springer (2010). We theorize that where there is a large preexisting income, racial, or ethnic inequality among those who are registered to vote, MVR and AVR can increase the equity of those who vote.

Hypothesis four. MVR and AVR will be associated with an increase in the equity of those who vote in states and elections with extreme inequality on the voter registration rolls.

Research on Motor Voter Registration

There seems to be a consensus that MVR increase registration rates (for example, see Brown and Wedeking, 2006; Hanmer, 2009; Lawler n.d.). Lawler (n.d.) estimated a 3 percentage point increase in registration rates from MVR. Of course, higher turnout is what really matters. The scholarly research on MVR offers us empirical results that allow us evaluate the four above hypotheses.

Our review of the academic research on MVR and turnout includes only five studies. Our criteria for inclusion was that these studies must be of nationwide or similar populations, multiple election years before and after implementation of MVR, and that they adequately control for state, election, and individual variables. These five studies include Brown and Wedeking (2006), Hanmer (2009), Lawler (n.d.), Rigby and Springer (2010), and Leighley and Nagler (2013). Omitted studies include Highton (1997), Rhine (1996), Knack (1995), Highton and Wolfinger (1998), and Martinez and Hill (1999).

Table 4 summarizes the main results and methods of these studies. Each used a different set of methods, data, and years. Voter turnout was measured as the percentage of those casting ballots among the population of voting age citizens unless noted. The Federal Election Commission (FEC) data is a compilation of turnout numbers from Secretary of State Offices. Current Population Survey (CPS) and National Election Survey (NES) data are from random samples of individuals. Studies operationalized MVR differently. Hanmer (2009) and Brown and Wedeking (2006) operationalized MVR as federally mandated MVR via the NVRA of 1992, which excludes state-level MVR prior to NVRA. Rigby and Springer (2010), Leighley and Nagler (2013), and Lawler (n.d.) did not differentiate. They operationalized both state-level MVR prior to the 1992 NVRA and MVR mandated by the 1992 NVRA as one variable. All studies except Lawler (n.d.) were published in peer reviewed journals.

As discussed below, the bulk of the evidence is that MVR has *not* increased turnout in the average federal election (Brown and Wedeking, 2006; Lawler, n.d.; Leighley and Nagler, 2013; Rigby and Springer 2010; Hanmer, 2009). MVR was associated with a small positive effect on turnout in Hanmer (2009). Rigby and Springer (2010) found positive effects in specific situations, such as improving the equity of those who vote in the election years and states with high levels of pre-existing inequality.

Other studies found that MVR was associated with decreases in turnout. In fact, the largest effects and the highest levels of statistical significance were for decreases in turnout associated with MVR (Brown and Wedeking, 2006; Lawler, n.d.). Of course, MVR was not fully implemented in some states despite a federal mandate. This could help explain the lack of statistically significant effects in nationwide studies, but it does not explain these negative effects.

However, the measured effects of MVR are more nuanced than this or in Table 4 below. We use the above hypotheses to explore how MVR has influenced presidential elections, midterms, average federal elections, and the equity of those who vote, etc. as we review these five scholarly studies.

Did MVR Increase Turnout in Presidential Elections? Decrease in Midterm Elections?

Here we discuss the evidence for hypothesis one and two. First, we consider the effects of MVR on turnout in Presidential elections. Two studies suggest that MVR had statistically significant positive

effects on turnout in the average presidential election that was studied that was between 2 and 4 pp., (Hanmer 2009; Lawler n.d., respectively); another estimated a 6 to 7 pp. decrease associated with MVR (Brown and Wedeking 2006); all were statistically significant. Two studies found no evidence of a statistically significant difference from zero (Leighley and Nagler 2013; Rigby and Springer 2010⁵).

Two studies looked at midterm elections. Lawler (n.d.) found that MVR was associated with a decreased in turnout in midterms of 3.9 pp. (90% CL). Rigby and Springer (2010) found a very small increase in turnout that was not statistically different from zero for either the rich or the poor.⁷ *At most, this is weak evidence in support of hypothesis one and two.* The possibility of a different effect in presidential versus midterm suggests that MVR operates differently in these two types of elections. It suggests that MVR might be associated with a reduction in turnout in low saliency, low information elections, and a positive effect in high salience and high information elections.

Did MVR Increase or Decrease Overall Turnout in the Average Federal Elections?

The evidence is inconclusive for hypothesis three that MVR will be associated with a decrease in turnout in the average federal election. *Only two of the five studies examined both presidential and midterm elections. In both, MVR was not associated with a change in turnout that was statistically significant in the average federal election (Lawler n.d.; Rigby and Springer 2010).*

Theoretically, we would expect MVR to be associated with the largest increases in turnout in presidential elections and the lowest in midterms. This is because low-propensity voters are more likely to vote in presidential elections than in midterms. Also, low-propensity voters disproportionately account for the marginal increases in registration rates from automated registration.⁶

Table 4. Five studies on the effects of Motor Voter Registration on voter turnout in presidential, midterms, and both midterms and presidential spanning the years 1972 to 2008.

The Study	Years	Type of Elects. ²	Data ³	Method ⁴	Unit of Anlys. ⁵	Pop. ⁶	Num. of Obser.	Coeff. / Inter. Effect	Stand. Error
Brown & Wedeking 2006	1980-2004	Pres.	FEC	Reg. w/ RBSE	Aggr. State	VEP	240	-0.0771* conditional to low prior MVR	
Brown & Wedeking 2006	1980-2004	Pres.	FEC	Reg. w/ RBSE	Aggr. State	VEP	288	-0.0598* conditional to no prior MVR	
Brown & Wedeking 2006	1980-2004	Pres.	FEC	Reg. w/ RBSE	Aggr. State	VEP	288	-0.0749*** conditional to prior MVR	.0138
Lawler n.d.	1980-2004	Pres.	NES	Reg.	Ind.	VAP Cit.	9,372	0.035**	0.017
Lawler n.d.	1982-2002	Mid.	NES	Reg.	Ind.	VAP Cit.	9,372	-0.039*	0.023

(Table 4 continued below)

⁵ Rigby and Springer (2010) only studied the rich and the poor, not middle income earners. They did find a small increase in turnout in presidential years (90% C.L.) associated with MVR for the poor, but not the rich.

⁶ Brown and Wedeking (2010) provide evidence that low propensity voters made up a large share of the additional registrations from MVR. Both Griff et al (2017) and McElwee et al. (2017a; 2017b) suggest the same for AVR.

(Table 4 continued from above)

Leighley & Nagler 2013	19721-2008	Pres.	CPS	Cross. Sec.	Aggr. State	VAP Cit.	450	0.0017	0.025
Hanmer 2009	1992-2000	Pres.	CPS	Fixed-effects	Aggr. State	VAP	220,000	0.017** conditional to no prior MVR	
Hanmer 2009	1992-2000	Pres.	CPS	Fixed-effects	Aggr. State	VAP	220,000	~0.0 conditional to low prior MVR	
Hanmer 2009	1992-2000	Pres.	CPS	Fixed-effects	Aggr. State	VAP	220,000	~0.0 conditional to full prior MVR	
Rigby & Springer 2010	1978-2008	Pres. & Mid.	CPS	Fixed-effects	Aggr. State	Rich VAP Cit.	800	0.0047	0.0068
Rigby & Springer 2010	1978-2008	Pres. & Mid.	CPS	Fixed-effects	Aggr. State	Poor VAP Cit.	800	0.0131	0.0085
Rigby & Springer 2010	1980-2008	Pres.	CPS	Fixed-effects	Aggr. State	Poor VAP Cit.	400	0.0232*	0.0135
Rigby & Springer 2010	1978-2008	Mid.	CPS	Fixed-effects	Aggr. State	Poor VAP Cit.	400	0.0023	0.0097

* Statistically significant at the 90% confidence level.

** Statistically significant at the 95% confidence level.

*** Statistically significant at the 99% confidence level.

1. Year 1976 was omitted by Leighley and Nagler, (2013) because CPS did not have state variables for that year.
2. The election year types that were studied were either Presidential, Presidential and Midterms, or Midterms.
3. Data sources were either the Federal Election Commission, National Elections Survey, or Current Population Survey.
4. Models were either a) regression with robust standard errors, b) difference-in-difference, c) fixed-effects, or d) cross-sectional time series. All models controlled for various years, states, elections, individual variables.
5. Data was either aggregated at the state or individual level.
6. Populations were a) Voting Eligible Population (VEP), b) citizens of voting age population (VAP Cit.), and c) population of voting age (VAP). Rigby and Springer studied two subpopulations: a) Poor citizens of voting age population (Poor VAP) who were from families below 200% of the poverty level and b) rich citizens of voting age population (Rich VAP) who were from families above 400% of the poverty level.
7. Dependent variable is log-odds and thus the coefficient is not easily interpretable.

It is disappointing that the other three studies did not analyze data from both presidential and midterm elections to evaluate this important hypothesis on the average federal election. However, since two of these other studies focusing only on presidential years found small and no increases in turnout associated with MVR and one found a large decrease in turnout, we are concerned that they may have measured an even large negative effect on turnout in midterms with their models.

Also, it is interesting that Lawler (n.d.) found a 4.9 pp. increase in turnout that was associated with MVR for the first, second, and third lowest earning quintiles for presidential elections, but this was offset by an even larger decrease in turnout of 7.5 pp. in midterms. Both were statistically significant

at the 95% CL, and, thus, the difference between the presidential and midterm elections was statistically significant. No such swing was found for the upper income quintiles.

Did MVR Increase the Equity of Turnout among Demographic Groups?

Rigby and Springer (2010) argued that the best way to evaluate the impact of MVR on equity in the electoral process is to look at the effect that MVR has had on the voter turnout of one sub-group relative to another. They found that, in states with the highest levels of pre-existing income inequality among those registered to vote, MVR seemed to decrease the income inequality among those who voted. That is to say, *in states with high levels of pre-existing inequality, MVR increased the turnout of the poor relative to the rich*. The authors found that in state-election years (midterm and presidential) where the rich were over 40% more likely to be registered than the poor, MVR decreased the inequality among those who voted. This was found in 39% of the state-election years. In state-election years where rich people were less than 40% more likely to be registered, MVR had no statistically significant effect on inequity, which was found in 61% of the state-election years.⁷

There is moderate evidence in support of hypothesis four that MVR increased the equity of those who vote when there are high levels of pre-existing inequality on the voting rolls. The evidence is rated as *moderate* only because it came from a single study.

Lawler (n.d.) *looked at how* MVR was associated with turnout within demographic groups. MVR was also intended to increase the electoral participation of the poor and of people of color. However, the evidence provided in Lawler did not suggest statistically significant increases or decreases in turnout for the lowest earning quintile or for Hispanics in the average federal election, but as noted in the above section on the average federal elections he found interesting and statistically significant variations for first, second, and third income quintiles between midterm and presidential elections.

Also, MVR was intended to increase the turnout of *youth*, but Lawler (n.d.) did not find a statistically significant effect for 18 to 25 year olds in the average federal election. However, he measured a decrease in the turnout of 40 to 65 year olds in midterm elections of a 8.6 pp. associated with MVR that was statistically significant at 95% CL.

Did Higher Registration Rates from MVR Increase or Decrease Turnout?

Brown and Wedeking (2006) went a step further and analyzed the effect that MVR had on the relationship between registration rates and voter turnout rates. In states with little or no implementation of MVR-styled programs prior to the full scale implementation of MVR in 1994, full scale MVR was measured to increase *registration rates* by an average of 1.4% (Table 1). However, they found that the *increase in registration rates due to MVR were associated with a decrease in turnout among voting age and voting eligible populations in the average presidential election (see interaction term in Table 3 of Brown and Wedeking 2010)*. In each of their two different data sources, these results were statistically significant at over 99% confidence.

We encourage readers to interpret any analysis on these registration rates with caution if the data came from the Federal Election Commission and the Election Assistance Commission. We noticed a

⁷ There are explanations as why MVR seems to have had little or no effect on the inequality of who votes in some states. MVR (including registration via social service agencies) probably does not provide equal access to registration for all socio-economic groups. Car ownership depends on economic class (Berube et al. 2006). Thus, registration through the DMV is more available to the affluent. Also, registration through social service agencies has not been implemented as fully as through the DMV. It is also possible that agency-based registration is more effective at increasing the turnout of the rich. This is because once registered, the rich have greater access to the information and resources that are needed to actually vote. Economists call this the "Matthew effect" (Rodgers 1983; Population Research Center 2014); sociologists call it "cultural capital" (Coleman 1988).

great deal of missing and inconsistent data in registration rates from these sources. However, Brown and Wedeking (2006) found nearly identical results with this data as they did when they analyzed both Voting Age Population (VAP) and Voting Eligible Population (VEP) data from the Current Population Surveys (which is based on surveys of random samples). The consistency of the results among all three data sets and two data sources suggests that the results are in fact valid.⁸ A negative association between MVR registration rates and voter turnout from three different data sets and two data sources should cause us some concern.

Research on Opt-In vs Opt-Out

Research on how opt-in vs opt-out structures affect voluntary participation offers us insights about AVR. However, this research is on non-electoral voluntary participation, such as to recruit participants for medical research (Junghans et al., 2005), retirement funds (Beshears et al. 2009), visits to therapy sessions (Stallard and Sayers 1998). The opt-in and opt-out structures of these non-electoral situations are very different from AVR and MVR. For example, when required to opt-out of medical research, participants are merely required to opt-out by mail if they don't want to receive a recruitment phone call asking them to participate in the research. They are not automatically enrolled in human experimentation if they forget to opt-out (Junghans et al., 2005) thank goodness. That is very different from the state automatically registering people onto the voting rolls if they do not opt-out.

Nevertheless, this research offers one important insight. The choice of opt-out or opt-in can profoundly affect participation. For example, opt-out structures *increased* participation by 12 pp. in recruitment phone calls for medical research (Junghans et al., 2005). In contrast, opt-out structures *decreased* participation by 20 pp. in visits to therapy sessions (Stallard and Sayers 1998).

Just looking at this research alone, it is not clear that requiring people to opt-out of voter registration would either substantially increase or decrease turnout. However, one very tentative conclusion is that opt-out structures can increase participation in activities that require little or no additional effort or time by individuals. When the desired behavior does require time or effort (such as voting), opt-in seems to result in higher participation rates. This is presumably because if people opt-in they will feel more vested in the outcome. However, it is certainly more complicated than that.

It is uncertain how much, if any, of this research on opt-in vs opt-out on non-electoral situations will be directly helpful in understanding MVR and AVR. Regardless, this research should give pause to anyone who is certain that they know how opt-out AVR will affect voter turnout.

Analysis of Overall Turnout from AVR in Oregon in 2016

Here we test hypothesize one for AVR that it would be associated with a small increase in overall turnout in presidential elections. *Since we only had one election year and one state that had implemented AVR, we knew it would be difficult to find a statistical significant effect even if one existed. As anticipated, we did not measure a statistically significant increase in turnout among the voting eligible population associated with AVR in the Oregon 2016 general election.* Thus, we were unable to accept hypothesis one in regard to AVR. Farther below we discuss the possible reasons why we did not detect statistical significance.

⁸ Survey data also has potential sources of error can could have biased Brown and Wedeking's analysis. For example, people may not always know if they are registered and may answer incorrectly to a survey question. However, in most cases this type of error is fairly constant from state to state, and thus might not have lead to any major biases in the analysis by Brown and Wedeking.

Our data included all 50 states and the District of Columbia for the 2016, 2012, 2008, and 2004 general elections. Data on the percentage of the total votes cast for highest office among the voting eligible population was compiled by Dr. Michael McDonald (2017) of the U.S. Elections Project. After compiling data for the remaining variables, we ran an analysis to see if there was a statistically significant increase or decrease in turnout that could be attributed to AVR.

Controlling for individual, election, and state variables and using a multiple regression model with panel corrected standard errors, we estimated the effect of AVR on overall turnout to be 2.2 +/-3.8 pp. at a 95% confidence level (see Table 5). Much of Oregon's increase in turnout in 2016 compared to other states and years was associated with a decrease in poverty and all vote-by-mail elections.

The difference between 2.2 pp. and zero is not close to statistically significance. *Of course, it is possible that there actually was a modest increase in turnout due to AVR that could not be detected as statistically significant with the small data set that had only one state and election year coded for AVR.* The actual effect could have been as low as -1.5 pp. or as high as 6.1 pp. at 95% confidence.

Table 5. Results of regression analysis (with panel corrected standard errors) of all 50 states and the District of Columbia in presidential elections from 2004 to 2016.

	Estimate	P-Values
(Intercept)	0.805****	<0.0001
AVR	0.0220	0.2695
Strict Voter ID laws	-0.0215	0.1338
Senate	-0.00229	0.4882
Governor	-0.0168****	<0.0001
VBM	0.0680***	0.0002
% in poverty	-1.228****	<0.0001
% Black	0.0629	0.3179
% Hispanic	-0.0627***	0.0003
% Asian	-0.512****	<0.0001

- * Statistically significant at the 95% confidence level
- ** Statistically significant at the 99% confidence level
- *** Statistically significant at the 99.9% confidence level
- **** Statistically significant at the 99.99% confidence level

Why was AVR not statistically significant? One possible reason is that AVR had an effect that was too small to be found statistically significant with our data set. Because our small data set had only one state and election year that was coded for AVR out of 204 data points, this is quite possible.

A second possibility is that AVR had a moderately large effect, but other variables that masked that effect that were not in our model. Our model had a R² of 0.531, which is good but not exceptional.

A third possible reason is that AVR did not in fact increase overall turnout in Oregon in 2016, and the increase in turnout in 2016 was due to other factors that were spurious. A quick glance back at Table 2 above shows that this is also very plausible. When ten other states without AVR had a boost in turnout that was comparable to Oregon, we cannot merely assume that Oregon's boost was from AVR.

While the effect of AVR on turnout was not statistically significant, other variables were at the 99.9% confidence level. All vote-by-mail elections and a decrease in the percentage in poverty explained most of the increase in turnout in 2016 in Oregon above that of other states and election years.⁹

Findings

From our own calculations, we estimate that the implementation of AVR in Oregon in 2016 resulted in 144,000 more people registered to vote in the 2016 general election with a lower end estimate of 44,000 and an upper end estimate of 233,000. According to the Oregon Secretary of State, turnout was 3.3% higher in 2016 than in 2012 measured as the percentage of votes for the highest office (i.e., U.S. President) among the voting eligible population. However, three other states Pennsylvania, West Virginia, and New York had a higher turnout rate than Oregon's. A total of ten states had increases in turnout comparable to Oregon's that ranged from 2.5 to 4.1 pp. according to the U.S. Elections Project (McDonald 2017).

Although we measured a 2.2 percentage point increase in overall turnout (votes for highest office, i.e., U.S. President) associated with AVR in Oregon in 2016 while controlling for other variables, this was *not* statistically significant at the liberal 90% confidence level. Of course, it is possible that there was actually a modest increase in turnout due to AVR that could not be detected as statistically significant with a data set of only 204 state-election years and only one state and election year that used AVR.

These findings for AVR are consistent with the findings for our literature review of scholarly research on MVR. MVR substantially increased the number of people registered to vote in the United States. Although inconclusive, *the bulk of the evidence is that MVR did not increase the number of people who actually voted in the averaged federal election. If it did increase turnout, it has likely been by a very small amount, and we cannot ignore the possibility that MVR has been associated with a small decrease in overall turnout.* The largest statistically significant changes in turnout that were associated with MVR were decreases. Lawler (n.d.) found a decrease in overall turnout of 3.9 pp. (90% C.L.) in midterm elections, and Brown and Wedeking (2006) found decreases in overall turnout between 5.9 pp. and 7.7 pp. in presidential elections (90% C.L. and 99% C.L., respectively). However, Rigby and Springer (2010) found that MVR increase the equity of those who vote in some situations.

However, there was moderately weak to no support for our hypotheses. The fact that most of the studies were not set up to evaluate our hypotheses was certainly part of the reason. Therefore, we view the evidence for our hypotheses as inconclusive.

We found that the research on opt-in vs opt-out voluntary participation in non-electoral situations is important. Since MVR and AVR are both automated systems for registering people to vote, it is reasonable to expect that AVR might be associated with the same types of turnout and equity effects as MVR. While this is a reasonable line of thinking, our review of the research on opt-in vs opt-out systems in non-electoral contexts suggests we should be cautious about generalizing results between MVR opt-in and Oregon style AVR opt-out.

This experimental research suggests that there can be massive 10 to 20 pp. shifts in participation between opt-in and opt-out systems. One very tentative conclusion is that opt-out systems result in lower voluntary participation rates when the desired participation requires time or effort (such as voting), but it probably is not that simple. The context and structure of the non-electoral situations that were studied were very different from that of electoral politics and voting.

⁹ It may surprise readers that the effect of strict voter ID laws were not statistically significant, but this result is consistent with other research that found small or no statistically significant effects (Highton 2017). This does not necessarily mean that voter ID laws do not suppress turnout. First, ID laws are hard to study because it is difficult to measure how aggressively they are enforced. Second, they are often a part of a larger set of voter suppression laws that are difficult to measure.

Nevertheless, this should give pause to anyone who thinks they know what the effects of AVR will be on turnout and the equity of who votes. Overall, our findings reveal how little we understand about how the automation of the registration process affects voter behavior, turnout, and equity.

Discussion

The first instance of the use of AVR in Oregon 2016 was a somewhat unique situation. Oregon is a mostly White, all vote-by-mail state with a history of high voter turnout rates. It was also a presidential election year. Was Oregon 2016 an easy or hard test for AVR to prove its effectiveness? How do the results of no statistically significant increase in turnout associated with AVR generalize to the rest of the country?

Readers should be cautious about generalizing the Oregon experience to the average U.S. state and election year. Even if we had found a statistically significant decrease or increase in turnout in Oregon in the 2016 general election, we really cannot well generalize to other states. We don't know enough about the influences of AVR on the social learning processes of becoming a voter to well gauge how generalizable the Oregon experience really is.

Back to the question of whether Oregon 2016 was an easy or difficult test case for AVR, there are conflicting factors. There is at least one reason to believe that AVR could be more effective in an Oregon presidential election year than in most other state-election years and at least two reasons why it might be less effective. First, Oregon already has a high voter turnout rate that makes it more difficult for other policy reforms such as AVR to increase turnout even higher. That creates a steep slope for AVR to climb. However, there are a second and third factor that may have made Oregon 2016 an easy test case.

Second, the increased political activity of the 2016 presidential election likely offset some of the shortcomings of AVR from being too impersonal, administrative, and lacking the social, intentional features that might activate registrants into voters, which we discussed in the theory section. Third, voting by mail might activate new registrants to become voters. Receiving a ballot in the mail with one's name on it at the apex of election excitement in theory could activate a reluctant registrant to vote, whereas poll place voting might not.

Thus, the 2016 Oregon experience with AVR is perhaps the most generalizable to other presidential elections in high turnout states that rely heavily on mail ballots such as the State of Washington in year 2020. California and Colorado have some similarities to Oregon in that both vote by mail, but California has only an average turnout rate (McDonald 2017) and Colorado's vote-by-mail system is very new and the state's voters are inexperienced with its use. Midterm elections in any state could be a particularly difficult electoral context for AVR if our theories about AVR are valid.

The Oregon style AVR implemented in 2016 may very well prove to be broadly useful for increasing turnout and equity across the country. Even if it does not, some version of AVR or some niche application will likely be useful for increasing turnout and equity. It seems likely that AVR will prove useful at increasing the equity of those who vote in states that suffer from extreme inequality on the voting rolls (Rigby and Springer 2010) from either poverty or the worst cases of voter suppression. Even if the automatic registration of new voters does not increase turnout and equity, it seems plausible that automatically updating existing registrants might be more effective.

Even if AVR does not increase turnout, the registrants could be turnout to vote in other ways. However, such programs are unlikely to have an impact large enough to offset any possible decrease in turnout from impersonal AVR. Here we consider two different approaches, both traditional GOTV efforts and civic education programs for youth. It is uncertain whether there is extra GOTV capacity to

make enough high quality contacts with the additional hundreds thousands of new low-propensity voters in typical sized states to offset similar contacts with even larger numbers of registrants through traditional registration by family, friends, and neighbors and the self-empowerment associated with registering one's self.

Moreover, targeting these additional registrants from AVR will be extremely difficult because 1) many states don't make the means of registration publicly available in their voterfile, 2) there would not be field registrations efforts to collect phone numbers, 3) purchasing accurate lists of phone numbers for such political demographic groups is nearly impossible, and 4) this population is geographically diverse, highly mobile, and hard to catch at home. It seems really optimistic that all of these capacity and targeting problems could be solved for GOTV. However, even if these problems are solved, the impact would still be small. Here we assume some optimistic contact rates. If AVR in Oregon 2016 resulted in 144,000 additional new registrants, if one-eighth received a GOTV contacted by phone that increased their turnout by 2%, and if one-eighth received a GOTV contact at their door that increased turnout by 10%, that would increase voter turnout only an additional 2,160 voters. However, if AVR decreased turnout for the entire state by the small amount of 0.5 pp. in the average federal election, that would result in 15,000 fewer voters.

The civic education of youth faces analogous challenges. Eighteen year olds make up about 1/50th of the voting age population. If youth civic education programs increases the turnout of youth by 3%¹⁰ for a population of 80,000 eighteen year olds in which 40% are registered, that is only an increase of 960 more voters.

Both GOTV and civic education of youth are productive activities on their own. However, if AVR does reduce the social learning opportunities to become a voter, AVR might create a more challenging environment for successful GOTV. We cannot assume that GOTV and civic education can do much to overcome any shortfalls that AVR might have. Moreover, if AVR does not work as planned to increase turnout and equity, it is still likely to prove popular with existing voters and difficult to undo.

Generalizing from MVR to AVR

Although inconclusive, our review of the scholarly research into the effects of MVR on voter turnout suggests that MVR has not had a significant effect on overall turnout in the average federal election. Can this finding about opt-in MVR be generalized to Oregon-style opt-out AVR?

Opt-in MVR and Oregon-style opt-out AVR are similar in that they are both automated. They take most of the initiative and work away from registrants, but they are not identical. As discussed, some of the research suggests that opt-out will result in lower rates of participation than opt-in. However, there are other considerations. Potential AVR registrants receive a letter in the mail about becoming registered and the opportunity to opt-out, which could have its own mobilizing or demobilizing effect. However, we should expect that a substantial portion of people who are registered by Oregon-style opt-out AVR are those who would have said "No, I don't want to register" if they would have been explicitly asked to opt-in for MVR. Thus, opt-out AVR registers quite a few more people. While some of those additional people might be irritated by being registered without their permission, it is also likely that at least some of them will become more interested in voting when it gets close to their first election day.

¹⁰ With a number of different analyses of varying accuracy, Holbein and Hillygus (2016) demonstrated an association between pre-registration/civic education programs and increased youth voter turnout in Florida. We interpret a middle range estimate of the increase in voter turnout to be about 6 pp. For the sake of this discussion, we make the assumption that 3 pp. of the increase in youth voter turnout were due to registration efforts and 3 pp. were due to civic education.

Therefore, AVR probably will not perform identical to MVR. There are theoretical reasons to both expect that it will perform better than MVR and to expect that it will perform worse. If we implement AVR before we understand its strengths and weaknesses, we risk unintentionally harming the ability of our election systems to turn people out to vote and to do so equitably. This is not farfetched. Experiences learned from the problems of early voting offer a lesson.

Early Voting Analogies

There are always risks from the intended consequences of new reforms that proponents should take seriously. Burden et al. (2014) and others demonstrates how certain policy configurations of early voting had the unintended consequence of reducing voter turnout and equity through complicated interactions with other parts of society. Specifically, when early voting was implemented without same day or Election Day registration and with periods less than 45 days before Election Day these negative effects were observed (McDonald et al. 2015; Leighley and Nagler 2013). Also, early voting as a stand-alone reform is associated with a larger Republican vote share (Burden et al 2017). Burden et al. (2014) theorized that early voting had these outcomes by diluting the mobilization effects of Election Day as single event.

None of these negative impacts from early voting was intuitive to proponents at the start (Burden et al 2017). A more cautious, data-driven approach to election reform could have avoided many of these problems for many states. Instead, it took decades and the costly political mistakes of lower turnout and lower equity of those who vote to eventually learn how to make early voting more consistently work.

Further Research

Our analysis of AVR was limited by the data that we had immediately available, which was state-level aggregate data for the country. Thus, our conclusions are tentative, and three of our hypotheses remain untested for AVR. These other hypotheses are that AVR will be associated with a *decrease* turnout in midterms, a small *decrease in* turnout in the average federal election, and will be associated with an increase in the equity of those who vote in states with extreme inequality on the voting rolls.

However, better data is attainable for a fee. The Oregon Secretary of State has program-level data on who registered through MVR in 2006, 2008, 2010, and 2012 and who registered through AVR in 2016 that apparently is of good quality. The resources that are needed to conduct a more thorough analysis and to test these other hypotheses are trivial compared to the tens of millions of dollars that are being considered to mobilize support for election reform nationwide over the next few years. Moreover, the stakes for the success or failure of AVR are high.

There are additional ways that AVR could affect turnout in general elections that needs to be researched. About two-thirds of non-AVR registrants choose a political party affiliation, and this allows them to vote in primary elections. However, only about one in eight AVR registrants choose a political party. After number of election cycles, it seems that the number of voters eligible to participate in primary elections will plummet without a significant intervention. Since voting is habit forming, how will substantially lower primary election turnout affect turnout in general elections? Presidential years? Midterms?

Conclusion

Statistical significance is not the main issue. It is impossible to gain an adequate understanding of how a new policy such as AVR will affect turnout and equity in the average federal election based on data from just one state and election year regardless of whether results are statistically significant or

not. There are too many subtle variations among states and in different election years that can shape how a policy affects turnout. Claims that AVR will or will not work in other states in the future because of what we learned from Oregon in 2016 are overreaching the evidence. Taking policy action based on such claims is risky. This is especially true given the past research on MVR and on opt-in vs opt-out in non-electoral contexts. It is perhaps easy for those six sentences to get lost in a 31 page paper, but they comprise our main conclusion. The rest of the paper merely elaborates.

There are long-term structural problems within the electoral system and society that contribute to the low voter turnout of disadvantaged groups. AVR aims to fundamentally restructure the way people register to vote in the foreseeable future, and the stakes are high. If AVR increases turnout and decreases inequalities in the electoral process, it would strengthen democracy and increase the political advantage of the progressive movement. However, if it is implemented nationwide and has little or no effect on turnout and equity, then tens of millions of dollars, volunteer time, and political capital would be poorly spent. In the worst case scenario even if unlikely, it could lower turnout and increase political inequality.

Based on our review of past scholarly research of MVR and the recent studies on AVR and on our own analysis of AVR, the overall evidence suggests that automating the voter registration process is not associated with an increase in turnout in the average federal election and there is a moderate or small possibility that it decreases turnout. Past academic studies of MVR are the strongest pieces of evidence for this conclusion.

This is consistent with the theory we provided, which is essentially that impersonal, automated voter registration processes are displacing more traditional, intentional, personal, and social ways of registering. These manual, more traditional ways of registering are more effective at empowering and developing mentoring and other social relationships between experienced and inexperienced voters that are important to people casting a ballot. However, in both states with a great deal of inequality on the voting rolls and elections with a high amount of saliency and campaign activity, AVR will likely be associated with increases in turnout because it removes barriers to registration near election day when low-propensity voters suddenly become interested in voting.

Thus, it is our opinion that AVR is not ready to scale up nationwide. We recommend that election reform activists wait for and analyze data from Oregon and the nine new states that recently enacted AVR for at least one or two more federal election cycles before further implementation of AVR.

Some readers will view this paper as a harsh critique of AVR. While we strongly believe that AVR will not produce the amazing increases in turnout that some proponents of it have claimed, we also believe that it does hold promise. There is still a chance that AVR will prove to be broadly useful around the country. If not, research on MVR still suggests other applications for AVRs. In states with high levels of existing inequality on the voting rolls, MVR appeared to have a positive effect on reducing the inequality of voter turnout and perhaps turnout as well. The same might be true for AVR. Even if Oregon-style AVR of new voters is found to be ineffective at increasing turnout and equity, automatic updates of existing registrants might be able to do so.

Improvement in the functioning of Democracy for disadvantaged groups is alone a good reason for election reform. In addition, we face a healthcare crisis, climate change, and a growing gap between the rich and the poor. We all know how much elections matter, and, thus, election reform matters enough to take the time to understand and implement the best possible policies.

Postscript on McGhee et al. 2017

After most sections of this paper had been written, I obtained a copy of another research study on automatic voter registration in Oregon 2016. It was conducted by Eric McGhee, Paul Gronke, Mindy Romero, and Rob Griffin, and it was presented at the 2017 Election Science, Reform, and Administration Conference, Portland, OR in the summer of that year. Using the same source of data as Chad Murphy and myself, they measured a 2.5 pp. increase in turnout in the 2016 Oregon general election that was associated with AVR controlling for other variables. They calculated a slightly lower p-value than we did, which was 0.16 and still below the liberal 90% confidence level (McGee et al. 2017). I substantially oversimplified their presentation and discussion of their results. Readers should see their paper for that.

Their study had results very similar to our own on the association between AVR and turnout. This adds a small amount of additional evidence that AVR caused a small increase in turnout in 2016 in a presidential year in the State of Oregon, which votes all by mail and already has a historically high voter turnout rate. This is evidence in the form of the methodological validity for both our analyses. Specifically, it suggests that each of our methods (e.g., modeling and statistical analysis) were competently chosen and carried out.

They did not consider any specific mechanism that could result in AVR decreasing turnout as we did, but they left it open as a theoretical possibility that they thought was remote. In the end, they concluded:

If we adopt the most agnostic position, we must conclude that the reform probably led to an increase in turnout, but not necessarily an extraordinary one.

Both McGhee et al. (2017) and our own study still have the same overall short coming. That is the problem of only one instance of AVR in a federal election to study as of now and thus not being able to well generalize our findings to other states, election years, and types of elections.

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Appendix A. Estimate of the number of additional registered individuals eligible for the 2016 Oregon general election.

The Alliance for Youth Action reported 490,347 new and updated voter registrations from both phase I and phase II AVR. However, the actual impact from AVR on the number of people who were registered in 2016 and eligible to vote in the general election was much less, because a majority of those 490,347 would have registered through other means.

To estimate the true impact of AVR on the 2016 Oregon voter registration rate, we first estimated the number that would have been on the registration rolls if AVR had not been implemented. We constructed the very simple model below. Its explanatory variable is the three-year average registration rate in Oregon in Presidential years prior to the implementation of AVR. While we believe this estimate is the best possible given the available data, we discuss the limitations of this approach below. The data we used is in Table 1 of the main paper.

$$[\text{Ave. reg. rate prior AVR}] \times [\text{2016 Eligible Voting Pop.}] = [\# \text{ of 2016 regs. without AVR}]$$

$$80.8\% \times 3,012,502 = 2,434,205$$

We calculated an estimate of 2,434,205 people who would have been registered to vote for the 2016 general election in Oregon in the absence of AVR. After the implementation of AVR, the actual number of registered voters who were eligible to vote in the 2016 general election in Oregon was 2,577,717. We then subtracted 2,434,205 from 2,577,717 to obtain our estimate of 144,000 rounded to the thousandths. Using the registration rate in 2004, we also calculate a lower end estimate of 44,000 and an upper end estimate of 233,000 using the 2012 registration rate.

Also, as discussed in the body of the paper, the impact on registration rates from the current version of AVR in future years will be less than 144,000. This is because only phase I of AVR will be used after 2016.

Ideally, we would have used a multivariate regression model and data set similar to what we used to estimate the effect of AVR on overall voter turnout using data from all 50 states controlling for other state, individual, and election variables. We explored the possibility of conducting such an analysis with data from the U.S. Election Assistance Commission, but we determined the accuracy of that data on voter registrations from years 2004 to 2016 was insufficient. Within States, the numbers from individual counties were often missing. Also, the number of registered voters sometimes inexplicably doubles between election cycles for states, and some states report more registered voters than the size of their voting eligible population. CPS registration data might be a viable option for future analysis. Because we were unable to use a multivariate model to estimate the number of registrations in Oregon if AVR had not been implemented, our analysis should be treated cautiously. However, we still believe it is an improvement over estimates of the impact of AVR in many other studies.

Appendix B: Voter Turnout Numbers for Oregon 2012 and 2016

Table 6. Total ballots cast among the total population of 18 to 29 year olds in Oregon for the 2012 and 2016 general election.

Oregon 18 to 29 year olds	2012	2016	Change
Number of 18 to 29-year olds who voted*	245,876	291,864	45,988
Population of 18 to 29-year olds	624,264	643,861	19,597
% turnout	39.40%	45.30%	5.9 pp.

*Data from Nicholas Kramer (n.d.) of the Office of the Oregon Secretary of State.

**Population Research Center (2017).

Table 7. Total ballots cast among the total population of 30+ olds in Oregon for the 2012 and 2016 general election.

Oregon 30+ year olds	2012	2016	Change
Number of 30+ year olds who voted	1,574,635	1,759,588	184,953
Population of 30+ year olds	2,393,963	2,562,470	168,507
% turnout	65.8%	68.7%	2.9 pp.

*Data from Nicholas Kramer (n.d.) of the Office of the Oregon Secretary of State.

**Population Research Center (2017).

Table 8. Total ballots cast among the total voting age population in Oregon for the 2012 and 2016 general election.¹¹

Total Voting Age Population	2012	2016	Change
Number who voted	1,820,511	2,051,452	230,941
Total voting age population	3,018,227	3,206,331	188,104
% turnout	60.3%	64.0%	3.7%

*Data from Nicholas Kramer (n.d.) of the Office of the Oregon Secretary of State.

**Population Research Center (2017).

Table 9. Total number of votes for highest office as a percentage of the total voting eligible population in Oregon for the 2012 and 2016 general election.*

Total Voting Eligible Population	2012	2016	Change
Number who cast ballot for highest office*	1,789,270	2,001,336	212,066
Total voting eligible population*	2,836,101	3,012,502	176,401
% turnout	63.1%	66.4%	3.3%

**McDonald (2017).

¹¹ Our estimate of the turnout rate in Table 8 differs from the turnout rate at the U.S. Elections Project because McDonald (2017) used estimates of the Oregon population for October of each year while Population Research Center's (2017) data was for July.

Appendix C. Analysis of the group with a “low probability of registering” as defined by the Center for American Progress.

The Center for American Progress stated that there were 116,000 people registered to vote through AVR in 2016 that had a “low probability of registering themselves” if AVR had not been implemented, and 40,000 of them voted. Specifically, the Center was referring to people who 1) “were not registered for the 2008, 2010, 2012, or 2014 elections,” 2) but “were old enough that they could have been registered and voted since 2008” (anyone 26 years and older), and 3) “did not return their registration postcard” after an eligible DMV transaction and were automatically registered (Griffin et al. 2017).

To examine the merits of that claim by the Center for American Progress, we constructed a non-AVR control group using a population in Spokane County, WA, to compare to an AVR group that we constructed from a population in the State of Oregon. To make the two groups as comparable as possible, we defined the groups as follows: we defined the AVR population as those who 1) had one or more eligible Oregon DMV transactions in either 2014, 2015, or 2016 and 2) was 18 years or older on election day 2008 (approximately 26 years or older by election day 2016).

We constructed the control group from the population of Spokane County, Washington. We chose Spokane County for convenience reasons and also because the County did not have AVR in 2016 and both Oregon and Spokane County are similar in many regards. While not perfectly comparable (as discussed below), they are still useful to compare.

Both the State of Oregon and Spokane County 1) are part of the Pacific Northwest, 2) are all vote-by-mail, and 3) had comparable percentages of minorities¹² in 2015 (22.8% in Oregon and 15.0% in Spokane County, U.S. Census Bureau 2017). However, Spokane County is more politically conservative than Oregon. We defined the non-AVR control group as those in Spokane County who were old enough to have registered in 2008.

The numbers of interest for both the AVR and non-AVR control groups are those who registered and those who voted. These rates are in Table 3 in the body of this paper. The voter turnout numbers for both the AVR and the non-AVR control group were essentially identical. Both voted at a rate of 4.2% rounded to the tenths of a percent.

However, we should be careful about drawing conclusions from this. The numbers in Table 4 are not accurate enough to precisely determine whether the AVR or non-AVR system produced more new voters for this sub-population. *The most we can conclude is that it was likely incorrect for the Center for American Progress to state that it was unlikely for members of this subpopulation (old enough to register in 2008 but not registered in 2008, 2010, 2012, or 2014) to have registered and voted in the 2016 general election if not for AVR.*

The reasons to be cautious include the following. First, members of the AVR and non-AVR groups were not randomly assigned, and, thus, we cannot be sure that the AVR and the non-AVR populations were identical except for the presence of AVR. For example, the Oregon AVR treatment group was derived from DMV transactions and the Spokane non-AVR group was drawn from the general population of the state voterfile. Thus, the non-AVR control group likely has a lower registration and voting rate because it was constructed from the general population instead of just those with DMV transactions. We suspect this is because of one main reason. People that are more affluent are more likely to own cars and can afford to keep their IDs up to date (Berube et al. 2006) and thus have access to voter registration through the he DMV MVR. These affluent people are also more likely to be registered and to vote (U.S. Census Bureau 2012). This probably deflated the voting rates of the

¹² This was defined as people of color (Black, Asian, Native American, etc.) and/or individuals of Hispanic origins.

control non-AVR group from the general population and created a bias towards finding higher rates in the AVR group constructed from those who had DMV transactions.

Second, for both groups, we made assumptions to calculate the number of 26 years and older population. These assumptions are good enough to make reasonable estimates, but they likely introduced small errors into our estimates of the registration and turnout rates.