Interstate Voter Registration Database Matching: The Oregon-Washington 2008 Pilot Project

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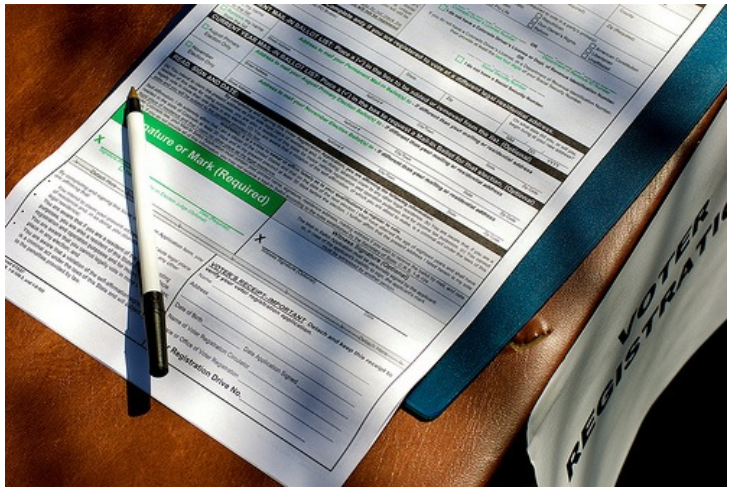
Voter Registration

- Used in the United States (and many countries) to ensure that only eligible voters vote.
- Voter registration databases (VRDs) are a cornerstone of the electoral process.



Help America Vote Act (HAVA)

- Requires VRDs at the state level:

  "each State … shall implement … a single, uniform, official, centralized, interactive computerized statewide voter registration list defined, maintained, and administered at the State level that contains the name and registration information of every legally registered voter in the State"

- Was previously done on the county level.
- Initially passed in 2002, but deadline for compliance extended to 2006.
- Most states have now complied.

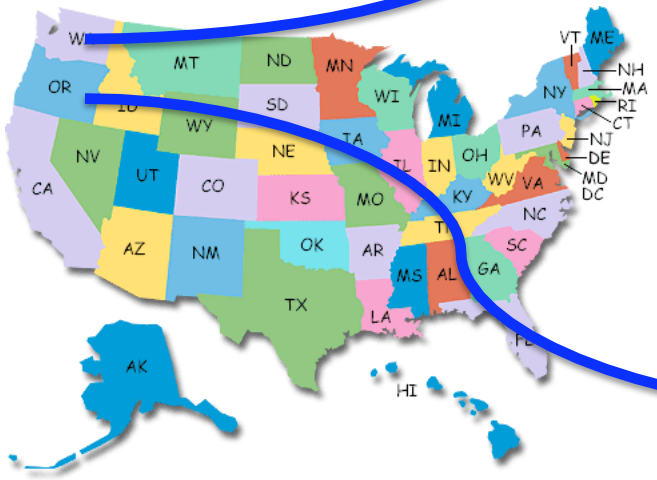
The Role of VRD Matching

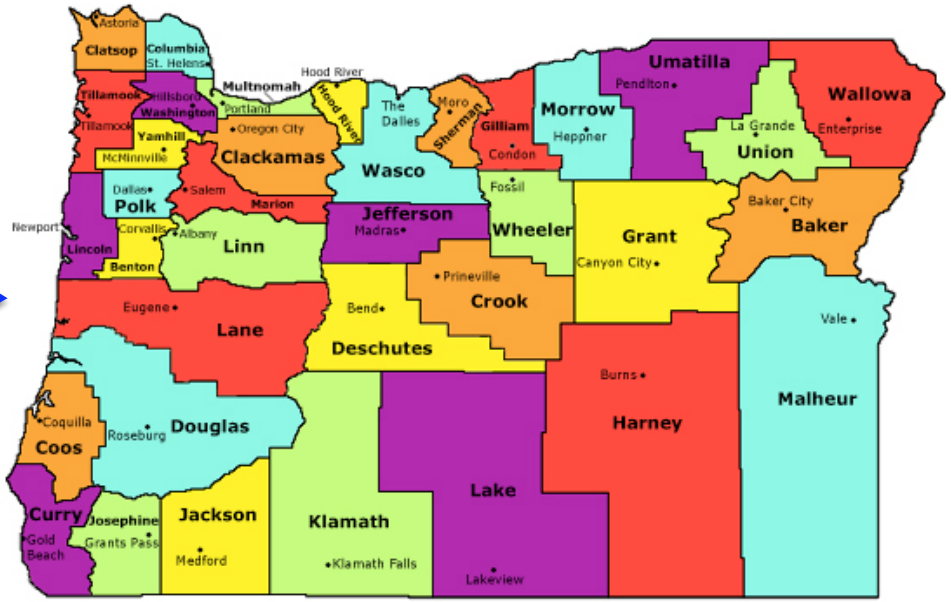
- Newly registered voters in a state must be added to the state's VRD.
- Later registrations in the same state (e.g., due to moves, change of party) should be matched to the existing record in that state's VRD and that record updated.
- HAVA requires use of identifiers such as a state drivers license number or last four digits of the social security number.
- Difficulties when a voter moves states:
  - No HAVA-mandated matching.
  - No access to other state's drivers license numbers.
  - Voters rarely explicitly cancel their old registrations.
- A group of Midwest states have begun matching across states, since 2005. They use a complete match on full name and date of birth. Limited information is publicly available.

Oregon/Washington Project

- Initial idea came from an informal conversation at a meeting of the National Academies Committee on State Voter Registration Databases:
  - Question: *How hard is it to do interstate matching? Are complicated legal and technical arrangements necessary? Or could we just do it?*
- Based on this, election officials in Oregon and Washington decided in August 2008 to move forward on a VRD matching project with help and oversight from us.
- It was deemed important from the start to be open and transparent about the process.

Oregon/ Washington Project





Election Officials Involved

- Oregon: Dave Franks, Ericka Haas, John Lindback.

- Washington: Katie Blinn, Shane Hamlin, Nick Handy, Tim Likness, Paul Miller, David Motz, Randy Newton.

- County election officials also became involved.

Initial Matching

- Decided to use for matching only name and date-of-birth fields, information that is available in the publicly available voter registration files.
- In August 2008, the Oregon Secretary of State's Office received Washington's VRD records and carried out an initial matching.
- Only minor formatting of date-of-birth field was needed.
- On an iMac, the initial matching took 90 minutes of preprocessing (a file merge) and 50 minutes for the actual matching.

Matching Results

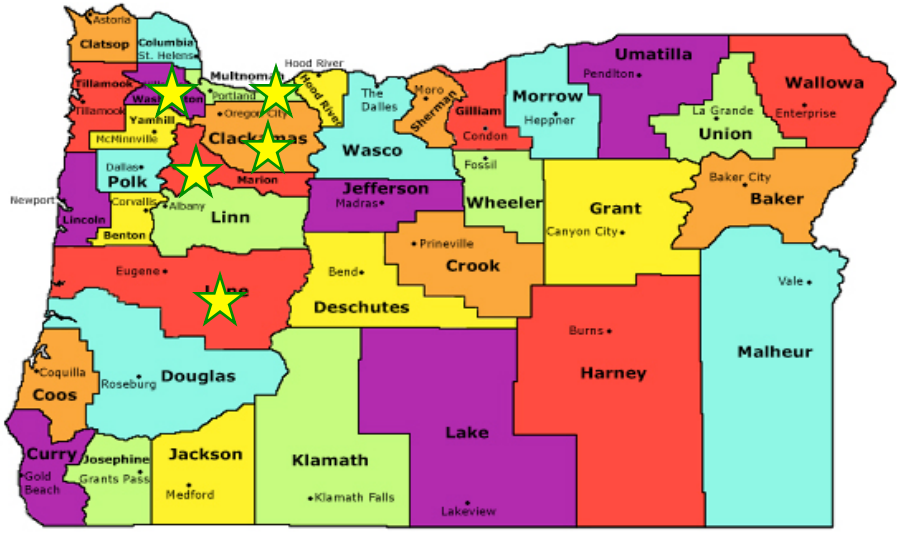
- Matching was carried out two ways: First, requiring an exact match of full name and birth date. Second with middle initial only.

August 2008 Matching		
Oregon	2,053,444 records	280MB
Washington	3,407,596 records	465MB
Match on full name, DOB	3,482 matches found	0.064%
Match on first, last, MI, DOB	8,292 matches found	0.152%

- From these results, it was decided to use middle initial only.

Top County Matches: Oregon

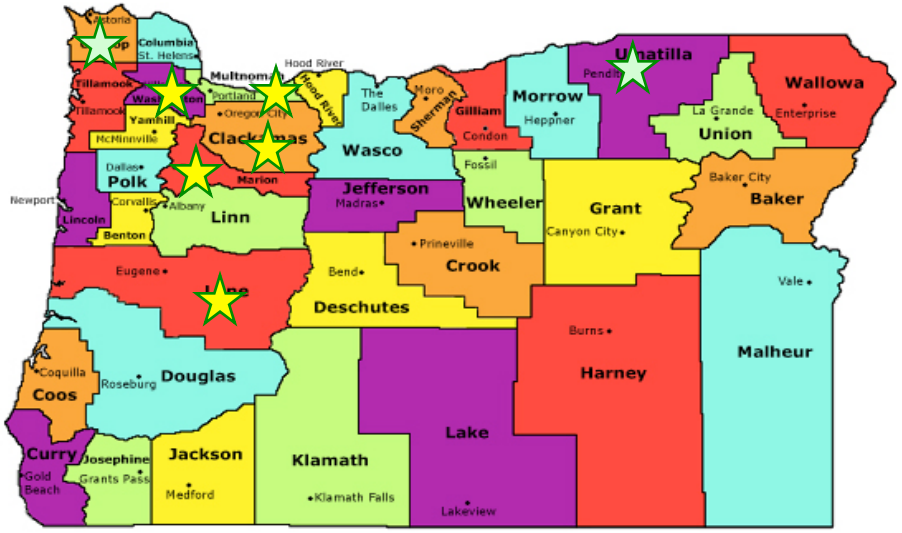
County	Matches	Registrations	Match %
Multnomah	2,717	422,336	0.64
Washington	1,058	266,523	0.40
Clackamas	876	220,448	0.40
Lane	537	204,976	0.26
Marion	380	147,849	0.26



Top County Matches: Oregon

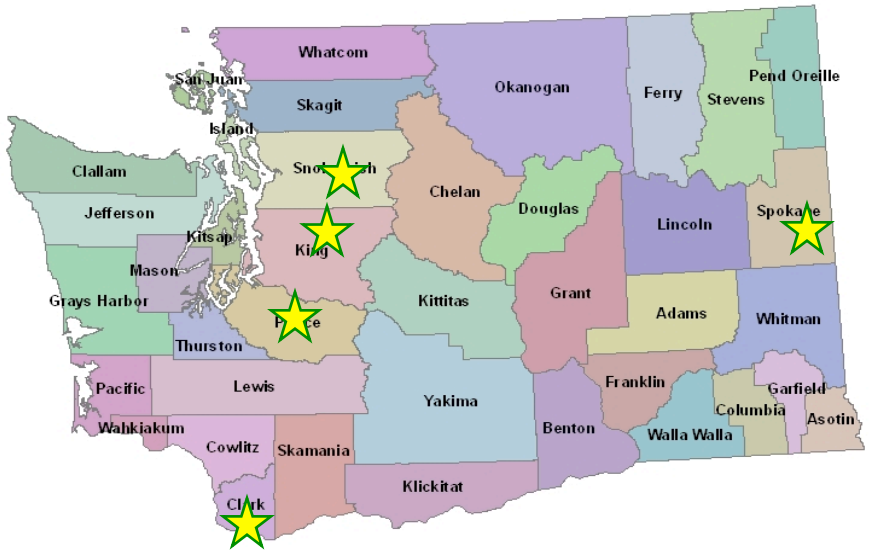
Some less populated border counties had a high percentage of matches:

Umatilla	228	31,762	0.72
Clatsop	133	21,503	0.62



Top County Matches: Washington

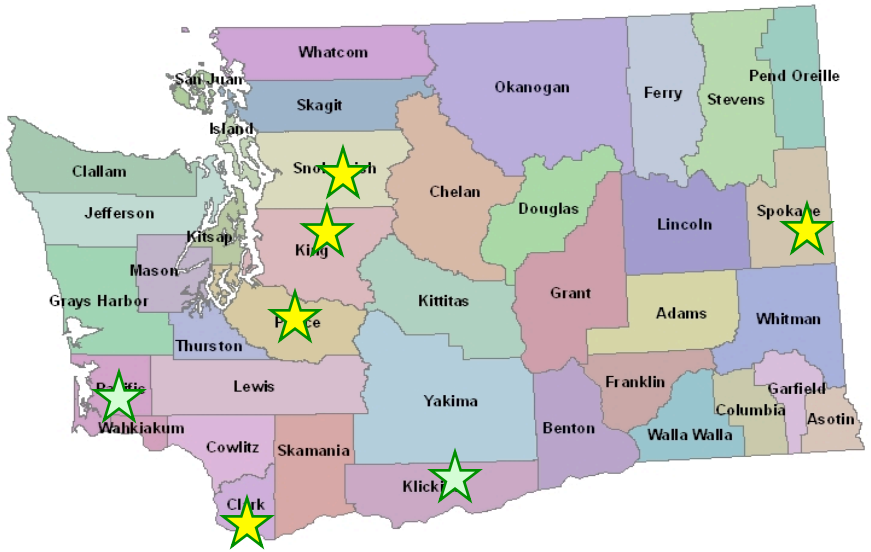
County	Matches	Registrations	Match %
King	2,774	1,108,128	0.25
Clark	1,765	216,508	0.82
Pierce	534	411,103	0.13
Snohomish	348	372,636	0.09
Spokane	334	258,952	0.13



Top County Matches: Washington

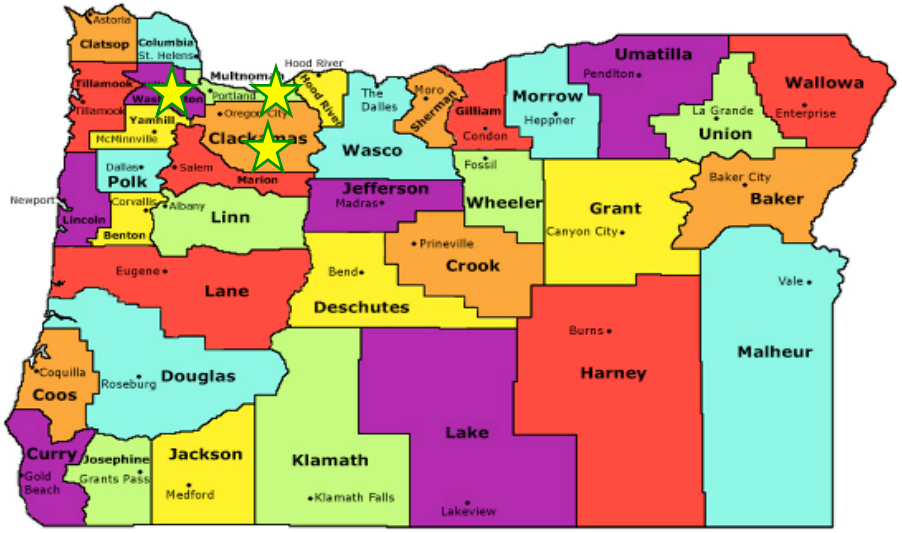
Again, some less populated counties near the border had a higher percentage of matches:

★	Klickitat	155	121,171	1.27
	Pacific	88	13,052	0.67



Top Matching County Pairs

Oregon County	Washington County	Matches
Multnomah	King	991
Multnomah	Clark	790
Washington	King	398
Clackamas	Clark	302
Washington	Clark	244
Clackamas	King	235



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Follow up for resolution of matches was done with matches between Clackamas, Multnomah, and Washington Counties in Oregon and Clark County in Washington.

Pilot Project

- Reduced risk as compared to larger deployment.
- Fine-tuning of procedures before a larger deployment.
- Focus on counties with both geographic proximity and a large number of matches.

Resolution Process

- Attempt to confirm some of these potential matches as actual matches.
- No voter registrations were cancelled without a confirmation from the voter.
- Normal county/state cancellation procedures were followed.

Letters Sent

- For each potential match, a letter was sent to the less recent address, from that state.
  - For example:

Andrea	R.	Johnson	05/22/1975	Reg date: 8/15/2005	Clark (WA)
Andrea	R.	Johnson	05/22/1975	Reg date: 6/25/2007	Multnomah (OR)

  - In this case, a letter would have been sent by Washington to the Washington address.

Washington
Secretary of State
SAM REED

520 Union Avenue
PO Box 40229
Olympia, WA 98504-0229
Tel: 360.902.4180
Fax 360.664.4619
www.secstate.wa.gov

October 8, 2008

Dear Registered Voter,

A routine check of our state voter list and the state of Oregon's voter list has indicated that you may be registered to vote in two different states. Your most recent date of registration appears to be in the state of Oregon. That address may be a previous residence for you, or it might be that of another properly registered voter. It might even have resulted from a clerical error.

If you are certain that you have never registered to vote in Washington, you do not need to do anything and may disregard this notice. If, however, you think you may have an old voter registration record in Washington State, I encourage you to voluntarily cancel that voter registration by completing the bottom section of this letter and returning it in the enclosed, postage-paid envelope.

If you are not sure or would like more information, please contact Dave Motz, Voter Services Manager, by calling (360) 725-5786 or by email (dmotz@secstate.wa.gov).

Sincerely,

Voter Registration Services
Elections Division, Office of the Washington State Secretary of State

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Please cancel any invalid voter registration listed under my name at:

_____ _____ _____
(Previous Washington residence address) (Previous WA city) (ZIP Code)

_____ _____ _____
(First name) (Middle name) (Last name)

_____ _____
(Signature) (Today's Date)

Note: The signature you submit on this form will be compared to the signature on the registration record in question before it is cancelled. The same safeguards created for voter registration applications bearing voters' signatures will be used when processing this form.

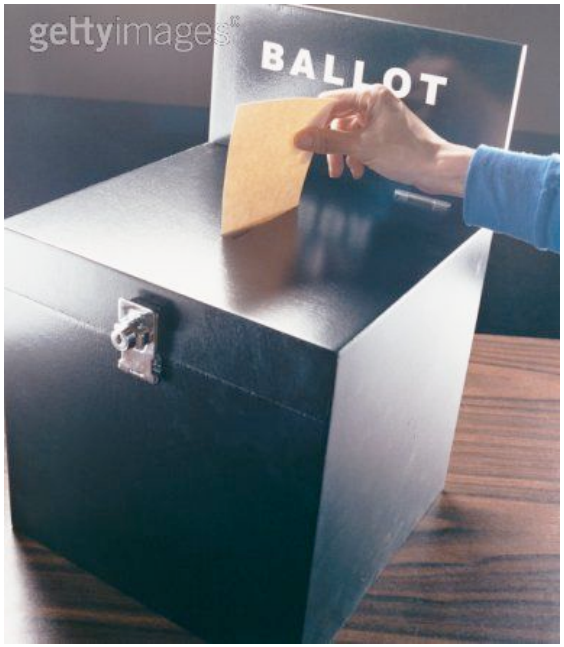
Results

	Oregon	Washington
Total Mailed	686	626
Delivered	650	599
Response received	391	362
Response rate of delivered	60%	60%
Cancellations	379	352
Unresolved responses	12	8 (+2)

- 96% of the letters were not returned as undeliverable.
- 59% of those delivered resulted in cancellations.
- 20 returned responses did not have enough information to process the cancellation.
- Two responses sent to Washington were for Oregon and were sent to Oregon for further processing.

Possible Double Voting?

- The potential matches were examined by county officials to determine if possible double voting might have occurred.
- There were 12 matches that election official felt might have represented a double voter in both Washington and Oregon in prior elections, but it was too far in the past to determine.
- Of these 12:
  - Six returned a form requesting cancellation.
  - Another voted in Oregon but not in Washington in the 2008 election (even though the most recent registration date was in Washington).
  - Additional cases are being investigated.



False positives and negatives

- Study design does not provide good insight into false positive and false negative rates.
  - Effectively assumes positives are false without action by voter.
- Voters were not given an opportunity to identify and document false positives.
- Possibly other methods might be helpful:
  - manual follow up by a human (expensive, possibly intrusive).
  - Use of secondary data sources.
- Almost certainly false negatives resulted from the stringent matching criteria used.
  - Particularly for people intentionally trying to register twice.

False positives and negatives, cont'd.

- The literature is rich with more sophisticated matching algorithms that could be used.
- Inevitably, there will always be some false positives, so voter verification and notification is critical.

Alternate Matching Procedures

- A number of alternatives can identify more potential matches, as well as disambiguate potential matches without requiring voter involvement:
  - Name roots, name transliteration, name order and transposition, typo-aware name closeness testing (Soundex technique, Jaro-Winkler method).
  - Date of birth closeness, transposition, and testing for use of current year.
  - Use of additional fields if available (especially last four digits of social security number).
  - Use of third-party data (public record or commercial).
  - Automated signature analysis.
- We did explore some fuzzy matching techniques, using partial name matches and different weights to different fields. (See paper for details.)

Future Directions

- Oregon and Washington plan to expand the project to all counties in both states.
- Could be expanded to include other states.
- Plans should be developed for:
  - follow up with undeliverable mailings.
  - procedures to mark records as explicit nonmatches with other records to avoid repeated contact to the same properly registered voters.
  - more intensive follow-up of at least a sample of voters to better determine false positive and negative rates.
  - Identifying and responding to any possible voter confusion or annoyance the project may cause.

Conclusion

- The Oregon-Washington project gave election officials in both states hands-on experience with VRD matching with a neighboring state.
- It resulted in some cleaning of the VRDs in the participating counties.
- Starting with a small-scale project and interacting with us on the project allowed the election officials to gain experience, build confidence, and evaluate risks and benefits before considering expansion to a larger scale matching project.

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