

Rethinking Secret Ballots in the Age of the Internet

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History of Ballot Secrecy

- Previous balloting by voice or party ballots
- First adopted in Victoria, Australia, in 1856, later in Britain (1872) and various U.S. states, broadly and rapidly supported by incumbent legislators (see Heckelman, 2002)
- Immediate effect: reduced turnout
- Possible explanations for reduced turnout: vote market and disenfranchisement hypotheses (Heckelman, 2000)

Levels of Ballot Secrecy

- Untraceable – no one can know how an individual's vote is recorded in the tally
- Unshareable – only the voter can know
- Shareable – initially only the voter knows, but can voluntarily share this information with others
- Auditable – independent authorities can trace the votes of individuals

Two additional properties

- Voter-verifiable – each voter can verify (instead of having to trust) how their vote was counted in the tally (slightly stronger than unshareable)
- Transparent – voter-verifiable plus universally auditable

Some voting schemes

- Touch screen plus paper ballots (Mercuri, 2000; Schneier, 2000) – untraceable
- Encryption, bulletin board, and multiple points of authority (Cramer et al. 1996) – shareable
- Receipt free encryption (Benaloh & Tuinstra, 1994) – unshareable but not voter verifiable

Some voting schemes (cont.)

- Encryption and split receipts (Chaum, 2002)
- Encryption with verifiable ballot stamping (Peralta, 2002)

Internet and touchscreen voting

- California commission (2000)
- Diebold scandal in the U.S. (2004)
- Opinions of computer security experts who oppose paperless voting

Criteria for an Election

- Accuracy – all votes cast are accurately recorded
- Legitimacy – all recorded votes are legitimately cast
- Noncoerceability – no one's vote is obtained through bribery or threats

Claim: No election scheme can satisfy all three criteria

Outline argument

Noncoerceability requires unshareability

Accuracy requires voter verifiability

Legitimacy requires auditability

Auditability is inconsistent with unshareability

Claim: Noncoerceability is dispensable

Claim: Accuracy and legitimacy require
transparency => open (not secret) voting

Effects of secret ballot

Secret ballot must be at least unshareable to be effective against coercion

Many potential disadvantages, however:

- Undermines accountability of voters for their choices
- Discards information that might assist voters with their decisions
- Reinforces a norm of apathy

Effects of ballot secrecy (cont.)

- Discourages voting by reducing the consequences of participation
- Encourages a view of voting as an individual choice rather than as a social act
- Reduces the possibility for cooperation across issues, logrolling that may improve overall welfare
- Incumbency protection, party breakdown

Effect of switch to open voting

Gains from vote trading

- + Value of increased turnout
- + Value of accurate and legitimate counts
- + Intangible benefits (effect on social capital, etc.)
- Disvalue of increased coercion
- Intangible costs